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Massey University

**Making milking bodies in the Manawatu.
Assembling “good cow”-“good farmer” relationships
in productionist dairy farming.**

A dissertation presented in fulfilment of the requirements for the degree of Master of Arts in Social Anthropology at Massey University, Palmerston North New Zealand.

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2015

Acknowledgements

This thesis has been cared for and crafted by many important people and animals in my life. Without you all this research would not have been possible.

To my supervisors, Dr Carolyn Morris and Dr Trisia Farrelly, thank you for your academic guidance and support throughout this research. Thank you for encouraging me to challenge my assumptions about the world I live in and for encouraging me to be adventurous in my academic writing. In particular, I would like to extend my deepest gratitude for your care and enthusiasm for my work, and for your faith in my abilities as an anthropologist. I am inspired by you both, and am forever grateful.

To my mother Jocelyn, your words of encouragement have seen me through my most trying days. I can never repay your kindness, but I strive every day to emanate your selflessness as I do my best to become a woman as strong and caring as you are. To my family, Trevor, John, Shirley, Philippa, Daniella, Amanda, Derek and Fiona, your love and support has made this research possible. To my friends, thank you for your kind words and acts of support. I look forward to repaying your selfless kindness in the future as I support you in the pursuit of your own dreams. To Ralph, Kristelle and Casey, I am especially grateful for your help seeing this thesis through to its completion.

This thesis would have not been possible without the love and support of my best friend. George, your persistent enthusiasm knows no bounds, and its intoxicating effects remind me that our adventure together is limitless. Thank you for listening, engaging and always encouraging me to think outside the box. May our journey together continue.

To Ollie, the little cat who stole my heart many years ago. Thank you for sitting with me during the gruelling task of writing this thesis, and for being the best chair thief I know. You have been an amazing source of inspiration and continual comfort. My chair will always be yours.

Finally, I would like to extend my gratitude to the three farmers who participated in this research. Thank you for your willingness and enthusiasm in sharing your lives as dairy farmers with me. I would also like to thank the many cows who I met, worked with, and came to care for during this research. Although this offer of thanks will never be transpired to you, this research is a dedication to your hard working, creative and meaningful lives.

Abstract

This research traces the material and social relations of dairy cows and dairy farmers in productionist dairy farming. Life story interviews and participant observation on dairy farms reveal how dairy cow/dairy farmer relationships take diverse forms in response to competing demands in productionist dairy farming. Seeking ways of understanding the complexities inherent in dairy cow/dairy farmer relationships, I enrolled dairy cows as ethnographic research participants. Embodied, sensory and empathic participant observation methods led to understandings of how humanimal relationships form across species boundaries. My research findings suggest that deeply embedded cultural narratives of what it means to be a “good farmer” may conflict with the multiplicity of “good cow” identities. Dairy cows create tension for dairy farmers: dairy farmers work with dairy cows as production machines; but also care for dairy cows as co-workers. This ethnographic humanimal research highlights how dairy cows and dairy farmers are not fixed as “good” or “bad”. Rather, through an anthropological appropriation of Actor Network Theory, this research highlights how dairy cow/dairy farmer networks form and reform (in part) through unintentional and intentional dairy cow agency.

Keywords: dairy cows, dairy farmers, New Zealand agriculture, production(ism), humanimal, Actor-Network-Theory.

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Preface

“Novels are ends in themselves, worth reading in their own right. Academic writings are means to other ends” (Law, 2004, p. 11). In academic writing, where the journey is hastily and mechanically assembled for the purpose of delivering readers to a destination, a conclusion, or a discussion “[t]he textures along the way, the actual writing” becomes subordinate to such ends (ibid). John Law (2004) suggests an alternative mode of academic writing, one that embraces the journey of what writing can offer the writer and the readers. This is an academic writing of creativity, and most importantly, imagination (p. 12). In this creative writing, the textures of the journey are illuminated by the fabric of discovery found in storytelling. Layers upon layers of narrative are built: some humorous, others playful and some encapsulating more serious tones all in the pursuit of not simply getting to the end, but of enjoying the journey just as much.

At the outset of this thesis it was a very clear intention of mine to enjoy the journey. The whole journey. This, of course, included a lot of writing. “One of the main things anthropologists do is write” (Geertz in Abu-Lughod, 1991, p. 149) and I saw no reason to make this a mechanical process. Rather, I vowed to find a means to let my passion for anthropology walk hand in hand with my imagination and creativity. What began to unfold upon the pages of my drafts were creative writings, telling the stories of animals as theories and of literature as embodied histories. In pursuing this unconventional style of presenting academic writing I found myself not just enduring the process of writing a thesis in order to reach the submission date. Instead, I found happiness, I struggle for a better word, but happiness can be rare and I feel lucky to have found it during a difficult and draining task.

By not feeling restricted in creating a thesis that followed all the rules of normative structure and narrative style, I have been inspired by nursery rhymes, fables, legends and fantasy. During many late nights on my computer, while searching for inspiration, I would often fondly remember the gusto with which my nana recited our favourite nursery rhymes to my sisters and I. Nana would pull faces, take dramatic deep breaths followed by hair raising pauses as she rhythmically detailed the fate of Jack and Jill, the Queen of Hearts and poor old Humpty Dumpty. I particularly enjoyed all the diverse characters, human and nonhuman alike who would come to life through the written word and Nana's unique style of storytelling.

This thesis, amidst its academic pursuits, is also a journey of creative writing and of storytelling. Cows are naturally playful, clever and caring beings and through creative writing this thesis serves to share my deep seated recognition that although they do not speak in a similar tongue, they are still beings of this world that deserve to have their story told. It is my intention in this thesis to share with you the lives of dairy cows, and their lives with the dairy farmers who work and live with them. Finally, I hope that in reading this thesis, you can let your imagination wander a little and ponder the idea that although a cow cannot jump over the moon, it does not mean she might not dream to.

Chapter One: Introducing Humanimal Relationships

Currently, New Zealand dairy culture is driven predominately, but not exclusively by the “productionist paradigm of more is better” (Fisher & Mellor, 2008, p. 100). This focus has resulted in a large body of research on the economic and political constructions of contemporary farmer subjectivity (for example, Burton, 2004; MacLeod & Moller, 2006; Wilkie, 2005). However, genuine engagement into how the lives of dairy cows, as sentient animals, are entangled with farmers in dairy culture remains a topic less examined. In response, this research explores the embodied, emotional and intersubjective relationships of productionist dairy cows and dairy farmers. Located in the densely dairy farmed region of the Manawatu in the lower North Island of New Zealand, dairy cow/dairy farmer networks are made visible through this anthropological inquiry into humanimal relationships.

Humanimal anthropology

Anthropological research with animals has historically operated “with an eye toward better understanding humans” (Mullins, 2002, p. 390), for the reasons that non-human

animals are messy – not only, at times, in the literal sense, but also as a concept. We are part of the ‘animal kingdom’, yet distance ourselves in modernity from ‘other animals’. Sometimes we might think of a wide range of animal types; at other times, the word makes us think primarily of mammals, the ones with bodies most similar to ourselves (Birke, 2012, p. 168).

In response, humanimal research is emerging in pursuit of understanding how relationships are formed between non-human animals and human animals in particular contexts. Further, humanimal research seeks to understand how human-animal relationships form in different ways because of the conflicting interests, and perspectives of varying actors (Mullins, 2002, p. 390). In an overview of animal studies in anthropology, Molly Mullins (2002) argues that humanimal anthropological inquiries “emphasize the historical, contextual specificity of any particular human-animal relationship and of how categories, including those of ‘human’ and ‘animal’, are not inevitable or universal” (p. 390). Domesticated dairy cows’ shared history with humans is enduring, and in New Zealand, their products dominate local and global markets (Leipins, 2000, p. 609). However, their lives are often overlooked in favour of exotic, endangered and domesticated non-production animals whose lives are considered less ordinary than that of dairy cows. Drawing on humanimal research, I focus this research project on the more mundane aspects of productionist dairy farming to explore how the shared experiences of dairy cows and dairy farmers are heterogeneously entangled.

I share my life with animals. I have pets, and I also consume animal products as food.

Making sense of how to share my life with animals is difficult as tension between the animals I love, and the animals I use to sustain my life often arise. Having grown up on a Manawatu dairy farm, and reflecting on my lifelong humanimal engagement with dairy cows in this research project has offered me some clarity on the conflict I often feel between animal as pets, and animal as food producers. Similar to many children who have grown up on dairy farms in New Zealand, I was introduced to calves (young dairy cows), at a very young age. Reflecting on my childhood relationships with my pet calves, in combination with conducting anthropological research at home in the Manawatu on dairy farms, I have come to see how

[u]nderstanding the dairy cow is a matter of heart and mind. It is essential to examine her scientifically as a complex and elegant machine for the production of milk, the nearest thing in nature to a complete food. It is equally essential to recognise her as a sentient (and highly engaging) creature with rights to a reasonable standard of living and a gentle death. In both senses of the word this understanding is not static (Webster, 1987, p. 4).

I agree with Webster's (1987) argument that dairy cows deserve a good life, and a gentle death. However, I must clarify here that this research is not an animal rights thesis. As such, I do not directly address dairy cow welfare in New Zealand. Nonetheless, I do contend that any research undertaken to better understand the marginally explored social lives of farmed animals provides a much needed contextualised opportunity to consider the ramifications of using animals, such as dairy cows, for food production. Hence, while I do not specifically engage in conversations of animal rights, this research in its entirety provides a platform from which genuine engagement with current concerns for farmed animals, in particular dairy cows, can be entered into.

Writing about cows

Understanding dairy cow/dairy farmer networks requires personal writings on humanimal relationships as this “allows for the blending of experience and observation, complete with emotion and reason” (Harbolt, 2003, p. 19). Writing *about* animals can then also be writing *for* animals. Tami Harbolt (2003), writing on her personal experiences of researching the cultural constructions of shelter animals explains:

I may not always be able to speak for (nonhuman) animals, but I can speak as one of those culturally designated as one who speaks for animals. I cannot become another animal, therefore I can never truly go native, but I can explore the closest spaces between us. In the process, I will explore the most striking similarities we possess and the differences that keep us forever on contrasting sides of the species boundary (p. 19).

In exploring some of the closest spaces between dairy cows and dairy farmers as an anthropologist, I acknowledge that I cannot be a dairy cow. I am therefore limited to writing about others' understandings of dairy cows. However, as Harbolt (2003) suggests, I can draw on my own experiences of humanimal engagement, and through reflection begin to blend experiences from each side of the human animal – non-human animal divide. Present in the inter- and multi-disciplinary research of the 'animal turn' is a new licence for "scholars in the humanities and social sciences to speak with authority about aspects of the so-called 'natural world'" (Armstrong & Simmons, 2007, p. 1). My participation in humanimal relationships began with calves. Writing about these memories clarified why I find dairy cow/dairy farmer relationships interesting, and a fascinating topic for anthropological research.

Angelica and Lavender

When I was five years old, I was taken to a small paddock where two young calves were bouncing and playing together. Here, my parents introduced me to my pet calf. Although I had not met this calf prior, I remember being very excited to have a calf of my own to take care of. The other calf in the paddock was given to my big sister. Together after school, my sister and I fed our calves, brushed their coats and taught them to walk next to us in calf halters. My calf did not like to have her halter put on and would often run away from me as I

attempted to restrain her. Because she was a mischievous calf, I named her Angelica after a naughty monkey character in our school play. I now have few memories of my time training Angelica. However, as we walked the short distance from our dairy farm to my primary school for the annual calf and lamb day, I do remember feeling excited to show off Angelica to my school friends. I also remember feeling very nervous about competing in my very first calf and lamb day competition.

Calf and lamb day involves three events: leading, grooming and breeding which are judged by a local dairy expert, professional or farmer. During the calf leading section of the competition the wind began to blow as I lead Angelica around the competition ring. As the wind picked up the hessian sacking surrounding the competition ring moved violently, making loud noises. Almost immediately, Angelica became unsettled by her surroundings. Before I knew what was happening Angelica took off with a jump and ran around the ring. Around and around the ring she ran while many parents came running to stop her. This made Angelica run faster, zigzagging in all directions. While Angelica ran in terror, I held on tightly to her lead and dragged behind her like a limp puppet on a string. Finally, Angelica was cornered and calmed. I do not remember being injured in the incident. However, I do remember my parents attempting to take the lead from me so that they could control Angelica. Fearing she would be taken away from me, I tightened my grip on her lead and found a quiet corner to sit down with her until she settled. For the remainder of the day I held onto Angelica's lead, fearing we would be separated because she had been a "bad calf".

The image below (figure 1.) is of me and Angelica after she had dragged me around the ring. Together, we received a highly commended ribbon for our unsuccessful attempt in the leading competition. Reminiscing over this photo, it is obvious that the hessian sacking is

billowing in the wind and Angelica's attention is drawn to it. While Angelica is focused on the hessian sacking, I am focused on her, still attempting to calm her as I ignored my parents' pleas to 'smile for the camera'. I still fear to this day that Angelica was emotionally harmed from the frightening experience.



Figure 1. Angelica and I after receiving our highly commended ribbon

When we returned home to our dairy farm later that day, Angelica was released into the paddock with the other calves my parents were raising to be milked as production cows when mature. Reflecting on this experience, I became uncomfortable knowing that Angelica had been taken from her herd as a very young calf to be my pet. When Angelica was no longer useful as a pet, she had to then readjust to being in a herd. I can only wonder what happened to her after that day.

The next year at calf and lamb day I noticed no hessian sacking surrounding the ring. Hessian sacking was never used again at calf and lamb day and I knew this was because of Angelica,

the “bad calf”. However, to this day, I do not think of Angelica as a “bad calf”. Rather, Angelica was frightened that day, just as I was frightened of having to perform my calf handling skills in front of everyone from our community.

Each spring, like clockwork, I was given a calf to feed, train and groom for my school’s annual calf and lamb day. Five years after Angelica had dragged me around the ring, I won first place in the leading competition with my calf, Lavender. I looked into the camera that day for my parents, while my Nana, standing behind Lavender and I as shown in the photo below (figure 2.), placed our first place ribbon around Lavender’s neck.



Figure 2. Lavender and I receiving our first place ribbon

Winning the first place ribbon was a cause for great celebration for my family, and for me. However, for Lavender, the red ribbon may have had no meaning whatsoever. Nonetheless, Lavender became a “good calf” after winning the red ribbon. For my parents and grandparents, Lavender’s performance, and the red ribbon symbolised their abilities as “good farmers”. Similarly, I experienced a sense of pride in my calf handling abilities that day. In

hindsight however, the red ribbon was a symbol of our relationship and, of the unique bond that we had formed in our time together preparing for competition day. Our success was not because of good breeding, or perfect technique. Through the trust we formed in each other, Lavender and I formed a close bond and it just so happened, that on competition day, we won the first place ribbon. Our humanimal relationship was not unlike many others I have had in my life. Reflecting on my many relationships with animals raised questions around why relationships with animals are not explored more frequently in anthropological research. This research project into humanimal relationships has given me an academic and creative space to query how dairy cow/dairy farmer bonds are formed.

Angelica the “bad calf” and Lavender the “good calf” highlight how animals, who cannot speak for themselves, are defined into particular roles by the humans who interact with them. Training calves each spring, in combination with milking cows on our dairy farm with my grandparents after school, filled my childhood with countless, and cherished humanimal relationships. Although, a majority of these were taken-for-granted as I seldom reflected on the relationships I had with productionist cows. I did not understand the complexities of the dairy industry as a child, although I still bonded with each calf that I trained. Bonding happened differently with each calf: some liked to play, while others would sit quietly with me for hours (see Figure 3). The same animal Harbolt (2003) explains, can have different meanings in different contexts, or in the same context have different meanings, and so on the dynamics of humanimal relationships change (p. 103). What animals mean to humans is reliant on context and perception. Hence, for humans, animal meanings are in constant flux.

I did not see a “bad calf” in Angelica, or a “good calf” in Lavender. For me, this is a simplistic interpretation which ignores the complex intersubjective nature of humanimal

engagement. Further, by disregarding the varied contexts in which humanimal relationships form, animals remain in a beastly realm, a segregation informed by misunderstanding. The relationships I had with my calves involved much more than competitions and ribbons. Similarly, dairy cow/dairy farmer relationships are more complex than a production relationship. In this research I explore how dairy cow/dairy farmer networks, as webs of relations, are about much more than making milk and money. Networks that are woven with care and concern for others through empathic understandings of another, regardless of species, connect the lives of human animals and nonhuman animals, and also to wider networks of phenomenon. Additionally, humanimal networks highlight how nonhuman animals, like Angelica and Lavender, are dynamic and responsive subjects with intentionality, rather than objects of study.



Figure 3. Bonding during a quiet moment

Structure of this thesis

My childhood experiences are not uncommon in dairy farming families. Nonetheless, humanimal exploration into the lives of dairy cows as social actors remains minimally explored in New Zealand agricultural literature. Hence animals, particularly working animals' voices, remain silent. In order to give voice to dairy cows in Chapter Two, I employ creative writing to present a non-human narration of Actor Network Theory (ANT). I use this narration to demonstrate how networks form, and how empathy is woven into the fabric of humanimal networks. In Chapter Two, I further explore how humanimal networks differ from traditional science and technology networks because the former are infused with concern and care, in this case, for sentient animal lives.

Present in the absence of humanimal relationships in social science research are understandings of the ways in which animals not only require animal-specific rights, but the freedom to live their lives in species-specific ways. An overview of the New Zealand dairy industry's development in Chapter Three contextualises the deeply-embedded dairy culture ethos of being a "good farmer". Furthermore, in the pursuit of good farming practice, this ethos makes sense of why dairy cows' primary existence is organised around milk production, and the reproduction of more efficient offspring. Connected to this farming cultural narrative is the construction and de-construction of animal bodies as they are made specifically to fit the productionist paradigm. In reviewing agricultural, farmer, and cow subjectivity literature, dairy cows and dairy farmers' relationships are seen to form and reform in a multitude of political and economic networks. Further, I discuss in Chapter Three how dairy cow and dairy farmers' relationships are caught in changing ideas and practices of productionism which results in contrasting, and often conflicting ideas of what it means to be a "good farmer".

It is widely acknowledged that social science research with animals is difficult. As such, an absence of research in which the shared experiences of animals and farmers are explored, remains. In Chapter Four, I outline the methodology for this research. I discuss how my identity as an emerging anthropologist is simultaneously complicated and enriched by my rural childhood and my potential involvement in the management and daily operation of my family's productionist dairy farm in the Manawatu. Further, Chapter Four evaluates the animal ethics concerns my fieldwork at home on Manawatu dairy farms provoked for me in my often conflicting experiences as a potential dairy farmer and anthropologist. Fieldwork with cows, in the absence of a shared language, revealed the embodied, sensory and empathetic nature of dairy cow/dairy farmer relationships. In addition, I highlight the difficulty, but not the impossibility of researching with animals. I explore in this chapter how "capturing the subjective experience of the animal calls for the re-examination of certain assumptions underlying conventional fieldwork with human subjects" (Arluke & Sanders, 1993, p. 378). Provided willingness to at least temporarily enter fieldwork without a dependence on language, working animals' bodies as more than milk-making machines become visible.

Explicit attention to the formation and re-formation of cows' bodies in Chapter Five exposes the intimate and heterogeneous nature of dairy cow/dairy farmer relationships. The multiple networks in which productionist dairy cows' bodies are made also means their bodies are often understood as automata (merely machines). In Chapter Five, I discuss how dairy cows' bodies are culturally constructed as milk-producing and calf-reproducing machines which are monitored through ear tags. Dairy cows' bodies are treated as automata, regulated, monitored and improved upon by automata. Revealed in Chapter Five, however, is how dairy cows' can

resist the pressures of production, and reform dairy cow/dairy farmer networks. Through wombs, udders, hooves and ear tags, cows often disrupt the formation of their bodies as good machines, and identities as “good cows”. Dairy cows, as animal subjects, are seen as active actors in the formation and perception of their productivist bodies through the unintentional agency of their bodily parts. The enrolment of both fragmented and whole cow bodies in various networks beyond that of the dairy cow/dairy farmer network demonstrates how dairy cow bodies are in constant flux. Fluidity is further highlighted by dairy farmers’ construction and perception of their own subjectivity through making “good cow” bodies. Because of dairy cow enrolment in various networks, what defines a “good cow” is always changing, so too is what defines being a “good farmer”.

In Chapter Six, I add further to dairy cow/dairy farmer networks as I explore the intersubjective nature of humanimal relationships inherent in productionist dairy farming in the Manawatu. I draw on dairy farmer narratives and my fieldwork experiences of intentional dairy cow agency to demonstrate dairy cow fluidity, and further, how dairy cow-dairy farmer humanimal relationships remain in flux. Dairy cow agency, and that of the dairy farmers who work with them, is not formed in a vacuum. These relationships form heterogeneously, continually forming and re-forming through human and non-human actors’ various entanglements with other networks.

Conclusion

I consider my childhood in rural Manawatu as relatively mundane. However, many of my relationships with calves remain unique and memorable to me. As an adult, conflicting tensions caused by productionism permeate cow/farmer relationships. As a result, dairy cow/dairy farmer relationships are organised by the construction of “good cows” by farmers

working to maintain their identities as “good farmers” in the productionist paradigm. In seeking a way of showing how dairy cow/dairy farmer networks are infused with care and concern, I have drawn on fairy tales to create a way for understanding why empathy is central in dairy cow/dairy farmer relationships. Provided in this creative approach to academic writing are new ways of understanding how dairy cow/dairy farmer¹ relations form, resist, and reform in productionist dairy farming through an anthropological lens.

¹ Dairy cows will be referred to as cows, and dairy farmers as farmers for the remainder of the thesis.

Chapter Two: Narrating Actor Network Theory

The story of Little ANT

This chapter is the story of how Actor Network Theory (ANT), embodied as Little ANT, and a Cow came to meet and discuss how they can, together, tell the story of production cows.

Little ANT is clever and complex, as he is not only a theory, but also a method. In this chapter, Little ANT explains the beginnings of ANT in science and technology studies. Cow questions Little ANT's past, and together, they discuss how ANT is currently positioned and applied in anthropology. Furthermore, Little ANT describes 'actors', 'agency', 'networks', and 'moments of translation', 'fluidity' and 'flow' as they are used in this humanimal research. Together, Little ANT and Cow imagine ways ANT can tell the story of cows to humans. While talking in their paddock, Little ANT and Cow discover that they can understand one another through empathy, and together, they consider how care for one another, regardless of species, is vital to understanding how humanimal networks form. Little ANT has even more to reveal upon these pages as he also narrates my own position in regards to my understandings and use of theory. Cow both represents the cows I have come to know in my research and also narrates the gentle guidance I have come to find from my supervisors through my ongoing understandings of ANT. Cow, in this chapter, is not only a guiding voice, but also reveals the ways in which ANT will help to make sense of the many networks that combine to make a cow. In conclusion, Little ANT and Cow address the representation of animals in anthropological research as they forge their own path together as humanimal counterparts setting out to understand how networks are woven with concern.

Little ANT meets Cow

In an ordinarily square paddock of a typical Manawatu dairy farm, a black and white cow came face to face with a small ANT who had wandered away from his ant hill. For reasons unknown to them at the time, the two were drawn to each other. The large, but kind cow asked Little ANT, *'Will you come with me Little ANT? And do not be afraid, there is a story for us to tell'*. Looking up, Little ANT wondered if he could manage the seemingly impossible feat of helping to tell the complex story of a cow to humans. Little ANT looked nervous and whispered so quietly only Cow could hear him *'Cow?'* Cow replied quickly, *'Yes Little ANT? Tell me what is on your mind.'* Little ANT stumbled, looking at his many feet then, tentatively, he asked of Cow, *'Will I, as an ANT, be able to tell this story with you and not change who I am, for I would surely not be the same ANT at the beginning as I am at the end?'* In all her wisdom Cow calmly responded to Little ANT's concerns, *'Well you are right Little ANT, at the end we may no longer be the same, that is the greatest story of all, for as we rethink what we know to be true, we find that truth itself can change and so, like an autumn leaf, our colour may change, but that does not mean that the leaf is no longer a leaf, it simply means that at the right the time, and in the right place, the leaf is exactly what it needs to be'*.

Little ANT climbed up Cow's leg, over her shoulder and up her neck sitting himself at the top of her black and white crown so to be sure only she could hear him. Little ANT whispered, *'Cow, I am not afraid of telling your story in the wrong way, but I am a different ANT'*. To this, wise Cow responded, *'Do not worry Little ANT, we are both a little different and be assured by this; this story is not mine alone, neither is it only yours'*. Taken aback, Little ANT asked, *'How so Cow?'* To this she replied, *'This is our story Little ANT, and as we make it together, we will learn how to tell the story together'*. Little ANT did not respond, but

sat quietly for a time thinking about how he and Cow would tell the story of cows. Breaking the silence, Cow asked Little ANT to tell her his history for she was interested to learn about where he had come from in order to see a way forward for them together. And so, Little ANT told the story of how ANT came to be.

The origins of Little ANT

Resting comfortably upon Cow's crown, Little ANT began recalling the story of his forefathers. *'I have three Great Grandfathers, Bruno Latour: he is well known for his sociology of associations'* (Dolwick, 2009, p. 36). *'Then there is Michael Callon: he spent his ANT life working on the sociology of translations'* (ibid). *'Finally, there is my third Great Grandfather, John Law: he busies himself in the ANT hill working out the semiotics of materiality'* (ibid). Pondering this for a moment, Cow asked Little ANT, *'Do all three of your Grandfathers do similar work Little ANT?'* *'Yes, to a certain degree Cow, they came to build our ANT hill in the time of STS'*. Little ANT added hurriedly, *'Oh that means science and technology studies'*. Cow listened patiently, happy to hear Little ANT's apprehensions replaced by enthusiasm as he recalled the important work his Great Grandfathers made in designing, creating and testing the capabilities of early ANT. *'My Great Grandfathers are sociologists'* Little ANT continued, *'They were initially interested in investigating how scientists, through practice, conducted experimental studies'* (Wilkie, 2013, p. 8). *'Yes Little ANT that is interesting'* said Cow, *'but can you explain to me what an ANT actually does?'*

ANTs at work

Feeling a little flushed that he had not even described what an ANT does, Little ANT continued with his story. Thinking for a moment, Little ANT pronounced, *'I remember Great*

Grandfather Law (2004) once told me that ‘[A]ctor-network-theory is widely used as a toolkit in sociotechnical analysis, though it might be better considered as a sensibility to materiality, relationally, and process’ (p. 157). You see Cow, ‘ANT perhaps best described as a descriptive method that continues to transform through its engagement with its own process of translation’ (Dolwick, 2009, p. 36). Noticing the silence lingering between them, Little ANT asked, ‘Do you understand Cow?’ Cow nodded gently, but remained quiet. ‘It is alright if you do not understand it all right now Cow, we can return to translation later. Right now I need to tell you that we ANTs, every single one of us, have always understood that the “important thing to note is that *this* is the approach that provides an active role for just about anything” (Dolwick, 2009 pp. 42-3). Cow stood silent, listening intently, hoping that Little ANT would tell her how she, in all her complexities, can be described, and further, understood by ANT. Deciding not to push Little ANT, her new friend, for an answer too soon, she held her tongue and let Little ANT continue with his story.

‘You see’, said Little ANT triumphantly, ‘We ANTs do not exclude anyone or anything’. ‘ANT is not selective because in ANT everything can be important, no matter how big or small it is, or what form it is taking at the time. If it has an effect, if it does something, it can be part of the network’ (Dolwick, 2009, p. 39). ‘Even me?’, ‘Even you Cow, but remember what you told me when we first met. This is our story. Therefore, I am part of it too, as are the farmers, farming technology, the environment, the researcher who carries out the fieldwork, the computer this thesis is written on and those who develop and support this research.’ ‘Then can you tell me how I am part of a network?’ Cow calmly asked of Little ANT. ‘That is easy’ said Little ANT bravely. ‘It is because we ANTs do not see anyone, or anything initially possessing agency, or what we also call power (Higgins, 2006, p. 53). Agency, or power, that is what we ANTs see as capacities. They are “a consequence of

enlisting heterogeneous materials (“human” and “non-human”) and, if the relations between these materials hold, generate patterned effects, or durable actor-networks” (Higgins, 2006, p. 54). Cow was captivated now, and continued to listen closely to the story Little ANT was telling.

‘Furthermore, ANT sees all action as strategic. We understand that particular groups are trying to achieve certain sets of goals (Higgins, 2006, p. 54), just like the farmers are when they try to breed very good cows so that they may make more milk’. ‘Yes, I see Little ANT, that all makes sense. I have agency once I have been enrolled into a network, or many networks.’ Nodding a little so that Little ANT had to cling to her black crown hair. Cow pressed Little ANT for more about how ANTs operate in practice. Smiling, Little ANT continued, *‘The action, which creates a desired effect, is only made possible by “an intense activity of enrolling, convincing, and enlisting” (Latour, 1986, p. 273), an assortment of things, animals and people’.* ‘Good’ replied Cow, *‘then tell me, is there one actor controlling all in the network, like how my farmer thinks he controls my entire herd?’* ‘Oh no Cow, that is not how ANT works. We are not just interested in understanding those who appear to have a lot of power’. *‘I think I understand’* said Cow, *‘but can you explain this a little more for me?’* Thinking for a moment, Little ANT explained, *‘Well, you see Cow, we ANTs are born with a particular methodological imperative, we follow the actors (Dolwick, 2009, p. 39) and from this we can see how agency and actors render such network-building visible’* (Higgins, 2006, p. 54). *‘And anyone or anything could possibly be an actor?’* asked Cow. ‘Yes’ replied Little ANT. Thinking about this idea, they stood together in silence with Little ANT still perched atop Cow’s crown as they thought over their own thoughts for a time.

Animal agency

Thinking a while longer, Cow rhythmically chewed her cud. Before she could voice anything on her mind, Little ANT's voice popped into the silence saying, *'Before you ask, cows can have agency too, because anything can be active in the formation of networks'* (de Laet & Mol, 2000, p. 226). *'Oh yes, how so?'* Cow asked her curiosity ignited. *'Because of generalised symmetry'* Little ANT responded quickly. *'Agency',* he continued *'is seen as the relational effect or the emergent properties of the networks, or interrelations of actors'* (Nimmo, 2011a, p. 111). *'Then, arising from the postulation of generalised symmetry is material agency'* (ibid). *'Agency, we believe, "is not an exclusive property of human beings"'* (ibid). *In sidestepping binary dualisms such as social/natural, agency/structure and subject/object ANT treats everything that is both human and nonhuman, as relational effects* (Law, 2004, p. 157). *The social therefore becomes something that forms actively in ANT* (Dolwick, 2009, p. 36). *This results in questions that centre "on how actors become interconnected or on how they fall apart and become disconnected and then, of course, reconnected to other actors, keeping in mind that no actor is an island"* (ibid). *'Yes, I see Little ANT. We cows have always known how to be part of a herd. We are never alone as cows'.* *'As ANTs, we see agency as the effect of all beings in a network, it destabilises "modern society/nature dualism by positing the existence of something which is supposed to be an exclusive and defining property of social subjects – the capacity for agency – on the object side of the ontological divide"* (Nimmo, 2011a, p. 111). *'That is very good Little ANT, I am pleased to hear that all are included in ANT.'* Resuming her line of questioning, Cow asked, *'Now, can you explain how you might include me, an animal, in ANT, and how it is that I have agency?'*

Not finished with her thought, Cow piped up again, concerned Little ANT would never answer the question she had waited to be answered since they first meet. *‘But I am neither an object, nor a human; I am called an ‘animal’. Then how can I have agency? Why am I important in ANT?’ ‘Let me tell you this Cow, networks, as we ANTs see them are,* “composed not only of people, but also of machines, animals, texts, money, architectures- any material that you care to mention” (Law, 1992, p. 381). *‘Yes, I understand this much Little ANT, but could you explain a little more, so that I can see how I fit in to ANT?’*

Thinking for a moment, Little ANT responded, *‘Let me return to generalised symmetry. This approach disperses agency throughout the entire network bringing “out from the shadows, oppressed animal subjectivities”* (Jones, 2003, p. 293). *‘How does ANT do that?’* asked Cow. *‘Being symmetric, through generalised symmetry,* explained Little ANT “means not to impose a priori some spurious *asymmetry* among human intentional action and a material world of casual relations” (Latour, 2005, p. 76). *This is to say that the ‘natural’ world cannot be used to describe the ‘social world’ and vice versa because in ANT there is only one world where everyone and everything lives together* (Dolwick, 2009, p. 37). *Furthermore, by refraining from imposing an ontological categorised preference, or a-priori, in heterogeneous relations that are already present are able to be seen* (Nimmo, 2011a, p. 115). *This means you, Cow. It means you are not just seen, but taken seriously because ANTs realised a long time ago that, you for example, as an animal, emerge from your enrolment in multiple networks* (Nimmo, 2011a, p. 111). *Importantly, these networks, because they are formed through durable relationships, are relational webs which “connect humans with other species of animals”* (Wilke, 2013, p. 8). *‘Why do ANTs think this way?’* queried Cow. *‘It is because we realised “that humans live and operate within wide networks of phenomena”* (Taylor, 2011, p. 209), *this made us think to move attention away from human intentionality. Thus animals, such as yourself, if chosen as a network to explore, will be treated the same as*

anything else you relate to in the network. Let us not dwell too much longer though Cow, ANT is easier to understand as a whole ANT. If we stop and focus only on one aspect of ANT, what ANTs actually do, and can do to help tell your story will remain unclear'. Cow, noting Little ANT's growing anxiety, returned once again to being a silent listener.

'Cow, there is a lot more to explain along the way. We ANTs are complex', said Little ANT. 'You see, I have to explain how translation works. That is our "analytically coherent methodology" (Higgins, 2006, p. 54) for studying how agency emerges, then holds itself together long enough for effects to emerge and adds another dimension to our discussion of how you have agency'. 'Translation, this sound interesting' replied Cow. 'Will you please explain how there are many moments of translation, so that I may understand how it works?'

Recalling four moments of translation

Agreeing to Cow's request, Little ANT began the story created by his forefathers of the four moments of translation. *'Translation', Little ANT began, 'Is important for us ANTs. We see translation itself as a verb, not as a noun, because it explains how we "explore and describe local processes of patterning, social orchestration, ordering, and resistance" (Law, 1992, p. 386). We ANTs begin with "problematization". This lets us see moments in the process that groups of actors, like a herd of cows, or an individual, such as you Cow, or the farmer, "defines an issue as problematic and attempts to become an 'obligatory passage point' that others must pass through to meet their own interests as well as the interests of the network builder" (Higgins, 2006, p. 54). Joining in, Cow queried Little ANT, 'Does this mean I am to be seen as a problem in order to begin my journey through ANT?'* To this, Little ANT

responded, *'Well, yes Cow, but before you get offended by the idea that you are problematic, let me continue my story'*.

Cow listened as Little ANT continued. *'Another moment of translation is "interessement"*. Higgins (2006, p. 54) *suggests that this is when technology becomes involved in the form of devices that are "deployed in order to impose roles and identities upon other actors previously defined during the problematization phase"* (ibid). Breaking her silence, Cow asked Little ANT, *'And how does that work in practice?'* *'Let me give an example Cow. Let us say you have a problem with your hoof. It has become swollen and sore from walking so far over the farm carrying your large udder'*. *'Yes, that happens to many in my herd Little ANT'*, Cow noted. *'Then a device is deployed, let us say that a medical treatment is given to you to heal your hoof'*. *'Again Little ANT, this is nothing new in the world of cows'*. *'Okay Cow, but you see, us ANTs, we see these devices as intermediaries, which are "anything passing between actors which defines the relationship between them" such as "computer software, disciplined human bodies, technical artefacts, instruments, contracts and money"* (Callon, 1991, pp. 134-135). *'In humanimal relationships between cows and farmers, these devices may be medical implements, the veterinarian, payment for your treatment, or the computer programme your lameness is entered into. We understand that, "in effect they define and distribute identities and roles to humans **and** nonhumans"* (Higgins, 2006, p. 54). *'If these two moments form a network, then translation is successful because your identity within the network is formed'*, Little ANT told Cow. *'I do not like the sound of that Little ANT, it means that my bad hoof, would make me into a "bad cow" and I would have no way of returning from that according to translation'*. *'Perhaps Cow, but this is how the STS ANTs of the past have always worked'*. *'I am not convinced, but I imagine our conversation is far*

from over, I will withhold any further judgment until need be'. Amazed at Cow's tenacity, Little ANT worked to regroup his thoughts so he might continue with his story of translation.

'Where was I Cow? I seem to have lost my place'. *'You were talking about interessement Little ANT*'. Regaining his place, Little ANT continued. *'Once the problematization and interessement stages of translation are successful, then "enrolment" occurs. Enrolment is when the network stabilizes from the durability of the alliances that have occurred (Higgins, 2006, p. 54). 'Is this when my identity as a bad cow is defined Little ANT?' 'Perhaps Cow, but I still have not finished. The final stage of translation is called "mobilization". 'This moment of translation is when the "newly created network is mobilized and the proposed 'solution' (which may be embedded within in an object or technical device, i.e., computer software programs) is provisionally accepted by a larger group of actors until further translation occurs" (ibid). 'Before you assume that this creates a fixed network, unable of change Cow, let me also tell you what Great Grandfather Law once advised us ANTs of translation*'. Nodding, Cow let Little ANT continue without interruption. *'Instead of a social order that is immovable or unchangeable, he argued that "there are endless attempts at ordering" (Law, 1994, p. 101). 'Therefore, the attribution of agency from translation is a precarious and heterogeneous process' (Higgins, 2006, p. 54). 'You see Cow, even though you may go through translation and be characterised as a bad cow because of your hoof, it can change as soon as the translation process begins again*'. *'Yes, I see Little ANT, but from my experience of being a cow designed for production, having a bad hoof is usually dealt with by others. If medical treatments of do not work on me, I would not be given another chance to go through translation*'. *'What do you mean by that Cow?' 'I think, from what I understand so far, translation seems to be a human centric practice, because I have no choice about becoming a problem in human eyes, I have no power over determining when*

translation begins again. Assuming from what I have seen in my herd, if hoof problems are not resolved, then the lame cow is taken away, never to return'. Not sure how to respond, Little ANT sat quietly. 'Do not be offended Little ANT, I am merely pointing out what I understand so far. Do not worry, we have plenty more to talk about I am sure'.

Critiquing ANT

'So far, you have spoken of the good of your fellow ANT's. Little ANT, can you tell me about those who question your abilities, and why they do so? From your story thus far, I seem to have a few questions of my own' 'Yes Cow, let us return once again to generalised symmetry.' 'It has been said to undermine animals in so much that their "identity as distinct subjects worthy of epistemological, political and ethical distinction" (Jones, 2003, 293), becomes lost'. Little ANT noticed Cow looked troubled. 'What is on your mind Cow?' Then adding reassuringly, Little ANT whispered, 'It's okay, you can tell me Cow'. Cow responded, 'I have been thinking about how I am an individual Little ANT' Cow softly explained, 'Look at my herd for a moment, we all look the same when you have your eyes closed to difference. When you look a little closer, and take the time to get to know us, you will see that we are individuals. Even our milkers know this, although they are usually too busy fussing with machines to acknowledge this'. Looking around, Little ANT considered this, and thought about how all the ANTs he knew all look the same, yet, they all do slightly different jobs within the ant hill. However, ANTs, as far as Little ANT knew, had always considered the importance of individuals less important than the actions of the whole.

Continuing with her questioning, Cow asked, *'Little ANT, did you know that animals are thought' "to have more or less limited agency, depending on the kind of environment they are*

in” (Cudworth, 2011, p. 77). Cow continued, *‘Perhaps, this is because the,* “networks are flat – there is little ontological depth – no sense of multileveled qualities of hierarchal relations and the different kinds of set of relationships therein” (Cudworth, 2011, p. 58-59). Little ANT pondered this idea, and he decided that he agreed. Little ANT had lived in the anthill his whole life in one of Cow’s paddocks. While on short trips out of the anthill, he had watched Cow and her herd many times. From these observations, he could see that hierarchies are important to Cow and her herd; it is how they organise themselves and live together. Cow and her herd, he had noticed, elected their leader not because she was the largest cow, but because she was the smartest. She was the cow who would figure out how to get more food for the whole herd, and lead them to shelter in a storm (Hatkoff, 2009, p. 78). From talking with Cow, he had also learnt that hierarchies enforced the cow’s moral codes that they lived by. He had watched many times as they took care of one another when ill or injured, mourned the loss of a close friend within the herd and remembered the faces of fifty cows, and up to ten humans, meaning they could also remember who had treated them well, or not so kindly and act accordingly for the good of themselves, and the group (Hatkoff, 2009, pp. 68-84).

Thinking a little longer, Little ANT thought about how his new friend was part of her herd, but still a little different. He then asked Cow, *‘How are you different?’* To this, wise Cow responded, *‘There are many ways that I am different. Sometimes I reveal them and sometimes they are hidden within my body, but just because you cannot see them does not mean you cannot explore them so that you may understand too’.* Before Little ANT could respond, Cow continued. *‘You see Little ANT, what you really need to understand, as we figure out how to tell our story together is that “despite cultural standards for how certain breeds or species behave, animals are still individual, capable of acting independently (within the boundaries of their physiology) and without human determinism” (Harbolt, 2003, p. 104). I think I*

understand, Cow. To be sure, could you describe some of the ways you show you are different?’ asked Little ANT. ‘When one of our young fell ill, I, with a few of the other maternal cows, formed a circle around her, and we bellowed together. Long through the night we called for help, and soothed our sick young herd mate. Eventually our farmer came, and then a veterinarian, and luckily our young one got better². Not all the cows joined in that night, there were only a few of us there bellowing for our sick herd mate. While we all bellowed together for a common goal, we all bellowed a little differently’. Little ANT thought about how he had heard the cows bellowing that night. He wondered for a while why he thought that all the cows sounded the same. While he thought this over, Cow stood quietly, watching her herd in the paddock intently with her large glassy eyes.

‘Are you thinking about hierarchies Little ANT?’ Cow asked, noticing Little ANT’s withdrawal from the conversation. ‘Yes Cow, they are important to you, so perhaps those critiques of ANT are important to how we think about telling our story’. ‘Yes, I agree Little ANT, maybe you could think about what kind of ANT you would like to be while I go to milk’. ‘How do you know its milking time?’ ‘I just do, my body is telling me, the herd is telling me, and I see some of them moving towards the gate. I also know because it is that time of the day, the sun, the temperature in the air are all telling me. I can even hear the machines in the milking shed starting up from here’. ‘That is very interesting Cow, I see why you want our story told, it will be fascinating!’ exclaimed Little ANT. ‘Yes, I am sure it will be, but only with your help Little ANT’. Sure now of why he agreed with those who critiqued his fellow ANTs, he heard the gate to the paddock open. Watching the herd move out of the paddock, Little ANT thought about how the STS ANTs did not consider animals in their ANT work.

² The story of the sick cow and her herd mates is a real event that took place on one of my participant’s farms which I elaborate on in Chapter Six.

Pondering this for a moment, Little ANT decided that it was not intention of STS ANTs to understand the lives of animals. However, he cared for Cow and decided that he could help her tell her story. Before Little ANT could linger on this idea any longer, Cow began to move. This distraction was welcomed by Little ANT. He needed some time to think alone. Holding on tight to Cow's crown as she moved toward the gate with the rest of her herd, he watched as she walked toward the water trough. '*Here Little ANT, let me set you down on the water trough*'. Bending slowly, Cow dipped her head and Little ANT climbed quickly off Cow's face, sliding the rest of the way over her wet nose.

Staring at his tiny reflection in the water, Little ANT thought to himself, '*Am I disrespecting my fellow ANTs if I do not agree with all that I am supposed to? Surely not, after all, we ANTs have always understood that even we, even the ANTs who are theorists of translation and builders of great networks, go through this process ourselves. Thus change is inevitable, even for ANTs themselves*'. Realising that Cow had known this all along, known that Little ANT was capable of being a little different to his forefathers, he smiled, realising how intelligent his gentle and giant friend was. '*Maybe that is why there are so many ANTs*', he thought to himself, '*so that we may all find our own way as theorists, building upon the teachings our forefathers gave us in the ant hill*'. 'Yes', he thought to himself '*that feels right. After all, why would there be so many of us?*' Thinking a little more about what Cow had said of how animals have different agency within different contexts, he wondered out loud to himself for a moment if a more "contextualised understanding of interspecies relations that considers where species are located in a network and any power differentials that may exist between and amongst human and nonhuman animals would add more texture and depth to multispecies networks" (Wilkie, 2013, p. 8). '*Yes, that is it, when Cow returns, I shall tell her*

this. I am sure she will be pleased to hear that her life will not be examined out of context, it will make a much better story I am sure’.

Coming to rest by the water trough upon her return from the afternoon milking, Cow bent down next to Little ANT to take a drink. Little ANT immediately told Cow all he had thought about as Cow listened intently. After a moment more of silence, Little ANT told Cow, *‘I heard you that night Cow. I heard you all. I was worried and I could tell something was wrong’.* Still gazing at Little ANT with her enormous eyes, Cow asked, *‘Did you hear the difference in our calls Little ANT?’* Thinking about this question, Little ANT wondered why Cow would ask him such a thing, *‘Not from afar, not from within the ant hill. You all sounded the same’.* *‘That is the key Little ANT, you cannot understand our differences from inside the hill. Instead, you must venture out and spend time with us to learn about our cowness.* Looking puzzled at Cow, Little ANT asked, *‘What is cowness?’* *‘That is what we call our being, our individuality and our togetherness. It is everything about us that you need to know. It is like your ANT moments of translation which you described as a verb. Well, so is cowness; it is what we do as cows’.*

Little ANT was fascinated by the idea of ‘cowness’. However, he could not hide from his growing concern about being able to understand Cow. After all, she is a completely different species from himself. *‘But if I cannot see with my eyes how you are unique, how am I to understand you?’* *‘Ah, yes that is tricky Little ANT. Perhaps, instead of only being an ANT, you can try to be another kind of ANT: one that uses their body to understand and to communicate. After all, ‘cowness’ itself is embodied.’* *‘How so Cow?’* *‘By drawing on all your senses Little ANT you will find a way to understand how we form meaningful*

relationships that become durable. From this you will see that we, as a herd of many, are still individuals, which means we are part of these networks you have described to me'. 'I have heard of new ANTs', proclaimed Little ANT becoming slightly more animated at the thought. 'They are the ANTs who have migrated!' 'Just like you Little ANT, you have bravely come to spend your time with me, an animal, you have migrated too'. Shocked he had not even realised that he had migrated, Little ANT thought long and hard about all the ANTs he had known to have left the nest. Thinking that Cow might like to hear about them, he gathered his thoughts to tell her the story of the migrating ANTs, and the ANT-like researchers who had visited the ant hill to share their knowledge.

Straying from the ANT hill and finding the 'Anthropological ANT'

'Little ANT, it seems that endeavours to tell stories like ours are not uncommon in the social sciences. There is a growing interest "in animals as subjects rather than objects, in animals as parts of human society rather than just symbols of it, and in human interactions and relationships with animals rather than simply human representations of animals"' (Knight, 2005, p. 1). 'Yes Cow, there are many scholars who are discussing animal agency. Many have found ANT as an appropriate theoretical approach for understanding humanimal relationships' (Wilkie, 2013, p. 8). Finding momentum, Little ANT continued. 'Richard Nimmo recently suggested how, of late, ANT has come to gain much attention in the wider social sciences as an important position of those who want to give serious and due consideration to the role of nonhumans in social life' (Nimmo, 2011a, p. 108). 'You see Cow, there are ANTs who are still ANTs, all learning from the same ant hill, but have moved away, not clinging so tightly to the ANT of old, the STS ANT I discussed earlier. These ANTs come from disciplines such as environmental studies, geography and anthropology'. Interested in what the migrating, and visiting ANTs have done on their adventures away from the ant hill,

Cow asked Little ANT to expand on the work these ANTs do so that she could understand how she and Little ANT could tell their story together.

Little ANT thought for a moment, recalling stories from the new types of ANTs that had been circulating of late in the ant hill. Gathering his thoughts, he informed Cow, *'I have heard whispers in the ant hill Cow. These whispering voices are joining together. I can hear them talking about the value and applicability of ANT in anthropology. Many of these new ANTs understand that anthropology itself has appropriated ANT through its own engagement with the connected fields of science, technology, and society (Oppenheim, 2007, p. 472). Through anthropology's approach to such matters of STS that sociology has concerned itself with, a new field of inquiry has emerged for anthropologists'* (ibid). Cow pondered this for a moment, and then asked Little ANT, *'What kind of ANT do you want to be?'* Nobody had asked Little ANT this before. He had always blended in with the other ANT's, doing the work he was expected to do. *'I am not sure Cow, but I know I feel different to all the other ANTs, but am not sure how to go about being different'*. To this, Cow, in her infinite wisdom, responded to Little ANTs concerns. *'Perhaps Little ANT, it is about feeling what is right for you to do. Drawing on empathy, your concern for others, you may find ways of understanding cows' relationships with farmers'*. *'I have no idea how to do that Cow. I just do not know these things as an ANT'*. *'You do know Little ANT. You have just not explored them yet'*.

Noticing Little ANT's rising anxiety, Cow spoke calmly, attempting to soothe her frightened friend, *'Do not panic Little ANT. As I keep reminding you, we will do this together, and we do not have to figure it all out today. Remember, this is just the beginning of our time together.'*

Through an exploration of cow history and fieldwork with cows and farmers, we will find our way together to analyse how cow agency emerges through humanimal relationships'. 'Am I an ANT or an anthropologist then Cow?' queried Little ANT. 'Hmm, I think you are both. You are what Robert Oppenheim calls the "new ANT", otherwise the anthropological ANT' (Oppenheim 2007, p. 472). 'I have heard of these ANTs. They are the ones whispering in the ant hill', exclaimed Little ANT. 'These are the ANTs that read across the habits of traditional ANT understandings in the hope of offering "a greater and more variegated value of the 'new ANT' for anthropologies of different sorts" (ibid). Feeling anxious about what kind of ANT he could be, Little ANT returned to the water trough's edge as Cow walked away to graze. Standing on the trough's edge, he thought about the many concerns Cow had with the four moments of translation. Leaning over the rim of the water trough, Little ANT, drawing on all he heard from the new ANTs, began to think about the flow and fluidity of the water. He stared at the water's rhythmic movements.

Flows and fluidity of new ANTs

Cow had thought the four moments of translation sounded rigid, unmovable, or unchangeable. This bothered Little ANT because he knew cows are not stationary or fixed objects. Considering cows are always changing through their engagement with the world around them, Cow was not sure that translation, as an analytical methodology, was appropriate to tell her story. Suddenly, Little ANT jumped with fright. He had been so lost in his thoughts, he had not noticed Cow walking towards him until her face dominated the reflection in the water. *'Cow, can I tell you about flow and fluidity? I think it might be good to think about how you are not a fixed object'*. After taking a long and very noisy drink Cow nodded in encouragement. And so Little ANT told Cow all he had heard in the ant hill about flows and fluidity.

'One of the new ANTs, who visited the ant hill, described how,

[t]here are no humans in the world. Or rather, humans are fabricated – in language, through discursive formations, in their various liaisons with technological or natural actors, across networks that are heterogeneously comprised of humans and nonhumans who are themselves so comprised. Instead of humans and nonhumans we are beginning to think of flows, movements, arrangements, relations. It is through such dynamics that the human (and the nonhuman) emerges (Michael, 2000, p. 1).

'There was a new ANT who visited the ant hill, Cow. He told those of us who would listen about his research on the modalities of bovine milk (Nimmo, 2011b). He told us how he explored the multiple realities co-present in milk emerging from complex inter-species relations' (ibid). In mapping the relation between the natural and social, Nimmo found that milk is ontologically multiple as "it embodies and mediates a heterogeneous ensemble of human-bovine-techno-political-socio-economic relations" (p. 57). 'I think this is very interesting Little ANT, please continue, I would like to hear about how I am a heterogeneously co-created.' Encouraged by Cow's interest in his story, Little ANT continued. *'Centring his research on the movements of milk, Nimmo (2011b) used flows over the term movement to refine how milk itself is fluid, but also highlight the "fluid ontology of milk or what Peter Atkins has called its liquid 'materiality'" (ibid). For Nimmo, "flows are spatial and relational; they both occur in space and involve shifts in spatial relations" (p. 58).*

Nimmo explained further to us ANTs that, “flows are also socio-material; they are meaningful flows of some substance. In addition, flows can be thought of as systemic or ecological. Thus flows are an element in wider structural dynamics which they may serve with, either to reproduce or to destabilise” (ibid). I remember Nimmo (2011b) told us how considering thinking through flows is suggestive of,

a much more collective and distributive notion of animal being and animal agency than those which tend to emerge from focusing upon animals as ‘subjects’, as sentient and embodied creatures. Rather than producing a concept of animal agency which is essentially an extension to animals of the humanist concept of agency (that is, as the deliberate and conscious action of reflexive human subjects), a focus on flows foregrounds a notion of animal agency as something more fluid, which permeates the ensemble of social and material movements of which the animal are a part (p. 59).

‘I see Little ANT. If I flow, then I have my own kind of agency; not just an extension of human agency. This means my power comes from me, and from my relationship with others: both human and non-human. This is what I explained earlier Little ANT about ‘cowness’.

Agreeing, Little ANT continued, *‘For Nimmo (2011b) flows of milk mediate and carry the collective agency of cows and become inseparable from what is “called the ‘species of being’ of the animal” (p. 59). ‘Nimmo explained how in this way flows of milk can be understood as mediating or carrying the collective agency of cows.’ ‘Yes Little ANT, this surely means that milk can be understood as something that physically flows and also as flows of expressions of the materiality “of cows as movement, or in other words bovine mobilities” (ibid). For you*

see Little ANT, I, nor any of my herd mates have ever thought of ourselves as stationary objects only here for human use. Perhaps this flow you speak of will highlight how my cow agency is both unintentional and intentional, but also tell the story of how each of us cows are different and form durable relationships with our humans in our own unique way'. Little ANT thought about flows for some time, wondering if would be a useful way of making sense of Cow's story as she had suggested. As he looked into the water within the concrete trough, he thought about how the water moved, and at times even the seemingly solid boundary could not contain exactly the same water consistently.

'Ah ha!' proclaimed Little ANT to his own reflection as he recalled the visit of de Laet and Mol (2000) to the ant hill. Turning back to Cow, Little ANT recalled the story of the researchers who had been all the way to Zimbabwe to explore the fluidity of a blue bush pump. *'De Laet and Mol (2000, p.226) suggest that the adaptability and movement of the Zimbabwe bush pump enables the technology to be fluid. They explained that the term fluid is used to describe the way in which the bush pump holds together as something that is fluid rather than a network that is rigidly bound'* (ibid). *The bush pump, they explained, is fluid because "in travelling to unpredictable places, an object that isn't too rigorously bounded, that is adaptable, flexible and responsive – in short, a fluid object – may well prove to be stronger than one which is firm"* (ibid). Joining in, Cow asked, *'does fluidity also refer to the ways in which actors change over time?'* Responding quickly, Little ANT explained how *'in their ability to change, actors who are fluid move in, out and amidst boundaries that are never fixed themselves, but also are moving and moveable'* (ibid). *Actors, according to de Laet and Mol, even if they appear solid and fixed at times are always fluid and can be so without losing their agency'* (2000, p. 227). Puzzled by this, Cow asked, *'how is this so Little ANT, what do you mean actors do not lose their agency when they are fluid?'*

Thinking for a moment, Little ANT decided an example might explain clearly to Cow how she is fluid, and does not lose her agency. *'Think of your identity as a cow for a moment. Now remember how you told me earlier, that if you were to get a sore hoof, you would be seen as a "bad cow"?' 'Yes Little ANT, I remember. I also explained that the technology involved in healing me is out of my control, as are many factors that influence my lameness.'* *'Yes Cow, now, according to de Laet and Mol, there is no fixed way of being an actor. If they were to look at your life, they might suggest that your performance as a cow is entangled in a variety of networks. Therefore, you never cease being an actor. I remember they told us that it was unclear when the bush pump stopped being an actor, because even when it failed as a bush pump, it still performed as a bush pump in various other ways because bush pumps perform as actors in a multitude of ways, with a variety of actors at any given time'* (de Laet & Mol, 2000, pp. 226-7). *'Yes, I see now Little ANT, even if I am lame, I am still a cow because there are multiple ways in which I am a cow.'* *'Exactly Cow, without sounding morbid, it is possible that even in death you are still an actor, because actors who are fluid "no longer (or not always) need the clear-cut boundaries that come with a stable identity"'* (de Laet & Mol, 2000, p. 227). Cow did not want to linger on the topic of her death as she felt death came too soon for cows like her who work to produce milk.

Changing the topic slightly because she knew their story would not extend beyond her life on the farm with the farmers in this research, Cow decided that it was time for her and Little ANT to finalise an approach for how to tell their story together. *'It is all becoming clearer now Little ANT. We will use translation to demonstrate how I am enrolled into networks and the ways in which humanimal relationships become durable between cows and farmers. We*

will simultaneously draw on flow and fluidity to demonstrate how I am still acting as a cow, even when called a “bad cow”, or am thought to destabilise my heterogeneous formation of networks’. Smiling now, Little ANT agreed. *‘That sounds like a good plan Cow.*

Incorporating the ideas of the new ANTs with the anthropological concepts of embodiment, sensory anthropology and empathetic apprenticeship, I am sure our story will work.

Although, I am not completely sure of what these anthropological concepts are just yet because I have not experienced them for myself. Nodding, Cow understood Little ANT’s concerns. *‘Yes Little ANT, be patient, we will arrive at those in the methodology, they will help to explain how cows and humans communicate, they are what will contextualise our story and show how intersubjectivity is important in creating durable networks. Although, I do not know why you are concerned. You have already demonstrated how you understand empathy to be important when you were concerned about our bellowing that night for our sick young one.’* Happy that he already knew how to be caring, Little ANT climbed back up to the safety of Cow’s crown.

Jumping the moon

Little ANT, once again riding atop Cow’s crown, held on tightly as she moved to the centre of the paddock looking for lush grass to eat. Feeling unsettled, Little ANT asked, *‘Our story will be messy Cow, will it not?’* To this Cow nodded. *‘And our story will not make sense at times Cow’.* Again, Cow nodded. Feeling uneasy, Little ANT hurriedly climbed off Cow, finding a safe place to stand on the grass, he continued. *‘So our story is not always going to be easy to tell is it Cow?’* Nodding once more, Cow responded, *‘Yes little ANT, this story will unravel as we go about understanding cow-farmer humanimal relationships’.* Little ANT was not calmed by this, pronouncing loudly, *‘But Cow, do you not see, I cannot tell this story alone.’* Nodding still, Cow squared herself to Little ANT, looking straight into his little

eyes said *'Do not be afraid Little ANT, we will do it together and we will work it out as we go. After all, that is what all you ANTs do best and I am sure you are up to the challenge. I think, after all our conversations today, that we have found a good place from which to tell our story Little ANT. We will use the moments of translation as you suggested, but we will weave through empathy and care so that the fluidity, or flow of cow's lives may be highlighted.'* After mulling this over briefly Little ANT asked, *'So I can be any ANT I wish to be?'* Cow smiled again in her all knowing smile. *'Yes Little ANT, something like that. Why don't we just let us see where the story takes us as this will be how our story will be told.'*

Climbing back to the safety of Cow's crown, Little ANT had just one more question, *'Why your story Cow? Why not goat's story, or sheep's story?'* To this Cow replied, *'Little ANT, although I know who I am, it seems others do not know who I am and how I come to be something wonderfully different every single day, but we can talk about more another day'.*

Sitting quietly for what seemed like some time, Little ANT and Cow watched the moon rising high in the sky, anticipation and determination filling inside them. Cow stopped chewing her cud. The break in rhythm drew Little ANT from his ponderings on his life as an ANT of many ANTs and as an ANT of endless possibilities. Turning to Cow, Little ANT broke the silence between them as he announced, *'I have made a decision in regards to my name'.*

'Your name?' Cow asked perplexed by this seemingly random declaration. *'Yes, from now on I would like to be called Little ANThropologist'.* *'Very well, Little ANThropologist it shall be. It suits you'* Cow replied as she filled with admiration for her brave little friend. They sat together in silence a while longer, before Cow, yawning, and dozing into sleep muttered, *'I will jump the moon with you Little Anthropologist, we will jump it together'.* Content that he would soon hear more about the life of Cow, Little ANThropologist faded off into a deep, restful slumber. All was quiet in the moonlit paddock.

A note from the author

Little ANT and Cow came together in this chapter to narrate my choice of theory to use within this research. Their conversation highlights the concerns I had with selecting an appropriate theory to make sense of cow and farmer humanimal relationships, where cows are given the same priority as humans. Although generalised symmetry and translation enable the flattening out of human analytic dominance so animals are given due consideration theoretically, ANT disregards the multilayered contexts in which intersubjective cow and farmer relationships come into being. Little ANThropologist and Cow have come to find their place together in the hyphenate borderland where “the cold categories of power, translation and assemblage that mark much of ANT and anthropological appropriation of ANT take on a hue of ethical and emotional involvement” (Oppenheim, 2007, p. 486). This borderland of ANT and anthropology are where “networks are woven of concern” (ibid). Thus, while this thesis is driven by ANT, the networks created are woven with empathy, care and concern for the unheard voices of cows. Drawing on new ANT, or Little ANThropologist as he now prefers to be called, making sense of the complicated, humanimal world of cows is made possible.

Conclusion

Back in the paddock, Little ANThropologist woke with a fright as Cow stirred beneath him. Wide awake, Little ANThropologist sat quietly for some time and wondered if Cow was also awake. *‘Are you sleeping Cow?’* He asked tentatively as he peeked over her crown, hoping to see her wide glassy eyes open. *‘I am awake Little ANThropologist’.* Cow responded softly in the dark. *‘I cannot help but think about all that we talked about today Cow.’* Turning her

head slightly, Cow responded, *'Yes. And it was all important Little ANthropologist. Together, we found a way for understanding the complexities inherent in cow/farmer relationships through an anthropological application of ANT'*. *'Yes Cow!'* Little ANthropologist agreed enthusiastically. *'Our discussion did highlight how ANT is a valuable theoretical tool for exploring animal agency'*. *'Now we should think about what to do next Little ANthropologist.'* Little ANthropologist, resting on Cow's crown thought quietly to himself about how they could continue telling the story of cows. Breaking the silence, Cow suggested, *'We could enrol a human, an anthropologist, so we can better tell our story to other humans'*³. *Cassie will help explain the development of the New Zealand dairy industry. We will see how cows are subjected to various biological, technological and political forces that subdue and alter cow identities and purpose over time'*. Eager to begin, Little ANthropologist started jumping on Cow's crown. *'When can we begin Cow?'* *'Soon Little ANthropologist. First, we should sleep a while longer'*. Anticipating where Cassie's story would lead them, and what it would tell them about humanimal relationships, Little ANthropologist struggled to fall asleep. Cow whispered quietly in the dark, *'Before you know it, it will be morning Little ANthropologist. Think of sleep as a brief rest before we turn the page to begin the next chapter in our story'*.

³ As an experiment in creative writing, I have chosen to become part of Cow and Little ANthropologist's conversations at times. It is strange to write about myself in this way. However, I feel it adds another dimension to the narrative they build throughout this thesis considering they want to tell their story to humans.

Chapter Three: Locating “Good Cows” and “Good Farmers” in the Literature

The story of Cow

Before the sun made it over the hills, Little ANThropologist was wide awake again. So too was Cow. *‘Am I going to hear your story now?’* Little ANThropologist asked eagerly. Smirking, Cow nodded. *‘Yes Little ANThropologist. With the help of Cassie we will trace the development, intensification and diversification of the New Zealand dairy industry. Together, we will see how cow/farmer networks are deeply embedded in cultural narratives of productionism. My story about cows also shows how making “good cows” can be a contradictory experience for farmers’. ‘Why is that important Cow?’ ‘Well Little ANThropologist, making a “good cow”, in productionist dairy farming, is in response to shifting market signals. As farmers find ways to cope with cows as non-human co-worker and production machine, tensions arise that impact not only how cows are thought about, but also, how we are made’. ‘And what about you Cow? Will you explain what happens to you as cow/farmer relations emerge in the multiple networks of productionism you are enrolled in?’* Thinking for a moment, Cow responded. *‘Yes Little ANThropologist. Think of our conversation as the historical changes of cows. Without first understanding this, we cannot understand ‘cowness’. Do you remember how I told about ‘cowness’? Do you remember how it is our being?’ ‘Yes Cow. I know that it is your togetherness and your individuality. ‘Cowness’ is what you do as cows’. ‘Well, because we cows are not made in isolation, my story also shows how ‘cowness’ is fluid’.*

With one swift motion Cow pulled herself onto her feet while Little ANThropologist clung to her crown hairs for support. Regaining his balance, Little ANThropologist asked, ‘Cow, are you taking me to the milking shed?’ Bemused by Little ANThropologist’s obvious excitement, Cow started walking to the milking shed with her herd. As she walked, she began to tell her story. Beginning with her predecessors, the ancient *Leptobos* who appeared approximately two million years ago in Asia. *Leptobos*, Cow recalled as she walked, how they looked similar to an antelope, standing at around two metres high and at length of three metres. Over 1,750,000 years, and travel through the Middle East and onto north-east Africa the *Bos primigenius*, otherwise known as wild ox or aurochs, an early descendant of *Leptobos* arrived in Europe as a domesticated beast (Velten, 2007, p. 10). While the last aurochs died of a natural death on its protected land in Mazowse, central Poland in 1627, its descendants, much smaller and less violent, became domesticated between 6,000 and 4,000 BC (Velten, 2007, p. 21). Entering the milking shed, Little ANThropologist settled in atop Cow’s crown for what he knew would be a very long day of listening as Cow continued her story of cows. Cow continued by telling the story of early New Zealand dairy cows and the dairy industry that they helped build.

Development of New Zealand agriculture

Domesticated descendants of the ancient aurochs arrived in New Zealand in 1814 with missionary Samuel Marsden (New Zealand Dairy Group, 2001). Dairy farming started out slowly in New Zealand in 1840, with only three or four cows making a herd in what was coined the ‘cottage industry’ (ibid). The development phase of New Zealand agriculture, in which dairy farming was central, was marked by the large scale burning of native grassland and rapid increase of sheep onto the newly cleared grazing land (Langer, 1990). In order to sustain domestic animals in New Zealand, native land was controlled through pasture

management and technologies. Additionally, investment in infrastructure and agricultural technologies added to the expansion of New Zealand's newly formed agriculture industry.

When refrigerated shipping entered the New Zealand agricultural scene in 1882, a new phase of expansion took place throughout dairy farming nationwide (MacLeod & Moller, 2006, p. 202). Dairy products started emerging as a valuable export commodity for New Zealand agriculture. In response to these changing dynamics in the dairy industry, cows', and their milk, became more than small-scale, localised commodities of the 'cottage industry'. Upon entry to global markets, cows' became milk making machines to create profit for farmers and the national economy. Similarly, farmers became the caretakers, and the designers of milk-making machines. Simultaneously, the export of dairy products signified a shift, both in cow, and farmer subject positions in an intensifying industry.

An intensifying industry

In order to monitor, regulate and increase milk production, the dairy industry introduced regular testing of the volume and butterfat levels of cows in 1909. This practice, known as herd testing, began as a process of comparing the milk production of herds to highlight the strengths and weakness of each cow, and each herd (Hamilton, 1944, p. 45). This marked a significant shift in how cows were conceptualised. Equipped with monitoring technologies, farmers began to track the progress and failures of cows' as milk making machines. Due to herd testing, cows became commodities, and their bodies dissected to better understand milk production. In becoming measurable milk making machines, cows were no longer only part of a herd of milk makers. Rather, cow bodies began responding to changing market signals as individuals, and as herds. When the New Zealand Dairy Board took control of the herd

testing programme in 1936, a herd-improvement plan was developed “to stabilize, extend and intensify herd-recording work generally, to increase the accuracy of such work, and to provide detailed information for research and investigational work into the production of milk and butterfat” (Hamilton, 1944, p. 46). Hamilton notes that the introduction of the herd-improvement plan enabled farmers to pin point high producing cows, and the bulls that had sired them (1944, p. 48). Coupled with continuing development of breeding practices, the New Zealand dairy herd continued to increase in numbers.

Fisher and Mellor (2008) note, “[p]erhaps the overriding objective of modern agricultural initiatives is to be profitable, success being measured in income” (p. 101). During the 1960s the New Zealand Bank began lending large amounts of money to farmers in order to see returns through increased production. The success of these financial investments was measured through dairy products performance on national and international markets (Moran, 1997, p. 11). These schemes enabled many pastoral farms and horticultural sites to emerge at a dramatic pace nationwide. Hence, the intensification of New Zealand dairy farming was contingent on financial input, and increased milk yields were expected by off-farm investors. Facilitating the intensification phase were trading agreements between the commonwealth and Britain made under the Ottawa Agreement of 1932 (Campbell, Haggerty & Morris, 2009, p. 769). These agreements guaranteed New Zealand agriculture access to European markets for their dairy and meat products (ibid). In this post-World War II era of further development and intensification, New Zealand “agriculture held pride of place as foreign exchange earner” (Le Heron, 2003, p. 114).

Technological advances in the transportation of milk in the 1970s saw bigger, faster, and more technological milk tankers introduced, facilitating demand for dairy products (New Zealand Dairy Group, 2001). Due to the ability to hygienically and efficiently move up to 28,000 litres of milk in a single load, the national fleet of dairy tankers brought about a new era of mass production, and dairy cow herd size once again grew larger in New Zealand (ibid). While sown pasture rates remained stable during this period, due to financial investment and technological advancements in agriculture, national stocking rates increased by 150% (MacLeod & Moller, 2006, p. 202). Moran notes, during the intensification phase “the accepted paradigm of the time was increased production through higher stocking rates on larger farms” (1997, p. 11). As a result, more cows were farmed on the same amount of land. The early phases of intensification saw cows become dissected into various machine-like body parts through performance monitoring, and de-individualised through rapidly increasing herd sizes.

Dairy farming for profit

The New Zealand Department of Agriculture released a series of booklets entitled *Dairying: Farming for Profit* in 1968 to coincide with a television series on the same subject. The aim of the booklet was to “give farmers a concise summary of what to do **to make dairying pay better**” (W. R Dale Ed., 1968, p. 1, bold in original). The booklet states, “the main thing we want to improve in our dairy cattle is their ability to produce the product we are paid for” (New Zealand Department of Agriculture, 1968, p. 3). This marks a significant shift in how farmers thought, and formed relationships with their cows. Not only did herds need to be of larger sizes to be profitable, but each and every individual cow body needed to meet the intense demands of the dairy industry. Due to how, and for what purposes cows were bred, making “good cows” began to dominate New Zealand dairy culture discourse.

New ideas of what a production cow is, was then accompanied by a list of fit-for-purpose body parts and attributes for production cows. According to the New Zealand Department of Agriculture (1968), in order to physically keep up with the demands of intensifying dairy production, “good cows” needed to,

have sound feet and legs to allow them to get around the paddock and to the milking shed and back. They should have good jaws to allow them to compete for feed even when it is in short supply. They should be quiet and co-operative in the shed and have an udder and milking characteristics which allow quick and efficient machine milking. They should not have a tendency to get bloat and mastitis easily (p. 3).

How to make a “good cow” now came with a check list as their bodies began to be disassembled into various elements that combined to make a “good cow”. Due to knowledge on selective breeding, how to make a “good cow” became possible. Holloway et. al (2011, p. 534) explain, “[f]or centuries, farmers have used phenotype to improve livestock. They selected the best looking and performing animals to produce their next generations” (ibid). This processes of breeding relied entirely on the farmer, and the breeder’s eye for detail. By choosing desirable traits from the mother (cow) and matching these to compatible and desirable traits of the sire (bull), offspring that had bodies that met the intensifying requirements of the productionism were bred into existence. This early period of New Zealand agriculture, commonly referred to as the ‘long boom’, saw the ‘cottage industry’

rapidly replaced by intensification. This period ended in the late 1960s when New Zealand lost the majority of its export income from Britain after its entry into the European Common Market (Campbell, Haggerty & Morris, 2009, p. 770). Due to the widespread and devastating effects of the 'Rural Downturn', many agriculture industries in New Zealand downsized, and diversified from intensive practices that had previously dominated much of New Zealand's export driven production.

Responding to market signals and changing cows

In response to the 'Rural Downturn', which began around 1967 with a dip in wool prices (Campbell, Haggerty & Morris, 2009, p. 770), New Zealand agriculture began to re-shape and re-form itself by rolling back government involvement in trade agreements and industry subsidisations (Le Heron, 2003, p. 111). Opening itself to consumer driven market pressures and exploring the global food economy, New Zealand agriculture began responding to "the contradictory dynamics of trade liberalisation" (ibid). This period saw "the role of the state in regional and national agricultural governance has been gradually replaced by consumer - and industry-driven environmental regulation initiatives in certain market sectors" (Campbell, Haggerty & Morris, 2009, p. 767). These settings "encouraged the growth of productivist farming, marked by specialisation, intensification and economic concentration" (Lawrence, Lyons & Richards, 2013, p. 31). The newly neoliberalised political and economic climate of New Zealand agriculture saw farms specialise to capture target markets (Lawrence, Lyons & Richards, 2013, p. 35).

Due to low government subsidisation in the dairy sector, the 'Rural Downturn' was experienced differently by the dairy industry in comparison to the sheep industry which

suffered losses in production, stocking rates and income. Willis notes, “[w]hile dairy exports have almost maintained their share of total export revenues, dropping from only 20% to 19%, wool’s share has dropped from 16.6% to 2.8%” in the same 30 year period from 1971-2001 (Willis, 2004, p. 87). In the same period, cow milk yields increased at a rate of 0.78% per annum, while “annual milk production per hectare has risen at an annual rate of 1.4% since the early 1970s” (MacLeod & Moller, 2006, pp. 207-208) when the ‘Rural Downturn’ began. Due to the monitoring and manipulation of cow bodies, dairy farming remained profitable as the dairy sector responded to market shifts by increasing production through increased stocking rates. Additionally, further investment in breeding technologies to create higher producing cows and greater input into feed management to secure a higher milk yield per cow saw the dairy industry remain steady in times of economic crisis. These changes are similarly observable in the positions and attitudes of dairy farmers, both in their economic and political participation and relationships towards the land and animals they farm.

Resisting diversification

Campbell, Haggerty and Morris (2009, p. 770) suggest that after a series of failed crisis interventions during the ‘Rural Downturn’, many sectors of New Zealand agriculture began to diversify. However, MacLeod and Moller argue that although there has been some diversification appearing throughout New Zealand agriculture, ultimately, intensification has not been displaced (2006, p. 212). Rather, “intensification has been facilitated by advances in management skills and technology, in particular the introduction of agrochemicals, machinery, and new crop varieties” (MacLeod & Moller, 2006, pp. 212-213). Due to the dairy sectors co-operative ownership structure and long-term government involvement via the New Zealand Dairy Board (Willis, 2004, p. 83) the impacts of the ‘Rural Downturn’ were not experienced in ways similar to other primary industries. As other agricultural industries

began repositioning themselves in changing markets, the dairy industry maintained intensive practices, such as using “seven times more herbicide per hectare than sheep and beef farming” (MacLeod & Moller, 2006, p. 208). Additionally, the emergence of Fonterra, “a private company, co-operatively owned by its 10 600 farmer shareholders who supply the milk” (Gray & Le Heron, 2010, p. 4), directly impacted how cows’ bodies were conceptualised and treated in the productionist paradigm. Fonterra is the world’s larger exporter of raw milk, and is competitive on global markets (ibid). As a result, dairy farmers, in response to the market signals portrayed to them through Fonterra, the monitoring and modification of New Zealand dairy cows to meet production goals continued to intensify.

In the Manawatu, cows currently comprise 4.5% of national dairy herds. The area has an average herd size of 555 cows, with an average of cows having 2.79 hectares each to live on (Dairy New Zealand, 2014, pp. 13-14). Data retrieved from herd testing over the 2013/14 season shows that, as a regional herd, Manawatu cows produced 80, 833, 831kg of milk solids (Dairy New Zealand, 2014, p. 15). Although this is an increase to previous annual production rates, by a national standard the Manawatu is not experiencing intensification at rates like those in the South Island where numbers of conversions from sheep and beef to dairying has seen the region develop quickly with the largest average herd sizes of 815 in North Canterbury (Dairy New Zealand, 2014, pp. 14). In comparison to other regional herds, Manawatu is average in size, production rates, reproduction statistics and development. However, intensification is not limited to South Island dairy farms. The Manawatu is currently a region where production continues to drive farmer attitudes and reshape cow bodies in the pursuit of making milk, and more reliable offspring.

I grew up on a Manawatu dairy farm after the ‘Rural Downturn’. Here, I experienced many humanimal relationships. As I grew older, our herd size grew larger. In doing so, it became increasingly difficult to ‘get to know’ many of the cows. With the increase in herd size, our family invested in more land, infrastructure and technologies to continue intensification. In this time, I have cared for calves and cows, but I have also worked with them. In doing so, I have constructed their bodies as representations of my own identity as calf handler and milk harvester. While attitudes of productivist farmers are often explored, “missing in the international literature on the audit revolution has been how new forms of agri-food governance have interacted with the cultural politics of being a farmer” (Campbell, Haggerty and Morris, 2009, p. 771). Additionally, much less attention is given to productionist animals intersubjective relationships with farmers in intensive farming. In their research on the relationship between “good farming”, neoliberalism and sheep bodies in the South Island of New Zealand, Campbell, Haggerty and Morris (2009) argue, that “in New Zealand, farmer attitudes towards animals are interwoven with a longstanding cultural narrative associating productivism – within limits – to ‘good farming’” (pp. 768-769). In response to market reforms, and farmers’ subject positions as “good farmers” are made visible through paralleled changes, or re-formations of “good cow” bodies.

“Good farmers”

According to Burton, “the practice of increasing production has become incorporated with the very ethos of being a ‘good farmer’ and has developed as an important feature of the contemporary farming culture” (2004, p. 197). Adding to this discussion, in an exploration of local determinates of farming social structure, Hatch (1992) argues that becoming a “good farmer” is highly contested because of the fluctuating criteria on which “good” is judged, and by who the judgment is made (p. 184). During fieldwork, farmers often described how

judgments about farming practices are perceived through surveillance, both imagined and real, in rural communities. Because most farms are highly visible from the road side, farmers take note of, and comment on other farms tidiness, and appearance of cows. From these observations, judgements are made about “good farming”. Nonetheless, all farmers work towards being a “good farmer” and not a “bad farmer”. Through acquiring “good farmer” capital, farmers can choose to make decisions about what constitutes “good farming” (Campbell, Haggerty & Morris, 2009, p. 769). However, Burton (2004) suggests that it remains unclear in the literature whether being a “good farmer” is “a cultural manifestation of productivism...or simply an inherent feature of commercial agriculture” (p. 197).

In his examination of the social symbolic value of “good farmer’s” productivist behaviours, Rob Burton (2004) argues many farmers may find the required changes to less-intensive practices, and the altering perceptions of their farming selves and culture unsettling (p. 211). Consequently, farmers may choose not to engage in the changes necessary to diversify from intensive production practices. However, as previously discussed, the New Zealand dairy industry is not experiencing diversification into alternative agricultural structures in similar ways to some other productionist New Zealand primary industries. In response, and to genuinely engage with the lives of cows and farmers in the Manawatu, this research focuses on the mundane practice of dairy farming in its current productivist landscape as it responds changing, and often conflicting market signal changes.

Post-productivism

Productivism dominates the majority of literature on contemporary farming culture. It is defined by “the overwhelmingly utilitarian approach to land use based on intensive forms of

agricultural production (and accompanying attitudes, goals, roles and behaviours) that results in a uniform landscape” (Burton, 2004, p. 198). Conversely, post-productionism is based on non-intensive (sustainable) agricultural practices that, supposedly, lead to different land use and with it, farmer subjectivities that deviate from cultural narratives of productivism (Burton, 2004, p. 198). Post-productivism is defined by the decentering of intensive farming practices through an engagement with sustainable farming practices that are considerate of the environment, meet human food needs and comply with a just social order. Post-productivism is a result of diversified productivist attitudes and intensive agricultural practices. Once post-productivism has created its own symbols of “good farming” for farmers to embody by dissolving the stigma that diversified (organic and alternative) farmers are “failed farmers”, the existing farming culture embedded in intensive practices can change (Burton, 2004, p. 211).

Post-productivism is not currently part of the New Zealand agricultural landscape. However, the farmers involved in this research are currently experiencing competing demands to intensive productionist practices in the Manawatu. These farmers are expected to pay specific attention to environmental impacts and animal ethics, while also increasing production which is often a conflicting experience for the farmers. Altering farmer self-perceptions of what it means to be a “good farmer” and accessing ways to bring about these conceptual and practical shifts in dairy farming are not simple changes for farmers to make. The majority of productionist farmer subjectivities are located in farming practices, and also in “good cow” bodies. As farmers work to maintain their “good farming” identity, “good cow” bodies are central to how farmers, and also, how other farmers perceive them. However, what a “good cow” looks like is reliant on individual interpretation. Hence, farmers have to find ways to make “good cows” for themselves, for others, and for the often conflicting demands of

productionism. Ultimately, competing tensions inherent in productivism can create uncertainty in farmers' sense of self, along with altering the networks of dairy farming in which "good farmer"/"good cow" subjectivities emerge.

The enduring state of productionism is not because of an unwillingness to change intensive practices on the farmers behalf (Burton, 2004, p. 211). Rather, this reluctance may be associated to farmers' loss of social, political and economic capital. This loss can be severe for farmers. Change to farmers' identities as "good farmers" entails not only a loss of status for the current farmer, but can affect the status of their family who may have been farming the land and controlling landscapes and animals bodies for generations (Burton, 2004, p. 211). Continuation of intensive farming practices could suggest dairy farmer subjectivity is deeply embedded in productionism. However, farmers do adapt their subjective positions and farming practices to wider economic and political changes and pressures as "farmer subjectivities are situated in dynamic relations with agri-ecologies (landscapes, animal bodies, climates) that form a key black box within which the outcomes of political-economies reform are contested and fixed" (Campbell, Haggerty & Morris, 2008, p. 768). Additionally, because of the responsiveness and malleability of cows, their bodies become key sites for understanding "good cow"- "good farmer" relationships in the rapid and complex changes of the dairy industry.

Animal/farmer relationships

In Bailey et al's (2005, p. 100) examination of the ramifications of the foot and mouth disease epidemic in farming and non-farming communities of North Cumbria in the United

Kingdom, they note how the sight of farmers weeping next to piles of burning animal bodies is representative of the complexity inherent in contemporary production animal-farmer relations. They argue that these displays of distress highlight how disruptions to humanimal relationships indicate the heterogeneous formations of emotional geographies when production animals can be, and often are both beloved pet and food (Bailey, et. al, 2005, p. 100).

Articulated in Bailey et al's exploration into the foot and mouth disease epidemic (2005, p. 105) is the ambivalence inherent in defining "good cow"- "good farmer" relationships. As Bailey et. al (2005) state, "perspective and discourse portray the same animal as a 'machine', a 'friend', a 'representation of a life's work', an ephemeral presence, or a 'bovine replicant' with limited lifespan" (p. 105). In one respect, production animals are required to be clean and docile pets. However, this often contrasts with the industrialised structure of their lives, and the anonymity they experience in death (Bailey, et. al, 2005, p. 100). In this light, "good cows" and "good farmers" can be seen to embody the competing demands inherent in productionist tensions. Alternatively, by viewing those same tensions as complexities that add context and multiple layers of relating in dairy farming networks, "good cows" can be seen to make "good farmers" and vice versa. As I highlight in the following discussion, contemporary productionist animal bodies provide an avenue for understanding cow specific subjectivities, what Little ANThropologist and Cow have discussed as 'cowness'.

Holloway et al (2011) suggest that "farmed animals occupy a complex place in their relationships with the humans who farm and consume them" (p. 535). During fieldwork, I spent time lingering in the space of 'cowness', exploring how humanimal relations are

informed by multiple networks. Spending time with cows revealed that humanimal relationships are complicated because of competing ideas about what makes a “good cow”, and how “good farmers” are made through production cow bodies. Surveying literature on productionist cows, I found the majority to frame production cows as a stunted species, alienated from their herd mates, products, offspring, human co-workers and selves. Although this literature does not exactly mirror my experiences of the creative and compassionate nature of cow-farmer relationships, I have drawn on this literature specifically to highlight the complexity of making “good cows” and “good farmers” in the Manawatu.

Locating cowness in the literature

There is an emerging body of literature on the relationships between “good farmer” and animal bodies. However, the intersubjective nature of cow – farmer relationships is seldom explored, and as I suggested in the Introduction, when these explorations do occur they are frequently aimed at better understanding humans. Observable in the burgeoning literature on animal ethics, and health, are animal categorisations that objectify animals as industrial production tools and their symbolic value to farmers. Due to an increased interest in contemporary production animal ethics and health, the intersubjective dynamic of humanimal relationships are beginning to be explored by social scientists interested in the complex lives of non-human animals (Holloway, 2009, pp. 1043-1044). Although these discussions remain limited to animal ethics, they do offer understandings of how contemporary animal bodies are manipulated for the purpose of production. However, the majority of this literature has emerged out of Europe where large numbers of cows are confined to indoor housing for the majority of the year. On the other hand, there are such small numbers of cows per farm that the European dairy sector resembles New Zealand’s late 1800s ‘cottage industry’. Therefore, the majority of literature on cow subjectivity does not speak directly to contemporary New

Zealand dairy industry. However, how 'cowness' is articulated in this literature illuminates the diversity of production cows lives, and the applicability of social science theories for exploring production animals and farmers humanimal relationships.

Dairy cows' alienation as animal workers

I outlined in the Chapter One that farmed animals are given less attention in the social sciences because they are considered less interesting topics for exploration. Why farmed animals, such as dairy cows, do not receive as much academic attention as others is, according to Gunderson, Schewe and Stuart, because if "we consider farmed animals as part of society, they remain a social group exploited for a single purpose (food), and most people prefer not to contemplate where their food comes from" (2013, p. 202). Hence, the invisibility of farmed animals remains. In response, Gunderson, Schewe and Stuart (2013) extend Marxian theories of alienation to dairy cows, arguing that modern dairy cows have been distorted, stunted and altered by human praxis (Gunderson, Schewe & Stuart, 2013, p. 208). Gunderson, Schewe and Stuart's (2013) work shows how 'cowness' is conceptualised in social science literature, and further, how cows' lives as labourers estranges them from 'cowness' in productionist networks.

Gunderson, Schewe and Stuart (2013) argue that thinking about nonhuman animal species without human intervention can highlight the ways in which cows have the potential to be unalienated and free to realise their specific needs and capacities (p. 208). Drawing on studies of semi-wild herds, they suggest cows enjoy roaming large areas while foraging for foods such as seasonal grasses in herds of less than 20 members (Gunderson, Schewe & Stuart, 2013, p. 208). In non-domesticated circumstances, cows adhere strongly to hierarchy

behaviours, often licking more dominant cows as a social service (ibid). In these semi-wild herds, away from confined spaces and the daily pressure of producing milk, cows also play and mock fight regularly (ibid). Further, cows mate seasonally with roaming bulls and form close bonds with their calves and stay close to them for months after birth (ibid). Once calves start to develop socially, they play with their mothers, and also learn to play with other calves (ibid). This suggests, “a dairy cow’s species being includes: socialisation (including kinship and play), travel, foraging, mating and rearing calves” (Gunderson, Schewe & Stuart, 2013, p. 208). Humans domesticated cows because of their similarities to humans in needs and behaviours of socialisation, adaptability and communicative abilities (Gunderson, Schewe & Stuart, 2013, p. 208). However, the development and intensification of modern agriculture has distorted the relationship between cows and humans to such a degree that the networks production cows are enrolled in vary greatly from semi-wild herd networks. In modern agriculture, cows are workers, “commodities or production devices they are no longer seen as beings with a moral status” (Gunderson, Schewe & Stuarts, 2013, p. 208).

Further distancing cows from their species-specific needs and behaviours in productionist dairy farming is their alienation as labourers. “Like the human worker, the industrial dairy cow’s product is external to her and dominates her” (Gunderson, Schewe & Stuart, 2013, p. 210). Cows’ lives revolve around making milk. Between the specialised feed they eat, continual pregnancies, pharmaceuticals used to keep them producing milk, and mechanised milking machines, cows’ lives are dominated by production (Gunderson, Schewe & Stuart, 2013, p. 210). Furthermore, cows are separated from their calves, often immediately after birth, and the milk which is made to nourish their offspring is taken away and no longer belongs to the calf or to the mother cow (ibid). Human workers are able to use the products they make for their own livelihoods, however, Gunderson, Schewe and Stuart (2013, p. 210)

argue that in industrial conditions, cows' milk belongs to an external entity. Milk itself "becomes an alien force that is turned against the cow and becomes the foundation for her own brutalisation" (ibid). Looking at humanimal relations through a Marxian analysis, cows are seen to be alienated, and so completely detached from their product, and from their offspring through the forced removal of their milk. However, Little ANThropologist sees cows, milk, offspring and farmers as materially and socially connected in productionist networks. Gunderson, Schewe and Stuart's (2013) analysis does highlight the ambiguity of cow identities in productionism; it also works to remove agency from cows. While approaches such as these are useful to think about the impacts productionism has on 'cowness', they also problematize cows. Considering cows as only alienated workers, 'cowness' is not only void of agency, regardless if that agency is intentional or unintentional, but cows' bodies become inactive in their submission to human intentionality.

Gunderson, Schewe and Stuart (2013) continue their extension of Marx's theories of alienation to cows by arguing that cow bodies are mortified through industrial dairy farming practices. Drawing on Dicken's (1996) views of alienation, emancipation and divided labour in the dairy sector, they note that cows are deskilled labourers, and therefore their 'cowness' is broken apart (Gunderson, Schewe & Stuarts, 2013, p. 210). According to Dickens (1996), production "animals are being treated as disaggregated wholes, only parts of which are dealt with by human beings, primarily for human beings" (p. 63). Cows, as alienated labourers, entire existence revolve around making milk, and creating offspring to take their place in the production regime (Gunderson, Schewe & Stuart, 2013, p. 210). "Not only are cows' activities specialised and monotonous for the instrumental pursuit of milk production, but so are the bodies of cows, down to their genetic makeup" (Gunderson, Schewe & Stuart, 2013, p. 210). In order to maximise yield and longevity, the "dairy cow's life is a perpetual self-

estrangement: her actions, movements and genetics have been harnessed to increase production” (Gunderson, Schewe & Stuart, 2013, p. 210). Similar to human workers, cows become “a living appendage of the machine” (Ollman, 1976, p. 138). These bodily constructions highlight how cows are not efficiently designed as representations of “good farmers” or “good cows”, but rather are always in a state of translation, and so are in ongoing negotiations with the various networks they are enrolled in.

Production animals are exploitable commodities. Hence, production cows are alienated from roaming open spaces for food, seasonal mating, rearing calves, socialising and play. Cows are forced to reproduce through artificial insemination, stand stationary for long hours on concrete floors while waiting to be milked, have their milk and offspring forcibly removed and are then culled early in life after the pressures of production have taken their toll (Gunderson, Schewe & Stuart, 2013, p. 211). As Gunderson, Schewe and Stuart (2013) state, “[s]imply, the cow has departed from what it means to be a cow” (p. 211). In departing from what cowness is, all may seem bleak for the life of cow. However, in the Manawatu dairy farms I visited to milk cows during my research, I came to understand that cows are clever and highly intuitive animals who manage to find creative ways of expressing ‘cowness’ in the confined spaces of industrial milking sheds. Play, socialisation and communication are central features of ‘cowness’ that are said to be stunted by the processes of alienation to the species being of a cow (Gunderson, Schewe & Stuart, 2013, p. 208). My fieldwork experiences show how cows not only play, socialise and communicate with one another, but also with their human counterparts. These interactions both form the foundations of cow-farmer humanimal relationships, but also demonstrate how cows challenge the apparent rigid boundaries imposed upon them in productionist dairy farming. Consequently, ‘cowness’ itself is seen to be fluid in this research. However, humanimal relationships are informed by

various wider productionist networks. As such, there is no avoiding the stresses caused to both cow and farmer labourers who work to make milk in intensive dairy farming.

Pressures of existing as a cow in production-driven farming are said to distance cows from their herd mates, further alienating cows from socialising which is a key feature of cow species being (Gunderson, Schewe & Stuart, 2013, p. 212). Living, and working in confined spaces results in cows exhibiting aggressive behaviours not seen in semi-wild herds of cattle (Gunderson, Schewe & Stuart, 2013, p. 212). As I mentioned previously, the majority of current dairy cow research is emerging out of Europe where it is common practice to house large numbers of cows in confined spaces. Manawatu dairy farms are not structured in this way, and the farms I visited during fieldwork were all pastoral farms where cows live outside all year round. Hence, Manawatu dairy cows are not subjected to alienation from their herd mates due to living environments such as those in intensive European dairy farms. However, milking sheds are confined spaces in which cow-farmer relationships are formed on Manawatu dairy farms. These confined spaces do impact farmer's ability to perform "good farmer" behaviours of paying close and caring attention to their "good cows" needs and desires.

Resonating with my research is Gunderson, Schewe & Stuart's (2013, p. 212) argument that cows are estranged from their relationships with humans in intensive productionist dairy farming. "Industrialisation to maximise profits and capture economies of scale has resulted in large-scale operations where farmers cannot know individual cows well" (Gunderson, Schewe & Stuart, 2013, p. 212). Betraying the historically trusting relationship between human and cow labourers on modern dairy farms, is the replacement of human labour with

technology (Gunderson, Schewe & Stuart, 2013, p. 212). This replacement of human labour is required in intensive dairy farming to maximise profits. However, technology is used to an extent that farmers are now essentially technicians (Gunderson, Schewe & Stuart, 2013, p. 212). Gunderson, Schewe and Stuart (2013, p. 212) suggest that human use of technology has alienated cows from their human co-workers. During fieldwork with cows in milking sheds, I noticed how ear tags, as appendages to cows' bodies, are used to monitor "good cows" and connect their material cowness to external devices which regulate their virtual cowness. Hence, technology is seen to alienate humans from cows in so much that human workers exhibit detachment strategies in order to cope with the ambiguities of their humanimal relationships in productionist dairy farming (Gunderson, Schewe & Stuart, 2013, p. 212). I draw on the narratives of the three farmers who participated in this research to highlight how humanimal relationships in Manawatu dairy farming create tension between profitability and care for their cows. Narrated in one farmer's use of ear tags is his resistance to making his cow co-workers ambiguous milk-making machines by hand writing coded pet names to the back of numbered ear tags. These narratives of tension are further complicated through cow and farmers location in conflicting ideas about what constitutes "good cows" and "good farmers" in productivist dairy farming networks.

Conclusion

Back in the paddock after a long day together, Little ANThropologist, riding atop Cow's crown sighed in relief as Cow sat down to rest. *'That was a big day Cow!'* He exclaimed. Smiling, Cow nodded in agreement. *'Did my story show you how productivist dairy farming networks are embodied by "good cows"?' 'Yes Cow. Additionally, your story showed me how deeply embedded cultural narratives of what it means to be a "good farmer" are played out through cow bodies'. 'Did you also see how "good cows" symbolise the practice of*

“good farming” Little ANthropologist?’ Nodding in agreement, Little ANthropologist said, ‘I now see that what constitutes a “good cow” is not fixed.’ ‘Well, cows can be machine and co-worker simultaneously.’ Cow added. ‘This explains why you were so interested in flows, Cow. I now understand that the fluidity of ‘cowness’ is translated through cow-farmer relations that are enrolled in various networks. “Good cows” are therefore not only the biological and technological manipulation of their bodies. Rather, “good cows” and “good farmers” intersubjectively form each other in humanimal relations.’ ‘You are quite right Little ANthropologist. Now that we have unpacked the historical relations of cows and farmers we can explore different ways of understanding why cow/farmer relationships are so complex by listening to Cassie’s story. We will see how the embodied, sensory and empathic methods she used during her fieldwork highlight competing ideas about what makes “good cows” and “good farmers” in productionist dairy farming’. ‘Can we start now Cow?’ ‘So impatient Little ANthropologist!’ Cow exclaimed. ‘But I do not want to wait any longer either. Let’s turn the page right now Little ANthropologist and begin.’

Chapter Four: Humanimal Methodologies

The story of Cassie

'Before we begin, I need to drink some water Little ANThropologist'. Clinging tightly to Cow's hair, Little ANThropologist rode atop her crown as they walked across the paddock together until they reached the water trough. Climbing down off her crown, Little ANThropologist came to rest on the edge of the trough. Here, he watched his reflection move with the ripples in the water caused by Cow drinking. When Cow finished drinking, she asked, 'What are you looking at Little ANThropologist?' 'My reflection Cow, I watched it blur with yours in the moving water'. 'That is very interesting Little ANThropologist'. 'Yes Cow. Even though we looked like our individual selves, our reflection showed us as connected'. 'Well, our reflections coming together in the water are like our lives Little ANThropologist. They are both our own, but also connected. Cassie's story about the methods she used during her fieldwork will show how cows and farmers' lives are mutually constituted in cow/farmer networks'. Pondering this, Little ANThropologist asked, 'Can Cassie understand cows considering humans and nonhuman animals do not have a shared language?' 'Drawing on Kohn's (2013) linguistic analysis of communication beyond the human, Cassie will explain how research with nonhuman animals is possible. Further, through imagining the lives of cows' through 'empathic apprenticeship', and employing mixed methodologies Cassie shows how networks are woven with care and concern'. 'What will we find out about Cassie?' Smiling, Cow responded, 'Cassie reveals how she found her own place in ethics as she figures out who she is becoming as an anthropologist, and potential farmer throughout this research project into how cow/farmer networks form'.

While getting ready to enter the field, I had to attend a succession planning meeting with an agricultural succession planner to discuss my future role in our family dairy farm. Here, I was confronted by a question that I had not been expecting when asked, “What kind of farmer do you think you want to be?” I had no eloquent response ready. Clumsily, I strung together a sentence that incorporated phrases such as: ‘family-orientated’, ‘environmentally-responsible’, and ‘technologically-advanced’ with a focus on ethical animal husbandry. This question has lingered with me throughout this research project. I often return to this question as I consider not only what kind of farmer I may become in the future, but also what kind of anthropologist I am becoming throughout this research project. While a definitive answer to this question continues to evade me, in connection with *Little ANthropologist and Cow* I consider my identity, as a potential farmer and emerging anthropologist, as an ongoing process. I am connected to many people, animals, places and things. Similar to *Little ANthropologist and Cow*, I too am fluid.

I have been inspired by many widely known animal researchers as I have come to find my own processes and combination of methods for doing humanimal research. Jane Goodall’s ethological fieldwork with chimpanzees, Dian Fossey’s with mountain gorillas and Biruté Galdika’s with orangutans is considered revolutionary in the study of social animals (Wels, 2013 p.152). It is seen this way “because their methods of study were much more like those approved for anthropologists than like those approved for wildlife biologists” (Montgomery, 2009 p. xiv) in that they drew on empathy to imagine, and therefore further understand the lives of their nonhuman animal research participants. Additionally, their anthropological and empathetic approach to animal research is credited with beginning the deconstruction of hegemonic masculine approaches in the Western scientific study of animals as objects (Montgomery, 2009, p. xix). Together, their ethnographic fieldwork for researching with

animals has paved the way for multidisciplinary research methods where animal lives are considered just as important as human lives (Wels, 2013 p.152). Humanimal research, such as Goodall's, has enabled me to see that anthropological research with animals is possible. Furthermore, their uses of methods from beyond their discipline have encouraged me in pursuing a research project that is not conventionally anthropological.

Doing humanimal research, kyokan and 'empathic apprenticeship'

Wels (2013, pp. 152-3) suggests an empathetic methodological approach to ethnographic research with nonhuman animals is well captured by the word *kyokan*, a Japanese word primate researcher Kawai Masao applied in his fieldwork with monkeys. "*Kyokan* means becoming fused with the monkeys' lives where, through an intuitive channel, feelings are mutually exchanged, that is to feel with them in a shamanistic way" (Wels, 2013 p. 153). To *kyokan* is to understand the perspectives of nonhuman animals through the sharing of everyday lived experiences (ibid). Further, *kyokan* is an embodied and imaginative process of understanding nonhuman animals' lives (ibid). Empathy, Rogers (1961) suggests, "or being empathetic, is to perceive the internal frame of reference of another with accuracy and the emotional components and meanings which pertain thereto as if one were the person, but without losing the 'as if' condition" (pp. 140-141). Rogers (1961) definition of empathy does not extend to nonhuman animals, however, provided by *kyokan* are opportunities to imaginatively, therefore empathetically traverse species-boundaries. Drawing on Gieser's (2008) 'apprenticeship of attention', Farrelly and Nabobo-Baba (2014) suggest that intersubjective empathy can be practiced through an 'empathic apprenticeship'. To engage in an 'empathic apprenticeship' is to emotionally and empathetically understand others varied perspectives through embodiment (Farrelly & Nabobo-Baba, 2014, p. 323). This requires a 'fine tuning' of ones perceptions and actions to understand participants' "lived and felt

realities” (Farrelly & Nabobo-Baba, 2014, p. 323). *Kyokan* and ‘empathic apprenticeship’ similarly provide pathways for understanding how, from a humanimal frame of reference, cows and farmers are in entangled in cow/farmer networks.

Kohn notes that “Entertaining the viewpoints of other beings is dangerous business” (2007, p. 7). It is this risky business that I find myself entangled in. The pursuit of ‘cowness’ is not just complicated, nor is it currently a norm in anthropology. Kohn (2007, p. 5) suggests that this kind of anthropology could lead to an “anthropology that is not just confined to the human but is concerned with the ‘entanglements’ with other kinds of living selves”. It is an anthropology concerned less with human life and all that comprises it and more with the pursuit of life itself in its varied and complex arrangements and appearances (ibid). My research, including anthropological and humanimal research methodologies blended with ANT, to encompass the meaning of *kyokan*. Through ‘empathic apprenticeship’ I learnt to blend together different methods for exploring cows’ lives. As a result, I found myself, becoming blended with my nonhuman participants’ lives.

I was initially drawn to ANT to explore cow networks because it treats humans and non-humans as “an effect of a network of heterogeneous materials” (Law, 1992, p. 381). Thus, ANT enables the enrolment of farmers, cows, farming machines and technology, the environment and myself as actors, capable of acquiring and using agency in a performative way (Higgins, 2006, p. 54). However, ANT does not have methods specific for understanding animals because its methods for acquiring data rely on human language in the form of interviews, document review and journal keeping. Through the course of this research, I used all these forms of data gathering. However, as I explain throughout this chapter, I found

myself removed, like a distant observer of cows' lives when I set about methodically following the actors as ANT directed me to do. Little ANThropologist has emerged within this research to do more than explore how cows have agency as a result of their active participation in the creation of networks. Little ANThropologist, as a brave explorer, sets out to understand the ways in which this participation is embodied, empathetic, and intersubjectively experienced in the humanimal relationships of cows and humans. Thus, Little ANThropologist explores the meaning that is made in cow/farmer networks that ANT neither can, nor desires to do because of its reliance on human-centric modes of communication.

ANT employs generalised symmetry to effectively flatten out power relations between various actors, thus enabling everything to be given serious consideration as networks form. This is an important concept for researching with cows, especially because I want to build a humanimal representation of the participants involved in cow/farmer networks, in addition to considering the various body parts that are central to the construction of "good cows". However, Little ANThropologist moves in further, seeking ways to understand the subtleties present in the durable and generative effects humanimal relationships make within cow/farmer networks. Furthermore, to encompass the playful, creative, clever and sentient nature of cows, I found the methods I used to collect information needed to incorporate anthropological methods so I could explore, and experience humanimal communication myself. These anthropological methods I found vital, so the unique, and interesting subjectivities of cows are equally highlighted within this research.

Inherent in the relational complexities of cow/farmer networks are varied ways of perceiving the world as a shared place. ‘Direct perception’ is the process of directly detecting information (Carello & Michaels, 1981, p. 2). Carello and Michaels (1981) note that “this approach is labelled *direct* because the perceiver is said to perceive its environment” (p. 2). ‘Direct perception’ guided me in navigating the complicated nature of researching with animals, aiding me in an exploration of cows’ lives that does not fit neatly into anthropology, animal studies, or ANT driven STS inquiries. ‘Direct perception’, as I applied it in my research, lead to understandings of “the richness, variety, and accuracy with which human or other animals know their worlds” (Carello & Michaels, 1981, p. 16). This research, as it has evolved, is about recognising and appreciating how farmers and cows’ dairy farm together. Doing humanimal research, I have come to see that I become part of the process that this research has taken. I recognise that I am, in effect, a network of my own, entangled with the very networks I now research. This research is a shared and empathic process. It is about *kyokan*, the delicate and messy blending of cow and farmer lives together, and my life with theirs.

Empathy through food

Like all other postgraduate students I have learnt to sensitively negotiate ethics as I find my place within it. Choosing vegetarianism, I found my own way of honouring the extraordinary, yet oft overlooked value of the lives of domesticated production animals. Finding my own place in ethics, I made a choice to stop eating meat, although I feel as though my choice is not heroic, or a token act for the sake of my research. All farmers I interviewed put cow welfare first, and I never saw any mistreatment of cows during fieldwork. Nonetheless, I have been deeply affected by the systematic violence of capitalism and subsequent commodification and sterilization of my animal participants’ bodies and lives. Cows are, as I

have come to see them in this research, and my journey into becoming a farmer and an anthropologist, not only participants but also friends. These animal friends, I feel, deserve the same respect, empathy and trust in our relationship that I have come to understand as an anthropologist.

Ethical decisions anthropologists make during fieldwork are carried with them into their lives long after the fieldwork period has ended (de Laine, 2000, p. 2). The first time I called myself a vegetarian ‘out loud’ to my family was a truly awkward and haunting memory of fieldwork that I will carry with me well beyond the completion of this ethnographic study. I am still subtly teased for my recent change in food choice at family meals. As I reflect on my choice to stop eating meat, I know that thinking about cows as my participants, and developing a new-found respect through developing an empathy for their short and hard working lives has solidified this choice. In making this choice, I have drawn myself a little closer, engaging more with my cow participants, and have found that I can experience empathy for cows by choosing not to eat their meat.

Laura Ahearn defines agency as the “socioculturally mediated capacity to act” (2001, p. 112). Additionally, Linda Nash (2005, p. 68) describes agency as the embodied and practical engagement with the world. Through this engagement, human and nonhuman intent and actions impact or influence others. Furthermore, Nash (2005, p. 68) notes agency can be intentional and unintentional. Reflecting on my choice to become vegetarian, I have come to see how cow agency is not an extension of human agency upon a nonhuman, but one of the many ways in which cows have agency of their own. Thus, although cow agency can affect and impact change in a another being, this agency is more a reflection of the ways in which

cows are actively, socially and materially entangled in the world in which they share with many other beings (Nimmo, 2011b, p. 59).

Fieldwork at home, entering a familiar field

Before settling on a research topic for this project, I had decided that I would research at home in the rural dairy farming area of Manawatu where I grew up. Researching at home is now commonplace for many anthropologists. Fieldwork at home has many practical benefits, such as easy access to family, community and academic support. In doing fieldwork at home I have enjoyed coming and going from my fieldwork site over the two years I have worked towards completing this research project. Created in this sense of being at home, I have developed new connections and appreciations of the land, people, and animals who also call this place home. Furthermore, conducting fieldwork at home in the Manawatu has motivated my commitment and sense of responsibility to my research participants (Greenhouse, 1985 p. 261) and to the development and direction of this thesis.

Carol Greenhouse suggests doing anthropological fieldwork at home, where the researcher has a sense of familiarity can be deceptive. Familiarity, Greenhouse argues, may work against inquisitive anthropologists “because the familiar may conceal the extraordinary” (ibid).

Nonetheless, I have always been fascinated in exploring the extraordinary in the ordinary. Researching at home I endeavoured, unknowingly at the time, to anthropologise my home. Home now is a place I have put under an anthropological microscope, searching and invading places I had not previously considered interesting, or worthy of close inspection or much reflexive thought. Anthropologising home has made me seriously consider my place within it. By anthropologising home, it feels a little weirder to me now because it is also a fieldwork

site, and I think of it this way sometimes instead of thinking of it as home, thus making me feel like a visitor to in a place I have always felt loved, safe and welcome. The benefit of this new perspective for this research is that I have stopped taking for granted this densely cow populated area, and the dairy farmers and dairy cows living there.

To discover the amazing in the mundane practice of dairy farming where cowness comes into being, I began by asking one local dairy farmer I have known my whole life if he would participate in my research project. He then suggested two other “good blokes” to interview as they are running slightly different dairy farms to his and would have the time to speak with me. This method for gaining participants is called snowballing, and it is a method I used and found beneficial when I researched rural women’s embodiment of farm machinery (McTavish, 2013). It is a discreet recruitment method where, through a gradual process of recommendation and recruitment, a network of participants’ emerge (Streeton, Cooke & Campbell, 2004 p. 37).

While snowballing at home, I was not surprised to find that I knew all of my participants prior to my research. I was, however, humbled that the two farmers recommended to me by my first participant enthusiastically agreed and were excited about being interviewed by me. Interested in my research and keen to share their stories of dairy farming with me, I was exotic to the farmers because I have been living away from the area for many years and studying an academic discipline they had not previously heard of. I became engaged in long conversations with the farmers about what anthropology is, why I wanted to study cows as a social scientist, where I have been for the last five to ten years and, my favourite, questions

about what job I will get when I finish my degree. All this happened even before the recorder was switched on to begin the life story interviews.

Sharing stories

I have always loved stories, listening to them, reliving them and crafting ones that best present my life. This thesis is itself a story of my life and of my continuing journey of becoming an anthropologist and discovering what kind of farmer I might want to one day be. Furthermore, it is the story of the three farmers and many cows who participated in this research, my family, and my intellectual relationship with my academic supervisors. This thesis is a story of *kyokan*, shared, crafted and cared for by many.

My investment in farmers' lives has spanned my lifetime. However, my academic interest in farmers' lives has slowly developed throughout my years as a postgraduate anthropology student. Beginning with exploring rural women's embodiment of farm machinery and perceptions of rural gendered identity in my honours dissertation (McTavish, 2013), I became fascinated with rural people's lives, the stories they tell and their engagement with other humans, animals, machinery, and technology. In the early stages of this research project, I was interested in understanding how biotechnologies, such as artificial insemination, are adopted and used by dairy farmers on dairy cows. I was intending to explore the ways in which dairy farmers adopted or rejected these practices in response to cows own acceptance and rejection of these life-fostering and life-controlling biotechnologies in the everyday context of living and working on local dairy farms. Although biotechnologies did not remain the key focus of my research, the stories farmers' shared still informed my research in its new form.

To understand these stories of biotechnology I decided to begin my fieldwork with the life story approach to interviews. The life story interview is used as a method for collecting data in many disciplines within and beyond the social sciences (Atkinson, 1998 p. 3). This style of interview differs from other interviews, such as structured and semi-structured interviews, because the direction of the interview can take any form the interviewee sees fit in order to deliver their personal account of their life. Using life stories as a key methodological tool, I found myself drinking cups of tea in familiar lounges, and sharing chocolate biscuits at dining tables I had shared meals over as a child, excited about what might the life story interviews might reveal.

“Telling and listening to life stories is a powerful experience” (Atkinson, 1998 p. 3). Through story telling sense is made of our lives. Connections, conflicts and resolutions with others is understood and made meaningful (ibid). During life story interviews with farmers, I was encouraged to share parts of my own life story. This sharing made me feel welcome in my participants’ homes and in their lives. According to Hatch and Wisniewski (1995, p. 113) life stories are particular, useful and interesting ways of knowing and understanding that can be shared with others. Sharing became just as powerful as the life story interview method itself. Through sharing, my farmer participants enabled me to talk out loud about what kind of farmer I wanted to become, and to contextualise these feelings and aspirations in ways that fit the current landscape of dairy farming in the Manawatu.

“It is impossible to anticipate what a life story interview will be like, not so much for how to do it but for the power of the experience” (Atkinson, 1998 p. 22). I asked the participants about their lives as dairy farmers, usually opening with a question like, “How did you get into dairy farming?” or “How long have you been a dairy farmer?” I was, however, surprised about the power of the content of the life story interviews. As each farmer shared their life history with me I became fascinated with how their lives, and their identities as dairy farmers are mutually constituted with dairy cows and vice versa. This is not to say that all the farmers and I talked about was cows, but in the context of these interviews which were about their lives as dairy farmers, cows certainly emerged as a central theme.

A new focus for my research developed from the powerful experience of life story interviews. As I listened to the farmers tell stories of how their lives are *kyokan* with their cows, I wanted to understand how cows are more than objects of production and reproduction. The life story interviews revealed to me that cows have a say in the way in which they respond and relate with multiple other actors and networks. From these experiences, and reflection on the overall purpose of this research, I refocused my fieldwork. Instead of conducting more interviews, I wanted to spend more time lingering in the space of cows to better understand how cow/farmer networks are made and the agency cows have in this making. My fieldwork then left the comfort of the farmers’ homes and moved into the varying environments where cows live and come into being.

Spending time at the local stockyards, I engaged in participant observation, although I was not participating in observing human life as is commonplace in anthropology. Rather, I ventured to the stockyards to see up close the ways in which cows bodies are paraded and

viewed for purchase by humans. During the life story interviews the farmers had discussed how the hooves, udder, womb and ear tags are important, and currently largely magnified parts of the cow's making. I now wanted to investigate those important parts of the cow's body. I decided, with the company of my younger sister, to head to the local stock yards to see what cows became there, in that particular place, and with those particular people. The purpose of this endeavour was to put myself in a situation where cows' bodies were the central focus, and explore the ways in which they are talked about and critically examined. However, I found myself separated from the cows, as though I was some distant observer completely detached from the cows' lives. I was simply an observer, outside the experiences of the cows being sold there. While I did learn a great deal about how stockyards work, and the ways in which cows' bodies are commoditised objects here. This was not participant observation as I thought it was going to be. Thus, I was unconvinced that I had found the right place and method to engage with my nonhuman participants in order to explore the messiness of their networks.

Understanding in silence

Learning from the stockyards, that if I was to get close to understanding cow networks, I needed to be where the cows are most often. I needed to spend time with them at home. I use the word 'home' because it highlights the lack of boundaries between the farmers of this research and cows. I had initially thought of going to artificial insemination (A.I) sessions in combination with visiting the farms. However, tragedy struck our family in the most unfair of ways with the passing of a close family member. Then again it struck – and again. Because A.I happens seasonally, my window of opportunity for A.I sessions passed me by. For what felt like the first time since beginning postgraduate research, I was not fazed by this lost opportunity as my mind was far from cows in a distant land of dark shadows and fuzzy

realities. Instead of A.I sessions, shortly after the last funeral for that part of the year, I went milking with one of the farmers.

Waking up at five am I drove out to one of my participant's farms. Here I milked cows, talked about them with my participant and his son, drove out into the farm and looked around the paddocks and met the bouncing herd of calves being raised there. It felt selfish that I found great joy in this distraction from my own life. During my time at the farm, I also realised that I had become highly sensitive to other beings that were not human during my time of mourning. As I felt like I had talked enough to last a year in the recent months, I found solace and compassion in the large warm bodies, and widely observant eyes of cows. Engaging with cows without the need to speak, to justify my mood or explain my feelings in words, was healing for me, not to mention interesting in terms of this research. I was able to spend some time in silence from the human language and focus on other modes of communication. Not focusing on asking the farmer a multitude of questions, I started watching what the cows were doing in the milking shed. I began exploring silence.

Silence, as a mode of anthropological inquiry, examines the ways in which what is not said can be just as powerful as speech (Glenn, 2004, p. xi). Present in silence is a mode of knowing, an avenue to engagement, and understandings of what happens in the expressive, quiet places where verbal language does not reside (ibid).

Silence is presence and absence, warm intimacy and chilling alienation.

Silence enables reflection, a simultaneous exploration of self, other and space.

Coming closer to the other takes time, a patient approach. Silence is thus

openness and the positive and necessary condition for a simultaneous construction of self, other and place (Costaglioli & Van Assche, 2011, p. 129).

I found communication present in silence, in the absence of verbal symbolic communication. Silence does not always imply a lack of something or a space where something was left out or purposely forgotten. In the absence of verbal communication, my nonhuman participants' and I began to communicate without words. I found this form of silence unlike my experiences of silence with the farmers in the life story interviews. When silence arose during the life story interviews the lack of words was often purposeful, giving a moment for reflection, allowing me, as the interviewer, to digest information or pointing to an unspoken understanding. This is a silence that I am familiar with and know how to participate in because I have, as a user of language, always used silence, and had it used on me as well. The silence between cows and myself, was however, much harder to make sense of.

Anthropologists interested in silence agree that the spaces where silence works are varied and vast. Wherever silence lives, there also exists a powerful site of inquiry for anthropologists working to understand who can speak, and who cannot and what happens in the muteness (Van Assche & Costaglioli, 2011). In silence, I directed my perception towards cows. In my participants' milking shed, the voices of the farmers, the words in my head, and the hum of the machines all became background noises as I ventured into that place of silence. Climbing the rail separating the inner milking shed from the cows waiting to be milked, I looked straight into one of the cow's eyes. This cow was magnificent. Towering above the rest of the herd, she turned her head slightly and stared straight into my eyes. I stared back, completely absorbed in her. Noise, time, and feeling all slipped away as I came face to face with what I had been searching for. While I was grieving, I did not register at the time that what I needed

was front and centre, silently commanding my attention. Standing and staring silently at me, the cow kept planted firmly to the concrete beneath her, making sure all the other members of her herd had to push past her to enter the milking shed. A cow, at work in the shed was what I had I been looking for so I could explore the ways in which cows have agency in the mundane activity of producing milk with their human co-workers.

Interactions with dairy cows generally felt delicate, as though the cow's large bodies and potential brute strength melted away during my entrée into humanimal communication. This sensitivity and quietness has now woven its way through my fieldwork with cows, and interacting with them has been altered in a way that words cannot capture. Interactions with animals changed at this point to engagement where words were not so necessary. It was here, in my participants' milking shed that I felt like I had found a place where I could begin to see in practice what the farmers had exposed for me during life story interviews about how cows' and farmers' lives are mutually constituted. At this point of my field work, I was asked by my family to help with milking our herd of 700 cows. With my now refocused research, I eagerly agreed to the work, knowing that more time with cows would lead to a richer understanding of their lives, and refinement of cow/farmer networks.

The maxim of ANT is to follow the actors and "listen to what they have to say; take a look at what they are doing; give them the benefit of the doubt; and try to provide accurate representations of their beliefs and actions" (Dolwick, 2009, p. 39). By drawing on life story interviews and participant observation in combination with my own knowledge on cows and that of my family and supervisors, I am constantly following the makings of the network. Communicating with my nonhuman participants was, however, much more difficult and I

spent a large amount of time thinking about how to convey the meaning I made from my time milking cows without the use of a symbolic language.

Milking cows with my senses

Social anthropologists have long since advocated that researchers should generally join in, to the extent that their (locally defined) social status allows them to, with what their informants, or the people whose experienced realities they are trying to comprehend, are doing (Pink, 2007, p. 243).

Milking cows is a mundane task. Now, in my family milking shed I joined in with the other milkers in the sensory and embodied experience of milking cows. Cows walk into the shed from the yard where they have been waiting to be milked. Automatic milking cups are placed on the cow, one metal tube-like sucker for each of the cow's teats. This is carried out by the milkers who stand below the cows in a pit: their eyes just above the udder level of the cow (see figure 4 below). The cups are then changed over from the milked cow to the unmilked cow in the opposite row. Once an entire row of cows has been milked, and their cups placed on the opposite row, the milked cows are let out of the row via a front gate and they make their way out of the shed and towards their paddock. In the paddock they eat, drink, rest, socialise with other cows and chew cud until it is time for the next milking. The repetitive pattern of changing over cups continues during a milking with little interruption until all the cows are milked. In my family milking shed this took between three to four hours. Cristina Grasseni, in her research with Italian cattle breeders, found that participant observation “means sharing a process of sensory apprenticeship in order to appreciate and, to some

extent, even appropriate the ‘way of seeing’ of the ethnographic subject” (2004, p. 13). Embodying what the milkers were themselves doing in the milking shed, I engaged in the practice of milking cows through an ‘empathic apprenticeship’. I was a participant observer of the milkers. However, what I wanted to understand in-depth were the cows. I needed to find out how cows demonstrate agency in the formation of their humanimal co-created selves. However, understanding human-animal communication, I felt, was not going to be an easy feat.



Figure 4. Placing cups on cows in the milking shed

Only after a few short days, I had begun to see the milking shed in a similar way to my fellow milkers. I understood the rhythm of work, their language, and began to see work with cows from their perspective, while learning what cows meant to each of them. However, I felt somewhat disconnected from cows during milking. After three or four milkings, I was still

pondering over why I was exactly where I felt I needed to be, but was still struggling with transcending species boundaries to better understand how cows' experience their lives. I know that I cannot understand exactly what cows are experiencing. Herein lay my problem: cows cannot be researched like the human participants in anthropological research. In the absence of a shared language, being a participant for a cow is different to that of a human participant. With my senses tingling in sensory perception of the milking shed, I decided to use my senses to explore the lives of cows.

Communication with cows

Animals are not just represented as an aspect of human life. Rather, animals as nonhumans are both represented and represent and can do so without the ability to speak as humans do (Kohn, 2007 p. 5). Thus, cows do not need human speech in order to represent themselves in the world because “representation exceeds the symbolic, and it, therefore, exceeds human speech” (ibid). In his work on the anthropology of life, Kohn (2007) suggests that the task at hand is to see animals as selves that inhibit characteristics enabling them to not only communicate, but to make sense of their world, to imagine futures and follow through on these desires. Kohn argues that to be able to understand the represented world and all who inhabit it, we must first “decolonise thought, in order to see that thinking is not necessarily circumscribed by language, the symbolic, or the human” (2013, p.41). For Kohn, this involves,

reconsidering who in this world represents, as well as what it is that counts as representation. It also involves understanding how different kinds of representation work and how these different kinds of representation variously interact with each other. What sort of life does semiosis take beyond the

trappings of internal human minds, beyond specifically human propensities, such as the ability to use language, and beyond those specifically human concerns that those propensities engender? An anthropology beyond the human encourages us to explore what signs look like beyond the human (2013, p. 41).

Kohn (2013) explains that communication beyond the human involves rethinking human-centric assumptions of semiotics. Kohn suggests that “all semiosis ultimately relies on the transformation of more complex signs into icons” (2013, p. 52). An icon physically represents what it symbolises. Iconicity, Kohn explains, is the similarity between the form signs take and their perceived meaning (ibid). Signs, on the other hand, provide us with new information, telling us that something is different from something else (ibid). Indexicality involves something directly perceivable through sight, sound, smell or taste that correlates with and implies something of interest (ibid). Indexicality, to a cow for example would be the gate to the paddock opening (something perceived) which implies milking time (indexical of something of interest). Additionally, indexicality “involves something more than iconicity. And yet it emerges as a result of complex hierarchical set of associations among icons” (Kohn, 2013, p. 52), telling us “something new about something not immediately present” (ibid). Symbols, then, provide information in continuum and in difference to indices. Therefore, finally, symbols have their own meaning as they are the “product of relations among indices”, however, “indices do not require symbols” (Kohn, 2013, p. 53).

Kohn (2013) views the world as an eco-semiotic, poly-ontological and dynamically interconnected place, where trans-species semiosis pervades to connect all life. However,

understanding and implementing Kohn's all-inclusive semiotics is complicated. For example, a cow can learn a common command such as "move em up" which Kohn would explain as an indexical function and the cow can understand this without understanding its symbolic function (2013, p. 53). If I was to understand what communication was happening between a cow and myself, I had to first, according to Kohn, step outside of my own head and into a world where I ask, 'What happens "out there beyond the symbolic?'" (Kohn, 2013, p. 57). Drawing on my time with cows, I endeavoured to step outside of my own head for a period to explore the ways in which cows are communicative and much more than appendages to farmer activity.

Learning to talk with cows

Perception, corporeality, and embodiment draw attention to the ethnographic importance of the sensorial and embodied nature of the research experience itself (Ingold, 2000, 2004, 2005). Pink notes, anthropologists can upon reflection, find realisations about "other people's meanings and values serendipitously through their own seemingly 'same' sensory experiences" (2007, p. 244) such as eating, sickness, or walking. Although all these studies relate to human experience, I became curious if I could interpret cows' experiences through my embodied sensory perception. I began to let go of my thoughts in the milking shed, allowing my body go through the mundane task of milking almost automatically. Here, I gave into exploring my senses which were often overwhelmed, mostly by pungent smells in the milking shed. I decided to let go of the subjective farmer position I was trying to create for myself through being a good milker, and the need to be a studious, and accurate anthropology student who needed to carefully trace cow/farmer networks. To understand the cow, I did not need more tools or experience. What I needed was to listen to my body, and those of my cow

participants, to pay attention to it, and let it guide me through the world of cows, so that I could understand what happens in this world without words.

Communication with animals is “about more than body kinetics. It is about sensations and emotions and affect. It goes beyond verbal language. Bodies are materially engaged in somatic attunements that are not always sensed consciously, at least not expressed verbally” (Cowles, Davis & Maurstad, 2013 p. 332). My olfactory system was taken prisoner for hours on end by the smell of hot urine hitting cold concrete, steaming bovine excrement pounding the solid surfaces around me while the acidic and perfume-like tinge of teat spray crept into my nostrils via the odd passing breeze. I became lost in this place, in what it had to offer my senses, what it could tell me about the world of cows, and about cows themselves. Musty sweet smells of the cows pellet feed flowed through the gaps between their legs. I could sometimes even smell the fresh green grass awaiting the cows in the distant paddocks as I stood deep down in the milking pit made of concrete, metal bars and plastic pipes that carried the milk into the awaiting vat nearby. I was, at the time, captivated with my surroundings and the intoxicating way it pervaded all my senses. Letting go of my previous concerns in the milking shed, of having the right technique for milking cows, or being welcomed by my fellow milkers, I was free to use my body for more than milking cows and communicating with my fellow milkers. I began to explore cow’s lives through my senses. Cows are competent learners and use their hearing, touch, taste, smell and sight to do more than find food and shelter. Cows figure out their world quickly through their senses, get to know their herd members, recognise their human co-workers and make sense of their lives in their surroundings. In my family milking shed, I not only imagined what cows lives are like, but through what my senses could tell, show and let me feel about the world in which cows live embodiment, emotion and empathy came together (Farrelly & Nabobo-Baba, 2014, p. 323).

Attention to my senses shifted in the milking shed. I was no longer preoccupied with the human language, and much less concerned with attuning my own bodily actions to those of my fellow milkers. I had regained my sense of my milking, reconnecting with my farmer self that I had lost while away from the farm at university. I had tuned in to how the other milkers worked and I found my own pace and pattern of work to fit into this through. My Mum one morning after work, commented on how happy I looked. I felt it, I was much happier in the shed, being around cows. Not needing to focus on the milkers, the machines and the rhythm of milking, I let myself become lost in my sensory overload of familiar and new things.

My use of sight changed, and after a few days in the shed I forgot to focus my attention on the humans. Instead, my eyes followed the cows as they moved in and out of the shed and I watched the flow of milk from their udders with fascination. My eyes wandered over the cows' bodies also, as did my hands, which were so often wet from the water from cleaning. I was offered disposable rubber gloves to wear in the shed, and I took them graciously knowing that it could sometimes takes days to get the stains and smells of cows' bodies off my hands. Unlike my fellow milkers, I would often rip my gloves and have to replace them. I made sure not to hurry to put new gloves on immediately. I wanted to feel all I could feel without gloves on. My hands would warm up as I held the warm metal pipes carrying milk to the vat and as I rubbed my hands on the cows' warm bodies. I did this with gloves on as well. But it was not the same. I had learnt to milk with my grandparents without gloves, and I found myself yearning for those same feelings. The soft and slightly greasy texture of the cows' coats and the rubber on the milking cup was easier to grip without the wet gloves on. I enjoyed experiencing the milking shed, and the cows' bodies, without gloves covering my

hands. Experiencing the shed through my tongue, however, was not as enjoyable. I could taste all that I could smell and more. On several occasions a stray feed pellet made its way into my mouth and its sweet smell was replaced by a bitter earthy taste not designed for me. Washing my mouth out with water tasted strange also, it was hard and un-quenching, even on the hottest of days. Although most of my experiences in the shed with the cows were enjoyable, the ones that were not so enjoyable also added to my empathetic *kyokan* with cows, their environment and my co-workers.

For researchers interested in exploring animals as minded, social actors, “it is essential for the investigator to learn how to take the role of the animal-other and communicate effectively in the appropriate idiom” (Arluke & Sanders, 1993, p. 383). Clinton Sanders, in his research with canines, learnt how to communicate effectively with his animal participants by moving, using his voice, and responding in ways that were understandable and communicative to the dogs involved in his research (ibid). In the milking shed, I engaged in this process of ‘learning to talk’ with my bovine participants. During milking, I had to on occasion, leave the pit where I was changing cups over to herd the next row of cows from the yard into the shed. I was not as skilled at this task as my fellow milkers. I always felt clumsy and non-authoritative when trying to herd the cows into the shed. Instead of yelling, or becoming aggressive with the cows because I felt frustrated at my own lack of skill, I began to think about how cows communicate, and also respond to one another through their movements. Acting on this thought, after a fresh bout of frustration with myself during one morning milking, I moved to the yard to collect a row of cows. Here, I began to talk with cows, as my farmer self, and as my anthropological researcher self.

Standing in the yard, I slowed my bodily actions, stopped waving my arms and, minimised the use of my voice. Sliding up next to one of the stubborn cows, although fearful of her brute strength, I leaned my body gently into hers. As she did not turn to hurt me, I pressed harder, using all my might. To my surprise, she began to move, nudging forward into the cows in front of her. Without raising my voice, I used a common command of “push em’ up girls”. In the pit, I used this command authoritatively, with determination. However, in the yard, feeling much more vulnerable and with a different task at hand, I let the call out low and slowly in an attempt to mimic the tone of a calm bellow. Further forward the cows moved, gently nudging each other, with me still pushing on the side of the last cow. All the bodies touching one another, in an awkward looking line of communicating movement, we pushed forward towards the shed. I walked, still touching the last cow, right into the row where she came to rest in her bail to await her milking. Here, I began to take seriously my ability of ‘learning to talk’ with cows as our understandings of each other developed in our time working together in the shed.

Dripping wet, captured by smells, new interpretations of well-known feelings lingering on my skin with my eyes greedily taking in as much as they could process I was almost overwhelmed. Gaining my sense of composure in this sensory overload I found my place within it as an anthropologist and farmer, and I began to listen. Hum, hum...clink, clop, clop, clop...whoosh, grind, whoosh. Obvious in the lack of verbal communication between cows and myself, was, I thought, only silence. Stopping my thoughts and giving way to the routine of milking, emerged a new world of communication. This world had always been there, I had just taken my time to find it. Listening to the silence with my body, and not my head, I had come across the deafeningly present language of cows in the milking shed (see figure 5 below).



Figure 5. The empty milking shed

The anthropology of walking: tracing the path of cows

After milking it was time to clean the shed where the cows are milked, and the yard where the cows wait to be milked. Most days I did not have to stay for this part because I was the most junior milker on staff. Also, because I am the farm owner's daughter, I was often excluded from this activity. Nonetheless, I did not mind, I had a childhood full of memories of the mundane and tiring tasks of cleaning up after milking. On the odd occasion when I did stay to clean up, I would scrub down the milking cups, removing all the dried on excrement with water, using my gloved hands as the cleaning tool. When this was done I would often walk to the end of the milking pit and climb the few stairs up to where the cows would wait in the yard. With no cows there during clean up, I would walk around the yard where the cows had previously waited, looking down on me as I worked in the pit. The view was

different from up here. I felt larger at this angle, and my view of the pit made me think about how small I must look to the cows as I worked, tangled around cords and piping, busying myself with milking cups for hours on end. I wondered what else I could experience by just walking, so I began exploring the shed through my feet.

Learning about an environment, and understanding what happens there when the invisible divide between our feet and our mind is ignored is what Ingold calls “circumambulatory knowing” (200, p. 331). Once our feet are realised as a site for perceptive inquiry, Ingold informs us, a whole new world of understanding opens up, literally, beneath our feet (ibid). I have always been fond of my gumboots, frequently taking them with me to rural research sites across the Manawatu. In the milking shed, I walked in them for hours. Treading the same path as the other milkers, learning how to do what they do while in my boots.

Understanding that a large part of cows’ lives involves walking, I began using my feet to tread the same path as cows. At the time I did not know that I was using the embodied, sensory method of the ‘anthropology of walking’ to explore, understand and empathise with cows (Pink, 2007, p. 245).

Arluke and Sanders (1993, p. 384) suggest that “humans share with animals an awareness and intelligence based on respective bodily movement, giving humans and nonhuman animals an ‘embodied consciousness’ regarding our shared ways of knowing the world through movement”. Drawing on Sharpio’s (1990) approach of ‘kinaesthetic empathy’, Arluke and Sanders (1993, p. 383) propose mixed methodologies for researchers interested in understanding animal perspectives. This approach uses “knowledge about the individual animal’s history and the animal’s social construction of particular social types to ‘critically

temper and inform' empathetic understandings of the animal's postures, movements, and use of space" (Arluke & Sanders, 1993, p. 384). Once the shed was washed down at the end of milking, the concrete was clean, but still slippery with water. To understand how cows walk through the milking shed I used the 'anthropology of walking'. Clinging to the outside railings for support, I moved around the cows' space. Gaining purpose in my movements, I traced the path that the cows make twice a day through the milking shed forming an embodied empathetic understanding of cows.

Following the cows' daily path was "the locomotive (or getting around) aspect of walking" which Ingold and Lee (2006, p. 68) describe as a multisensory means "for an understanding of places created by routes" (ibid). With careful steps, I moved into the row of curved metal bars called bails where the cows would stand while they were milked. Leaning into the bail, I mimicked the cows' bodily actions of waiting to be milked. Imagining bodies pressed into mine from either side like a cow, I felt trapped. Drawing myself from this uncomfortable thought of enclosure, I looked around at my surroundings. A metal feed trough lay in front of me and feed shutes stood mounted above my head, loaded and waiting for feed to be dropped. Looking further, through a maze of round metal bars and gates, and beyond a sea of concrete, lay the farm. It was a lush green during spring when I was milking, and every inch of my body longed to leave this metal enclosure and let my feet and my gumboots take me out there. I felt empathy for the cows while standing there, thinking about what it must be like to feel so trapped, waiting for someone to open the gate and let me go. In reflection, I am not surprised that some cows learn how to unlock the gate to free themselves during milking. Slipping open the gate, I moved through the maze of metal bars until the sea of concrete gave way to the beginning of the race, this is the track that leads around the farm, connecting all the paddocks to the milking shed. Slumping into the mix of mud and stone, I waded on a little

further, and looking back on my footprints in the earth I continued to reflect on my presence in the cows' place.

In the preface, I discussed that anthropologists do a lot of writing. In writing up the methodology chapter for this thesis, I initially ended up with two complete chapters. I had done a lot of writing. What I had not done was critically read this writing. Blue-tacked to the wall of my lounge, I found myself confronted with two very different chapters. The first chapter focused solely on the human aspect of my fieldwork experiences. The second focused more closely on the animal aspect of fieldwork. I was horrified. I had unintentionally divided the living stories of humans and animals into two very separate categories. I saw this as an act of specism, of making very concrete boundaries between the two categories I had found to be fluid, and so blurred with one another during life story interviews that I could find no way to separate them. This time lingering in the space of cows came about spontaneously and has added a crucial dimension to my understanding of cows' lives. From this experience, I have had the opportunity to reflect on my own experiences of humanimal engagement with cows and examine the constraints of researching with participants who do not speak my language. In this reflection, I have become aware of the role empathy has had in steering the direction of this research, the formation of cow/farmer networks, and in the development of my anthropological and farmer identities.

Conclusion

Under the boundary tress, Cow rhythmically chewed her cud while Little ANThropologist, atop a fencepost, sat quietly beside her, enjoying the shade. Breaking the silence between them, Little ANThropologist asked, *'Did you think that was an interesting story Cow?'* *I*

certainly did Little ANthropologist. Engaging in an 'empathic apprenticeship' with cows Cassie traversed species' boundaries.' Little ANthropologist nodded in agreement. *'This showed us that cow/farmer networks are infused with care as cows' relationships with farmers can be experienced through embodiment and emotion. Learning to talk with cows reveals how communication between cows and their human counterparts is not restricted by the lack of a shared language, but rather expressed through bodies.'* *'Further, the empathic and embodied methodologies Cassie used in her research adds depth to our understandings of how cow agency can impact how cow/farmer networks form in productionist farming. Climbing down from the post, Little ANthropologist made his way back to the safety and comfort of Cow's crown. 'After all that we have come to understand about how cow/farmer networks are made, I think we should listen to what the farmers have to say about making "good cow" bodies.'* *'That is an excellent idea Little ANthropologist.'*

Chapter Five: Remaking Productionist Networks

Making “Good Cow” Bodies and “Good Farmers”

Introduction

Continuing to rest in the shade provided by the trees, Cow reminded Little ANthropologist how, *‘Productionist cows in New Zealand experience their world through their embodied entanglement with heterogeneous networks’*. *‘I know that Cow,’* Little ANthropologist responded quickly. *‘But I am now interested in finding out how “good cow” bodies become markers of “good farmer” identity’*. To this, Cow responded, *‘As we have previously discussed Little ANthropologist, “good cow” and “good farmer” identities do not form in a vacuum. Further, “good cow” bodies are fragmented into parts that work like machines, and with machines, to produce milk and reproduce offspring. “Good cow” bodies also resist their bodily fragmentation through intentional and unintentional agency, and so provide opportunities for expressing cowness’*. Nodding in agreement, Little ANthropologist said, *‘I see Cow. But how do we make sense of the ways in which cow bodies are continuously marked, moulded and reformed by the farmers who are enrolled in these networks with them Cow?’* *‘By drawing on the life stories of the farmers, and Cassie’s fieldwork experience with cows as both production machine and co-worker, we will see how cowness is materially fluid Little ANthropologist’*. Before Little ANthropologist could continue, Cow got up from her resting spot, and leaning her head towards the post, let him climb onto her crown. Without another word, Cow walked them both towards the open gate, then headed toward the milking shed.

Locating Manawatu farmers in productionist networks

In the overview of New Zealand agriculture provided in Chapter Three, I outlined how New Zealand “good farming” identities respond to tensions caused by productionism. Kevin, a Manawatu farmer milking a medium-size herd of 240 Holstein-Friesian cows, recalled his negotiation of this new terrain in his farming life story:

Well back in the 1980s the driver for farming was production ok. Nowadays there are all sorts of drivers. Yes, there is production. But there is also environmental management, animal health and a lot of that is driven by politics, or the animal ethics movement. See, we only ever used to think of production and we did that but we struggled.

As we can see from Kevin’s explanation above, “good farmers” are currently enrolled in various productionist networks which inform how farmers manage their herds. Although productionism has not been displaced, it is contested as the dominate factor in the making of “good farmers” in the Manawatu. Further, agri-ecology networks of production are now experienced as networks woven with care and concern for the environment, and for the well-being of their non-human workers.

Fellow Manawatu dairy farmer, Pete, milks a large-size herd of 650-700 Holstein-Friesian cows. Having lived and milked cows in the Manawatu for over 70 years, Pete has experienced many changes in the structure of dairy farming. While recalling his farming life story, he stated:

When I came to the area there were six farmers on this strip of road. Now there is only one, us. It's very bad, but that's how the world is working. The dairy industry is getting bigger. Jokers are losing their jobs. Oh (sighing). The family farm is dying out and it's sad. I believe there is still a place for the family farm, for a good living for everybody because it's a better way of life.

For Pete, “*you are either a farmer or not a farmer*”. Pete further explained that being a “good farmer”, for him, is to participate in productionism regardless if he has differing attitudes and opinions. Although upset by how productionism has re-ordered family farms into industrialised family farms or corporate farms, Pete has spent the majority of his dairying life improving the production efficiency of his herd. Pete, as a production driven “good farmer” works to maintain this identity through his enrolment in networks of productivism. Later in this chapter, I expand on Pete’s enrolment in production networks via the Fonterra rules for being a “good farmer” that he follows. In comparison to Pete, Sal milks a small-size herd of Jersey cows. However, unlike Pete and Kevin, he maintains a “good farmer” identity without seeing production as a key driver for his herd management:

The bigger farms lose focus on their animals where it becomes a straight out numbers game. I can tell you what animals have been crook, who has mastitis and who has crook feet. In large farms you can tell who is sick because there is a sick paddock out there with cows covered in red paint whose milk can't go into the vat.

Similar to Kevin and Pete, Sal's "good farmer" identity is located in productionist networks because he uses cows to produce milk. However, how "good farming" identities are formed and performed in these networks are not fixed as singular approaches to productionism.

Defining a "Good Cow" and the limits to "Good Farming"

While milking cows during fieldwork, I came to the conclusion that if I was not hurt by a cow, then that cow was a "good cow". As an anthropologist, my investment in cows' lives, and my enrolment in productionist networks differed from the farmers who participated in this research. Kevin, Pete and Sal are all productionist farmers. I noticed that when I asked these farmers what they are looking for in a "good cow" they all had similar responses. For example, Kevin looks for:

A good average – medium size cow. I do focus on type. I want good udders, well attached udders. I want a good cow with good feet. Feet are important to me because of lameness. So, I look at feet. I look at udders, I look at size and stature. I do not want an overly large cow. I'm looking for a cow that ranges in-between 450 and 500 kilograms in weight.

Similarly, Pete looks for cows that have good feet and udders. In particular, Pete wants "good cows" that reproduce efficiently. I asked Pete why having good reproducing cows was important to him as a "good farmer". The following conversation highlights why Pete wants efficient reproducing cows, and also why poor reproducing cows disorder networks of productionism.

Cassie: "What happens to the cows that don't get into calf?"

Pete: “Well we normally get the veterinarian to look at them to see what’s going on with them. We get them all checked out, and we usually get them checked out at the beginning so we know who will go into cycle. Some of them may never have calves and if they don’t have calves then we just get rid of the bloody cows”.

Cassie: “What do you mean get rid of them?”

Pete: “Sell them, cut their bloody heads off because they are no good. We don’t want em”.

Cassie: “Can you explain why they are no good”?

Pete: “Because they haven’t cycled, or there might be something wrong internally and they won’t have a calf anyway so we get rid of those cows. You can get anything really, for some unknown reason she won’t cycle.

When we get the veterinarian to look at her, the veterinarian will tell you if she will cycle or not. If she says no, ‘the cow won’t cycle’ then we get rid of her”.

Cassie: “So your two options are to sell her or kill her”?

Pete: “Yes, cut her bloody head off. Well she’s off to the meat works. The ones who won’t cycle are no good and are off to the meat works. It might sound a bit disastrous, but you can’t afford to have things like that hanging around the place. On your stocking rate, you can’t afford to have things like that hanging around the place. You’ve got to have all things that produce and cycle”.

By disordering the cycle of reproducing calves and producing milk, “bad cows” unintentionally reorder the networks they enrolled in. To maintain a “good farming” identity,

Pete uses coping strategies, such as calling cows “things” to distance himself from the effects of “bad cows”.

While recounting his experiences of being a “good farmer”, Pete argued that farmers have to do what powerful institutions, such as Fonterra, tell them to do in order to maintain a “good farmer” identity. He states, being a “good farmer” in the productionist paradigm is

all about the Fonterra rules. The rules are getting out of control now. Just a ring on the telephone and you're in trouble. If you have a dead cow by the milking shed then you will hear about it pretty quick because we are dealing with a food product (milk). They are watching very closely now. It's all about food and hygiene.

This explanation from Pete also reveals the limits of “good farming” imposed by dead cow bodies. In death, cows are no longer producing milk, and so, are no longer enrolled in the various networks of productivism. However, in death, cowness as cow’s material agency remains because a dead a cow’s body still has an effect on those around her. A dead cow body is a “bad cow”. In death, “bad cows” work to order and disorder the processes of making “good farmers”. This can be seen in how Pete ensures the bodies of “bad cows” are not left anywhere near the milk in the vat. Recalling Little ANthropologist’s conversation with Cow about translation, we see how social order and processes of patterning occur through the re-ordering of networks. With resistance as another aspect of reordering, being a “bad cow” is the problematization phase of translation. This is to say, once a “bad cow” is established, she becomes an obligatory passage point (Higgins, 2006, p. 54) that farmers must then pass through to meet their own needs of being a “good farmer”.

Sal, who runs a smaller dairy farm, looks for cows that are “*good strong animals that will have the ability to eat plenty of food and convert it into milk*”. Additionally, Sal also wants cows that are good reproducers as Pete does. While Pete and Kevin are interested in having cows with good hooves, Sal explained that hooves are not as important to him. He notes that production cows on larger farms,

walk a long way. That’s the big problem with a lot of animals now: they have to walk a long way from the back paddock to the cow shed. Basically, a cow could be walking three quarters of an hour along a track and touch wood, I have not had a problem with feet, but my cows do not walk long distances. If your animals are walking greater distances, they are walking their ability to make milk right off their bodies. If a cow can walk from the paddock into the shed then they are better off. Cows on larger farms have less time in the paddock eating, and are taking condition off and are likely to end up with more hoof problems, whether it be distance or the condition of the track they have to walk on and sheer volume of animals that have to travel. Production and a good strong animal. That is what I look for.

Sal’s critique of larger production farms highlights the pressures cows’ bodies endure to make milk. Further shown here is what productionist farmers look for, but also have cows endure for their “good farmer” identity. Sal, Pete and Kevin’s views of what makes a “good cow” also demonstrates how cow’s bodies are fragmented into their hooves, udders and womb as farmers enrol in networks of productionism. I now turn to the particular body parts of production cows that are in focus for the three farmers who participated in this research.

Here, I also re-form cows' bodies and show how these body parts are connected physiologically to one another, but also to the agri-ecology networks in which "good farmer" and "good cow" identities are constructed.

Reordering productionist networks via cow bodies

Foregrounding the notion of animal agency as material movements, Nimmo (2011) suggests that "milk can be understood as flows of "cowness"; they are modes of expression or materialisation of the nature of cows as movement, or in other words bovine mobilities" (p. 59). However, milk is not all that makes a "good cow" although it is central to making "good farmers" located in productionist networks. The farmers who participated in this research all noted how cows' wombs, udders and hooves are given explicit attention in productionist farming. Farmers also discussed ear (tags) as important aspects of a productionist cows' bodies. Attention to cows' bodies lets us see how cowness, as embodied intentional and unintentional agency in movement, can order and dis-order the networks that "good farmer" and "good cow" relations symbiotically emerge from.

Hooves: resistance by foot

Kevin explained that productionist farmers currently focus on animal ethics and health in combination with production and reproduction. Listening to the life story interviews of farmers, I noticed that all farmers talked about hooves. Hooves, the farmers suggested cause problems for production, and so, disrupt farmers' enrolment in networks via their "good farmer" identity. Hence, hooves problematize cows. Furthermore, hooves disrupt, and then cause the reordering of production networks.

Cow's feet are called hooves. When hooves are injured, this is called lameness. A majority of research on cows' hooves focuses on lameness for the reason that when a cow's hoof is not working, neither is a "good cow". A lame cow has many problems as lameness affects her ability to walk, and from there her ability to eat, socialise with her herd and ultimately produce milk. Hence, lameness caused by working as production animals alienates cows from their herd mates, from their product and from farmers. This painful experience detaches cows from their species-being, from cowness. For Webster, hoof lameness is "probably the single greatest insult to the welfare of the modern dairy cow" (1987, p. 219).

Lameness in cows is defined by Webster as "a disability in movement of the limbs. The cow may become reluctant to move because it is painful, her movement may be impaired by paralysis, muscle weakness or joint damage, or she may suffer a combination of all these things" (1987, p. 219). Webster goes on to state that when a cow becomes lame it is true in around 90% of cases that it is caused by injury to the soft inner skin of the hooves or to the hoof itself (ibid). Although in severe pain, Webster comments,

[a]mazingly these cows often manage to struggle on and even milk quite satisfactorily but they lose condition and it may prove as economic as it is humane to send them for slaughter at once. If they are in too much pain to be moved, they should be slaughtered on the spot (1987, p. 219).

Lameness is caused by a multitude of factors. These include diseases that affect the hooves of cows, complications due to injury caused by the farming environment, genetics, nutrition deficiencies, behaviour of individual cows and herd behaviour, and animal care (Webster, 1987, pp. 219-226).

While discussing hooves with Kevin, he mentioned that after buying high milk yielding American Holstein cows to improve production, he has seen an increase in hoof problems or lameness in his cows. Here he explains hooves, and the issues particular to his productionist farm.

I want a good cow with good feet. Feet are important to me because of lameness. Hooves are probably important to me because I came through that American Holstein business and I wanted to say that it's the American Holstein, not just the New Zealand Friesian cow. I got these American Holsteins and they had the most shocking feet, they would go lame and not get better. Because they have bred me heifers I am now having to breed their progeny out. It's not just a case of culling that original herd of cows because they have already bred into the herd. So, I look at feet.

Kevin explained in anguish that he has to spend years breeding out the progeny of American Holsteins with bad hooves. Selective breeding practices, such as those Kevin uses to remove “bad cows” from his herd is what Little ANThropologist described in Chapter Two as intersement. This phase of translation defines the American Holstein hooves as a problem that Kevin seeks to remedy via the intermediary practice of breeding. Using technology in this way, the relationship between the “good farmer” and the poorly hooved American Holsteins as “bad cows” is solidified and their identities defined. From here, the “good farmer” who is taking steps to resolve the hoof issue, and the “bad cow” who is now enrolled into networks are mobilized because they are provisionally accepted as a network. Hence, cows embody their material agency through the reordering of networks, although this is a

precariously heterogeneous process. Cow and farmer do not remain fixed in their identities and continue to reorder the networks they are enrolled in.

This conversation with Kevin further highlights how hooves are inseparable from other parts of cows' bodies, such as the womb through reproduction, and the udder through milk production. Interested in how American cows do not embody a "good cow" in New Zealand conditions, I asked Pete his thoughts on these foreign cows. The following discussion sheds light on how good udders do not necessarily make "good cows" or "good farmer" identities, and further, how Manawatu agri-ecology networks are also global networks.

Pete: Well you have to watch out for these American and Canadians, they feed their cows a hell of a lot and therefore they get high milk yields from their cows. When we get them over here they might not be the same. I've been told myself to lay off that American breeding.

Cassie: Is that because they have been made for American conditions?

Pete: Yes, that is right. Those cows are pushed to the limit.

Milking cows during fieldwork, I considered what the farmers had told me about hooves in their life histories. Hooves do more than connect cows to the rest of their body. Cows do not choose to endure lameness. Becoming lame, cows, and their hooves unintentional preform acts that challenge "good farmer". Additionally, hooves mediate the intentional agency of cows through the deliberate act of kicking off their milking cups in the milking shed. Cows can also resist the bodily pressures of production with, and through hooves. In the milking shed I experienced cows kicking the cups off their udders with their hooves, standing on the cups and pipes with their hooves and also flicking their hooves to deter having the cups

placed on their udders. Combined with lameness in hooves, cows become individualised. In doing so, cows are problematized and “good farmer” identities are questioned. Although the farmers sympathise with the plight of lameness out of the care and empathy they feel for their cows, hooves remain a site of contestation for “good farming”. Pete actively avoids American and Canadian cows because their hooves do not correspond to New Zealand networks of “good cows” and “good farmers”. Kevin enrolls technology via reproduction as a reordering strategy to cope with bad hooves and Sal avoids having long races so his cows do not frequently become lame. As physiological parts of cows and the material embodiment of cowness, hooves reorder networks and contest “good farmer” and “good cow” identities therein. Viewed alone, hooves are active in making networks because they highlight cow agency by limiting farmers’ capacities to construct their “good farming” identities. However, as I discuss in the following section, hooves do not operate in isolation.

Udders: mundane milk makers

In the milking shed I walked the path of cows to explore their world. Standing in the pit, I placed cups onto cows’ udders and spent my time looking at udders and hooves together. The images below, (figure 6 -7) show my view of cows while I worked with them in the pit. Here, I thought about how cows’ hooves are a vital part of their physiology that connects them to all other body parts. Without hooves, cows cannot carry their large udders to the milking shed to produce milk and they cannot stand for long hours on concrete waiting to be milked. While placing cups onto udders, I was often kicked by cows resisting having their milk taken which I have discussed as a cow’s physiological way of resisting productionism. In the shed, it became clear that hooves and udders together do not just resist productionism. In the following section, I discuss how hooves and udders together reorder the networks in which “good cows” and “good farmers” are enrolled.



Figure 6. My view of cows in the milking shed

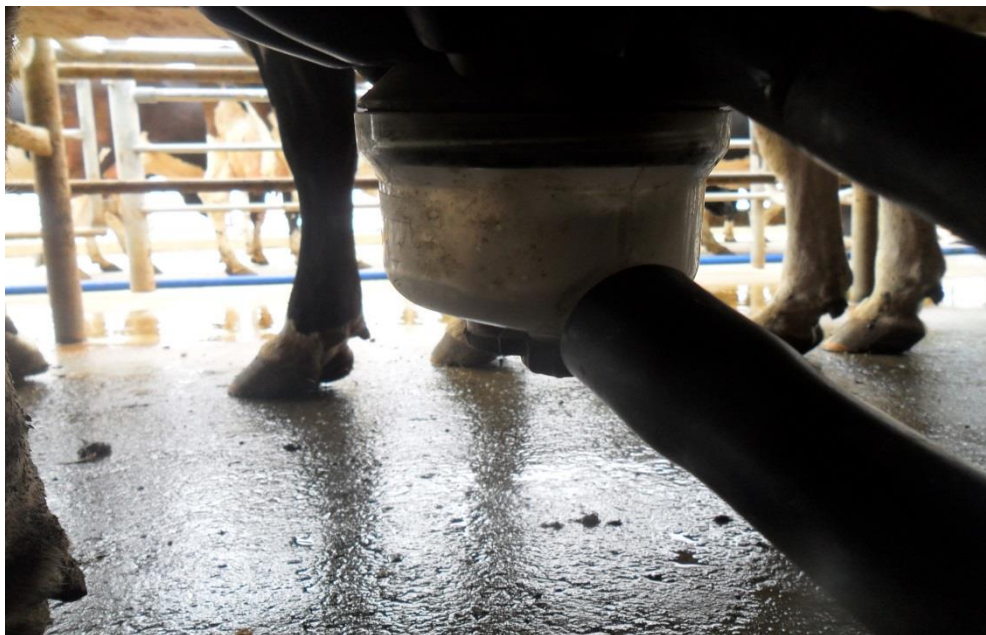


Figure 7. My view of milking cups on a cow

While talking with Sal about what attributes a “good cow” has, he explained, “*My best cow is mostly number 67. She’s got an eighth Friesian in her – that’s production wise. But I have got a number of favourites ahead of her. She’s a line I have been breeding, coming up nine year old*”. Sal identified number 67 as a “good cow” because she produces a lot of milk. He explains,

See here, under production, last year she produced 440 kg of milk solids. So say at seven dollars, she made three grand, and she earned that. That’s what you aim for. I remember saying to a guy last year that three years ago she did 467 kg. But she peaked then and she did 420 and last year she did 440. I said to this guy, ‘I would like to milk 100 cows with 500kg each’ so you drop your numbers and you have got cows in better condition and have more tucker to eat and get sick less then the vet rings up to check if you are still a client. I have had that happen.

Highlighted in this explanation is how “good cows” are judged through their production rates. Good udders increase milk yield and essentially make a “good cow”. Although high production rates define a “good cow”, cowness and “good farmer” identities are located in various networks. Udders not only represent “good cows”, but also “good farmer’s” ability to make and maintain them.

Kevin suggested that even when udders are good because they produce a lot of milk it does not necessarily make a “good cow”. Returning to his anguish over his American Holstein purchase, he explains,

When I went winter milking I brought a line of 40, or 50 large American Holstein Friesians and firmly shot myself in the foot. They couldn't get in calf, they got mastitis, they had big feet. They were horrible. But they could milk! But you had to feed them so much so they were not a good buy, so I am gradually trying to breed away from them, breed them right out.

Udders are a visible embodiment of productionism. Located externally, udders and the milk they produce are measurable qualities of “good cows”. When faced with a choice between what body part works best as production machine, Kevin decided that hooves meet his interests as a productionist farmer more than udders.

Milking cows in my family's shed I noticed that certain cows would not release their milk although they had no markings indicating mastitis⁴. Here, I observed how cows act intentionally and unintentionally through their udders. Questioning why cows would do this, I was told that sometimes cows just hold their milk. This was not due to illness or injury to the udder or any other part of the cow. Instead, some cows chose to hold their milk, especially during spring when the cows held their milk for their offspring. Consequently, cow agency through udders is physiological, and can be both intentional and unintentional.

Wombs: hidden capacities of cows

The use of genetic selection in livestock breeding “make possible new ways of making (some) animals more killable at the same time as instituting new ways of valorizing other

⁴ Mastitis is a common ailment of production cows' udders. It causes inflammation and pain in one or more quarters in an udder. These cows are given antibiotics to heal which means their milk is not fit for human consumption. Cows infected quarters are not milked, and the infected cows are marked with spray or bracelets on their lower legs to signify mastitis.

animals, within the complex entanglement of human and nonhuman animals” (Holloway et.al, 2011, p. 545). Production cows are artificially breed (AB) to improve production performance. In a similar vein to how milk is made through the udder, reproduction happens in cows’ wombs. Discussing wombs and reproduction with the farmers, Pete explained that because he cannot see into a womb, he cannot fully understand how they work. The following conversation with Pete highlights how wombs are sites of cows’ bodies that enrol many actors, in different ways, and for a variety of reasons.

Cassie: So you use AB today? Is that your main source of breeding?

Pete: Yes, we use LIC. They’re improving their bulls all the time, and of course we hoped this was improving the cows, which it has done.

Cassie: What do you mean by improving the cows?

Pete: Well, we are paid on milk solids so we chase it. Protein is something we are starting to chase more today because we get paid on protein. Way back in the day when I started we weren’t worried about bloody protein or anything, we were paid by butter fat. It’s a different ball game altogether now. But I still believe that, in today’s world, all that is big is not beautiful. I’ve proved it, I’ve been here all my life and I’ve seen it.

Breeding “good cows” is essential to being a “good farmer”. Breeding, as it happens in the womb of the cow is complex. The womb is a site in which “good farmer” identity is contested by cows. When cows do not reproduce they cannot produce milk. Cows with non-functioning wombs are commonly called ‘empty cows’. Although these cows are “bad cows”, for Kevin having empty cows “*really hurts. It hurts that you lose cows you shouldn’t lose. Economically it hurts, economically it’s hard. It’s also hard on developing your herd*”.

While milking cows in my family's shed, I found the womb to be a fascinating part of cows' bodies because I could not see it. Similarly, I could not touch wombs like I could with the hooves and udder. However, wombs are essential parts of cows. Without the womb, a cow cannot reproduce calves to later take their place as milk-producing workers. Furthermore, lactation to bring in the milk farmers use as a commodity in productionist farming cannot begin without a womb. When the womb is not working to the farmer's yearly mating schedule, the cow is described as coming up 'late'. However, farmers found it hard to discuss wombs, and taking action to remedy them was often a conflicting experience. Talking about how he knows his cows and the invisibility of their wombs, Pete explained,

I can see things with the cows as I walk around with them, I just know. But I can't pick the ones who won't reproduce. I don't know what's inside her. I've got to get the veterinarian to tell me that. But I can walk through the herd and see who's not looking so well, or if something is wrong with a cow. We've have had workers on the farm here who don't even know what's wrong with the cows. They don't take the time to walk with them, look at them, and they don't even know what they are looking for. It's quite disastrous really.

As a result, farmers frequently enrol veterinarians for this task. Hence, the ambiguity of the womb can be seen to cause tension for the farmers because they are unable to fully understand, see, or control the womb.

Shifts in productionism mean that farmers and cows have to reorder their location within production networks. I asked Kevin what he thought of reproduction, shown in his explanation is the womb's complex embodiment of contributing to become "good cow", and with it a "good farmer". Further, he highlights the various body parts of the womb network, and the technology enrolled in managing the womb:

There has been a big change in focus over the last few years on reproduction, or mating management. A few years ago we focused a lot on getting our cows cycling and using vets to do that. So the vets would come in and check the cows post-calving and they would be doing pre-mating checks where you are watching the cows, watching their tail painting and watching their cycling after calving. The ones that aren't cycling went to the vet and they would have seeders or injections and that was the main focus. Now that focus is still there but nowadays there is a big focus on, well now you are starting your mating management after calving, but what we are actually doing now is starting mating management way back in the autumn by getting cows up to condition scores. It is a rating system of one to six. They had to add the other number. It was initially one to five, but a six is actually a really fat cow. I ended up with a few and they actually become a health hazard. They are too fat! When they calve they are not mobilised, their liver will not mobilise the necessary energy and the udder gets over fatty and it can't take the milk and, yeah. So there is actually a big drive to get the mating management happening way back in the autumn by getting your cow's condition score up so that they are carrying a little more weight.... The target is to calve your cows at a condition score of five as an

average over your herd, nothing below four and a half, nothing over five and a half. That's the goal. You want an average of five. Now they say that the target to calve the cows at five is because it is healthy for the cows to calve at that. But, they are also going to be in better condition to mate because a cow, well what happens is, say you calve a cow at four, or four and a half, when she is milking, her condition drops because she is literally milking the fat off her back and when she gets to mating she could be down to a three, or a three point five and if she is down at that, she is actually at risk of not cycling at all. By bringing her up to five, or up to five point five, even though you feed them, you are going to mate your cows at four to four and a half and at that level they have sufficient energy in their reserves coming into season and they will cycle much better. So there has been a shift from that point of view on mating management way back into the autumn.

Kevin's explanation of breeding highlights the fragmentation and monitoring of cows' bodies. Furthermore, cows' unintentional resistance of productionism through their wombs reveals why farmers, such as Kevin, are continually working towards improving the quality of wombs. As Kevin explained, the womb is always changing as it responds to different breeding practices of productionism.

Pete also noted that changes to breeding practices came about through his "good farmer" enrolment in various national and international networks. The following conversation with Pete highlights how breeding is tightly bound to cows' udders.

Cassie: Along all these changes that you have seen, do you think the cows have changed over time too?

Pete: Not in the same sense, the cows have changed in their breeding. In terms of breeding, it has come a long way in breeding. In our days we just used bulls. I started in AB in the early fifties, and the first crop of calves I did as an AB trial were jersey calves. When we started we had jersey cows and I breed one group of 15, it was my first cross over from Jersey. Those heifers, those cows produced me 450 pounds of milk solids.

Cassie: Is that good?

Pete: That's very good.

Cassie: So bringing in AB increased your milk solids?

Pete: Yes, it did. I was getting a better class of stock. When AB started they had proven bulls and they were better than the bulls you could buy at the sale. That's when we started to get the lift up in the livestock improvement.

Cassie: When you first started, did you know where the sperm was coming from?

Pete: Yeah, I didn't follow it as close as I follow it today. They came up with the idea and I followed on what they told me.

Cassie: Who are they?

Pete: In those days it was Manawatu/Hawkes Bays Livestock Improvement.

The whole group of this area was in that name, there were several areas under Livestock Improvement, all in the heard improvement movement.

Then it became LIC. I did a lot of mine myself. My wife wasn't so interested in it. We had instruction manuals to do it. You could listen to all the experts, all were sort of different but I started with a Jersey herd and I

just kept on going. As soon as we used AB, as I said, our milk solid production increased because we were using a better class of stock. But we don't care what sort of bulls are in as long as they get the cows in calf. As long as they get into that pattern you know.

Wombs are problematized in “bad cows” that come up ‘empty’. “Good farmers” work to meet their own interests of continuing production via artificial breeding (AB), seeders and injections. These breeding technologies then work to define cows as “bad” or “good cows”. If a cow comes into calf, then she becomes a “good cow” and enrolls into “good farming” networks. Coming up ‘empty’ or a non-returning cow, and she does not enrol. Sal explains the importance of mating to create strong gene pools in his herd and the technology he enrolls to ensure mating is successful.

If your cows are in good condition when they go to mating, then they have better chance of reproduction. If she is running around the place, her chances are minimal. Non-return rate are cows that have been to AB, or with the bull and haven't come in season again. You don't want them to come back, or you want them to take the first time. A lot of guys just use bulls to mate their heifers, I don't, I use AB. I use it to gain higher genetics, it's all about genes. I AB the heifers, to do this I use an injection, and then ten days later they get another injection of oestrogen and in the next four days they will come into season and I mate those ones to AB. When I have done the four or five days of injecting, I put the bulls out with them. I use a shorthorn bull over my heifers and I can tell straight away whether it's an AB calf or not that way. The shorthorn calf will be slightly red. Whereas, if

I used a Jersey bull with them after AB with a Jersey bull I would be a bit, oh shit, is that an AB mate or not? And then you have to DNA test.

Although all three farmers stated that empty cows had to be removed from their herds, it does not necessarily equate to their death. Cows that are impregnated 'late' disrupt farming calendars and disorder the production cycle of milk. For Pete, it is important to

keep calving up to a pattern of finishing in late September. When they get into October, it's too late to get into milk production for that year because you get a lot of production in late September. If you get too late then your cows don't cycle again to get into calf in time for the next season.

Pete, who suggested that "bad cows" should have their heads cut off, sells his 'late' calving cows to South Island farmers instead of killing them. In the following conversation, Pete explains why cows go 'late' and how he chooses not to end their lives, but rather re-enrol these "bad cows" in South Island farming networks. This provides Pete an avenue to express care and concern for his cows while remaining a "good farmer" who is maintaining production rates.

Cassie: Do you know why cows go late?

Pete: Because, here, the cows are kept mating too long. The workers didn't keep a good track of the numbers like I told them to. They never wrote them down after AB finished and they kept using the bulls. I said to my farm manager, "You want to be writing the number of those cows down" and she

told me it didn't matter. I told her "You must write them down" but they didn't. They have cows down here now in the runoff that are created by those workers and all because they didn't write those numbers down. Now, there is a market for those cows, and they mostly buy them in the South Island because they have later calving cows.

Cassie: When a cow is late, you don't want them because it messes with your production and reproduction cycle?

Pete: Yes. You can't get them back in calf in time.

Cassie: So you sell the late cows to South Island farms?

Pete: I've sold two rounds of late cows to South Island farmers this year.

Cassie: Is that because they work to a different cycle because of the colder weather?

Pete: Yes, the cold weather pattern plays a big part in their cycle down there so they don't mind later calving cows down there. And there's all sorts of things, there might be town milkers who run two herds and things like that.

For cows, the womb is a site of resisting productionist pressures on their bodies. Granted, this resistance can, and often does occur in the removal process of cows known as 'culling' which involves selling the cow, often for slaughter at a later date. However, cow agency is not suppressed through the womb. Rather, it is a site where different values of farmers are played out against the hidden capacities of the womb.

Whilst wombs problematize certain cows, they also demonstrate the fluidity of cowness.

Measures of control and regulation of cows' bodies by technological breeding do not

guarantee farmers “good cows” because cows can still turn up ‘empty’ and ‘late’. “Bad cows” disorder production networks through their wombs. Although “good farmers” utilise various technologies to order cows’ bodies, cows’ material agency is not fixed because each body part can respond to these pressures differently. Therefore, cows can resist the ordering attempts of “good farmers” with bad wombs. Further, the womb itself poses a conundrum in its invisibility. Comparable to the other magnified body parts of productionist cows, the womb fluidly forms, to certain degree, out of sight. The womb is a network that is constantly being made and remade within the cows’ body as it forms and reforms connections to udders, milk, offspring and, as I discuss in the following section, ear tags.

Ear tags: the virtual life of cows

While the womb is hidden within the cows’ body, visible in the milking shed is the bright yellow ear tags that every cow has. From my view in the pit, shown in the image below (figure 8), vibrant coloured ear tags stood out as a reminder that all the cows in the herd are also living virtual lives. Virtual lives of cows make visible their production machine bodies as “good” and “bad cows”. Ear tags also connect the hooves, udders and wombs together virtually, and as I will discuss later, also emotively to farmers.

All production cows have ear tags with a number unique to each cow. Ear tag numbers are attached to calves’ ears shortly after birth. They track and record all production aspects of a cow’s life: quantity of milk produced, the number, condition and fate of offspring, to date and location of death or slaughter are all recorded in a cow’s ear tag number. Ultimately, the whole life cycle of production cows are recorded in their ear tag number.



Figure 8. My view of production cows' ear tags



Figure 9. Bright yellow ear tags

Through their sensitivity to how actions between cows and farmers inform different versions of ‘reality’, ear tags can be thought of as knowledge interfaces. As Arce and Long (1992) propose,

interface encounters aim to bring out the types of discontinuities that exist and the dynamic and emergent character of the struggles and interactions that take place, showing how actors’ goals, perceptions, values, interests, and relationships are reinforced or reshaped by this process (p. 214).

Consequently, ear tags enable, or variously constrain, cows’ bodies as knowable and practicable interfaces that resist and re order cow /farmer relationships.

Remembering that production cows are food producers and a food product themselves, ear tags perform functions as food hygiene tools. Pete explained why ear tags are an important appendage to productionist cows’ bodies, stating:

If that animal goes to the other side of the world then they can look at that tag number and see what farm it came off. It’s by law now. It has to be done. If you get a steak in Europe and there is something wrong with it, then it can be traced all the way back to the farm. Say you used a drench against the withholding period and it has got into the meat then they can pick it up, you see. So you have to be very careful of withholding periods before an animal goes to the works, because if they get slaughtered and it gets into the meat it could be picked up on the other side of the world. So in

one sense it is a good idea. A lot of deceitful things happen in exports and I have been overseas and I have seen it.

I was interested in whether computer programmes made monitoring cows' bodies easier. While interviewing Sal, he offered to show me how his computer programme works, and how simple the system is to use:

With the computer on the MINDA site, I click onto an animal and it will come up with her ancestry. Most people [farmers] use it. Now with the computer I can follow all the animals. I put it into the book and then put it into the system and it's an electronic herd. See, now on big farms they won't use the notebooks, they tag the calves and DNA them and all the bulls that are in the system are DNA tested and they can say, 'Well the father of that calf is that and the mother is that'.

Surprisingly, while discussing how cows' bodies are virtually monitored, Sal revealed how ear tags are intermediary devices that redefine his humanimal relationships with cows. Of note in the following conversation is Sal's explanation of how cows are both production machine and pet which is translated via ear tags. To begin, Sal discusses all the bulls he uses to mate his cows. Bulls are given stud names by the stud farm they are on, and although Sal does not own the bulls, he knows their pet names also⁵.

Sal: That there is today's list, now the top fifty proven Jersey bulls and the unproven have no daughters in the system. Now I am using Manzella and

⁵ Some of the cows and bulls have pet names based on family members and places local to Sal. I have given the cows and bulls with identifying names pseudonym's to protect Sal's anonymity.

Iceberg. I haven't got any Miami, I am probably using Murmur. These are the top ten protein bulls, these are the top fertility bulls and these are the top udder confirmation bulls. Udder confirmation [the physical appearance of udders] is good tight udders, teats aren't all disarrayed. I've got all my herd numbers here [showing me the programme]. Let's look at number ten. That's Hanner Spall, that's the stud, Munga is the name of the bull, and that's her name, Faith, she's number ten. That's number ten's name. [Clicking around more]. Her mating is there [pointing to screen]. She hasn't been mated yet this year, but on the 11th of the 11th last year she was mated to Ibiza and she mated the month before to Excel and the year before she was mated to a bull by the name of Manhattan. Manhattan has just been retired after fourteen years, that's a long time for a bull to remain in service and I am still using a lot of him. Once their sperm is frozen down into nitrogen it's basically there forever. I can trace her whole life from here, so there is her birthdate here, 09/22 and her father was Munga and that's his ID there. Now that's his breeding worth. Her Dam was one of mine, but because she is in yellow means she not in the herd and her mother came from a cow over the road, I can tell by the code. Every herd has a code, mine is KKBI, and the neighbour's is GGLO.

Cassie: Did you find this system easy to learn?

Sal: Oh, it's one of those things, you have got to use it to learn (click, click).

Number 56, her Dam, her mother is number 16 in the herd

Cassie: If you went into the paddock would you know her?

Sal: Yeah.

Cassie: And her mother too?

Sal: Yes. I know all my animals. Big farmers don't, there's too many.

There's number 56 and that's her breeding worth, her ranking in the herd, her lactation worth which, well their LW should always be greater than the BW.

Cassie: So you are looking for better milk production over reproduction ability then?

Sal: Yeah. If you just go through you can see all the calves she has had, and she has had one calf that I have raised.

Cassie: In the paddock can you tell who is a mother to who?

Sal: Yes, because on the back of their tags I write, like it will have her ID on the front and on the back of the little yellow tag I have the mother's number and an abbreviation of what the father's number is, like Manhattan is MH, MM is MerMer.

Cassie: So you are quite familiar with the bulls as well?

Sal: Yes, the ones I use I am. Now the likes of health and live weight, there is nothing there. It's for the guys who weight their cows as well and as you can see she hasn't been entered for live weight. She hasn't been entered as having mastitis, and lactation: those stats come from herd testing. Ok, the first year she spent 269 days in milk, she produced 3312 litres of milk with 186 kg's of fat in percentage and 137 of protein, so she averaged 1.2 kg milk solids a day. Say at eight dollars a kilo she produced about ten dollars a day. That's just rough guide, it varies. At this stage, at the last heard test she had only been in for 39 days and had produced that much (pointing) and her somatic cell threshold is, anything over 150 is classed as over the threshold, so her cell count was less than that with one test. Last season she

never got up to that over the four tests of the year. She went to bull the other day, and it will have the date that she went to bull when I synchronise everything. There is the technician's number and each batch of semen has a batch code and they can turn around and say, especially if its frozen or whatever, they can say when it was produced and they can even say who the technician was who took the samples and did the straws. They can trace everything. You can spend a lot of time on the programme if you want. But its reasonably user-friendly.

Hemsworth and Coleman (1998) note, “humans working closely with farm animals develop relationships with their animals often not dissimilar from those that develop between humans and companion animals” (p. 20). Ear tags individualise productionist cows for Sal. Using numbers and codes he then creates names for his cows because he sees the cows on the farm as his co-workers. In the productionist paradigm everything, including cows bodies, is geared toward more – more cows, more milk, and more profit. As a result, cows as individuals become lost as just another number in the herd. Located at the interface of body-machine relations, cows' ear tags are more than an appendage to their bodies for Sal. Ear tags connect the materiality of their bodies to external monitoring devices. Additionally for Sal, pet names on the back of the ear tags reconceptualises productionist cows as more than machines in the paddock, milking shed, and virtual worlds where cowness comes into being.

Ear tags redefine the relationship between Sal and his cows. This then reorders the networks in which Sal and the cows on his farm are enrolled because ear tags enable him to enrol cows as co-workers and milk-makers. In a similar vein to the unintentional agency inherent in cows' bodies through lameness in the hooves, ear tags provide strategies for cows to resist

bodily pressures of productionism. These strategies have been shown here in Sal's provision of pet names. Correspondingly, for Sal, ear tags provide different versions of what a cow can be. Having the potentiality to be both pet and production machine via ear tags, cow agency can be seen to be both knowable, and practicable amidst shifts in the productionist paradigm. Again, cow agency is both inherently physical, and relationally unfixed.

Fluid Cows

Although monitoring programmes are an online space detached from cows' physical bodies, my research shows that identity, and empathy in cow/farmer relationships, occurs in embodied forms through ear tags. Knowledge about cows' embodied performances as production machines are an accumulation of hooves, udders, wombs, cowness and farmers personal experiences of cows in, and beyond, the virtual. Little ANThropologist believes this to be an ongoing effect "of hooking up to circulating [material] entities" (Latour, 1999, p. 19) regardless of differences in scale, or farmer's strategies for bodily manipulation in pursuit of "good farmer" identity. This means cows' bodies, as fragmented machines and whole sentient beings are not just the transportation of effects. Rather, as Little ANThropologist would remind us, they are intersubjective co-creations able to transverse boundaries. This chapter shows how cows' bodies are fluidly intricate, dynamic, and relational. Accordingly, cows' bodies are an ongoing series of meaningful events keeping in mind that "even the smallest of actors, the tiniest germ, may bifurcate, spread out and become an event for a new translation" (Dolwick, 2009, p. 39). In this sense, cows' bodies are humanimal co-creations of complications and mitigations of "good farmers" and "good cows" in flux in the productionist paradigm.

Conclusion

Walking the long path back from the milking shed atop Cow's crown, Little ANthropologist was thinking about how farmers' capacity to render "good cows" is limited by their ability to completely enrol hooves, udders, wombs and ear tags in networks of production that shape and define their identities as "good farmers". Telling Cow this, Little ANthropologist thought about what else he had learnt about cows. Wanting to hear Cow's thought, he said, *'Cow, did you think Cassie has shown how there are limitations to farmer agency in the construction of "good farmer" identity? Nodding, Cow agreed. 'Further, this serves to highlight the nonhuman agency of cows' bodies. Additionally, shown in this chapter is how cow agency is both intentional, such as kicking cups off, and, unintentional, such as lameness. Consequently, Little ANthropologist, we see how cow bodies do not exist in isolation as fragmented body parts of production machines. Tell me Little ANthropologist, what did you learn about 'cowness' in this chapter?' 'I now see how 'cowness' is cow agency that can physically, emotively, virtually, and conceptually permeate socio-material boundaries of productionist networks. I see that 'cowness' is fluid. Although I found this all very interesting Cow, after going to the milking shed with you today, I want to know more about cows' relationships with farmers, and cows' relationships with other cows.'* *'Well then Little ANthropologist, let's not talk anymore. Instead, with the help of Cassie, we will carry on with our story without stopping to see how cow/farmer networks are woven with care and concern.'* Without hesitation, Little ANthropologist and Cow turned the page...

Chapter Six: Cow/Farmer Relationships

Empathy and care in the mundane

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Caring in the mundane

Drawing on Digard's (1994, p. 233) notion of the domestic system production animals are enrolled in, Wilkie (2005) suggests,

[t]he production and utilisation of domesticated animals and their by-products may fundamentally underpin the system, but it does not totally reflect or explain the range of emotional, symbolic and political roles that these animals can also fulfil (p. 223).

Talking with the farmers about their lives with cows, I came to understand that the relationships they form with cows are not one sided experiences. Rather, cow/farmer relationships are intersubjective as Arluke and Sanders (1993) explain:

In contrast to conventional positivistic assumptions about the interactional capabilities and emotional experience of nonhuman animals, there is considerable evidence that dogs and other animals with whom humans routinely interact do possess at least a rudimentary ability to 'take the role of the other' and behave in ways which are purposefully intended to shape

interactions so as to accomplish their defined goals or communicate an understanding of their cointeractants' subjective experience (p. 380)

While milking cows with Kevin, he described an incident of a sick cow on his farm which highlights how empathy can be intersubjectively expressed across species-boundaries in cow/farmer relationships. He described how a young cow fell ill although it was not clear to Kevin at the time why she was sick. He noticed how other members of the herd surrounded the sick cow and proceeded to bellow. The cows bellowed and Kevin called the veterinarian. Together, the cows and Kevin expressed empathy for the sick cow. Furthermore, they took the actions to remedy the situation that were available to them. Although it is difficult to make meaning from the subjective experience of non-human others, it is not impossible because humanimal relations are experienced intersubjectively through 'empathic apprenticeship' (Farrelly & Nabobo-Baba, 2014, p. 323). In this light, cows can, and do 'take the role of the other' with the intention of shaping, communicating and understanding.

For Sal, it is important to know the cows he works with every day. More importantly, he feels that caring and knowing his cows is reciprocal. Cows on Sal's farm trust him because he spends time with them. In return, he can care for his cows in ways specific to their species-specific needs:

I can walk through the paddock and in the shed and my cows don't even flinch. They know me, and I know them. The classic is when you watch a herd of cows walking down to the cowshed. There is a guy who I was in Lions with and he went and looked at some heifers to purchase. I asked him

why he didn't buy them and he said, 'Oh, they are too quiet'. And I said, 'Too quiet!' He said, 'Oh, they will be too slow going to the shed'. He then brought this line of heifers that when he went into the paddock their ears pricked up and he thought, 'Oh those are good, free moving animals'. You get them in a herd and they literally run to the shed. But then you end up with foot problems because they are running and udder problems as well. It's not good for them.

Cows in production herds “have hierarchies based on age and time in the herd” (Gunderson, Schewe & Stuarts, 2013, p. 216). Walking on a track, cows need space and gentle encouragement to bring them safely to the shed because hierarchal behaviour is often played out here. The following conversation further highlights how Sal cares for the cows on his farm in ways that are specific to them.

Sal: I had a mate in Matamata who would go and open the gate for his cows and not put anything behind them. They had their order that they went to the shed in, and that's how they operated. He didn't need to push them around. They know their order. They aren't fighting and pushing each other. If your number 28 in the herd and you're up the race ahead of number one then you get a shunt and told to get back where you belong [smiling]. Oh yeah! They just amble up quietly to the shed and by the time he had the shed ready they just filled into their bales. He never put anything behind them, and he never missed a cow.

Cassie: Is this to do with herd size?

Sal: Yes. It's about herd size and management. It's about how the people are with the cows. It's about man handling animals. At the end of the day it's about your relationship with your cows. After a day of watching the staff with the cows, you would turn around and say, 'Well he shouldn't be following the cows up because when he follows the cows up they are shit scared of him and they run. They push'. No, you want the person who will bring the cows up gently, they just walk up calmly to the shed and the cows are at ease and you walk into a shed, and if someone else walks into a shed they are tense. They will poo! They will shit everywhere they are so tense.

This conversation with Sal reveals the ways in which 'cowness' is physically and emotionally expressed. Cows, he suggests can show fear and stress physically through defecating, however, it is the farmer's responsibility to ensure that this does not happen. Considering how when cows' enjoy group behaviours they experience less social stress (Gunderson, Schewe & Stuarts, 2013, p. 216), not pressuring cows into the shed is mutually beneficial as docile animals are easier to control. Additionally, Sal suggests that cow/farmer relationships are the essence of farming. In imagining the pressures of walking to the shed, Sal demonstrates how humanimal empathy is possible.

Talking with Pete about how he feels about his cows instead of what bodily attributes "good cow" have, he mentioned how

cows are like humans. They learn like humans, communicate like humans, but they do it in their own cow ways. If you look for it, if you spend time

with them you can see it. Is about patience when you are looking for it. Like I have told you before, it comes from spending time with the cows.

Pete frequently discussed themes of alienation during his life story. In his older years now, Pete does not spend much time with cows in the milking shed. Recalling how he used to work with cows, Pete noted,

You know, these milkers on the farm now, they don't spend time with the cows. They just lock them away in the paddock after milking and that's it. They don't even look at them. I never had a motorbike when I started farming and I used to walk that farm by foot about five times a day. I would walk up behind the cows and look at them. I could see what they were doing that way. I knew my cows that way.

Technology in productionist farms alienates cows from 'cowness' and is used by farmers as a production tool to control and improve cows' bodies. Pete intentionally rejected technology in the form of motorbikes so that he could walk the farm with his cows. However, Pete did adopt technologies in the forms of AB and milking sheds. Through choosing particular technologies to adopt, and others to reject, Pete demonstrates the competing tensions productionist farmers' experience in their relationships with cows.

Pete said he knows his cows well because, "*well I know a lot of stuff, I have been around for a very long time*". Interested in Pete's lifetime full of humanimal relationships, I asked him for his thoughts on stress in the milking shed as a shared experience. His response to this question is highlighted in the following conversation.

Cassie: This may seem weird to ask, but do you think the cows can pick up on the stress of the milkers, of the farm workers?

Pete: Yes, cows are almost human. I handle the young stock on the farm now, and I don't have a dog or a motorbike. I do it by talking to them and those cows are noticeable when they come to the milking shed. They are very quiet, they are calm. My farm manager once told me that they just stand there, they don't even kick.

Cassie: Yes, and that's strange because heifers usually kick because they aren't used to the milking shed.

Pete: I've been with those cows since they were calves. I care for my animals deeply. I care if they aren't fed properly. I make sure they get the proper food. I know when they are hungry. I know when they want more. I know when they are like a cat, just meowing for something to do. I can judge all that because I know cows.

These conversations with farmers shed light on how they express care for their cows in the everyday context of their lives on productionist dairy farms. Farmers act intentionally in ways that enable cows to express 'cowness'. Furthermore, through imagining cows' lives, farmers are considerate of the physical and emotional pressures cows' experience. However, cow/farmer relationships are simultaneously complicated and mitigated by the various technologies farmers enrol in productionist networks. Hence, in their relationships with farmers, cows are more than milk-making machines, but also valued co-workers.

While doing fieldwork in my family's milking shed, I had a lot of time to ponder cows as more than milk-making machines. It was here that I began to understand for myself how humanimal relationships are formed in the mundane when I found myself simultaneously at work and at play with cows in the milking shed.

Intent in the milking shed

Standing in the pit of the milking shed I spent the majority of my time looking at hooves, udders, milking cups and pipes performing a repetitive task twice daily for four hour stretches. Milking cows is boring. When anything out of the ordinary breaks the repetitive monotony, it is particularly noticeable.

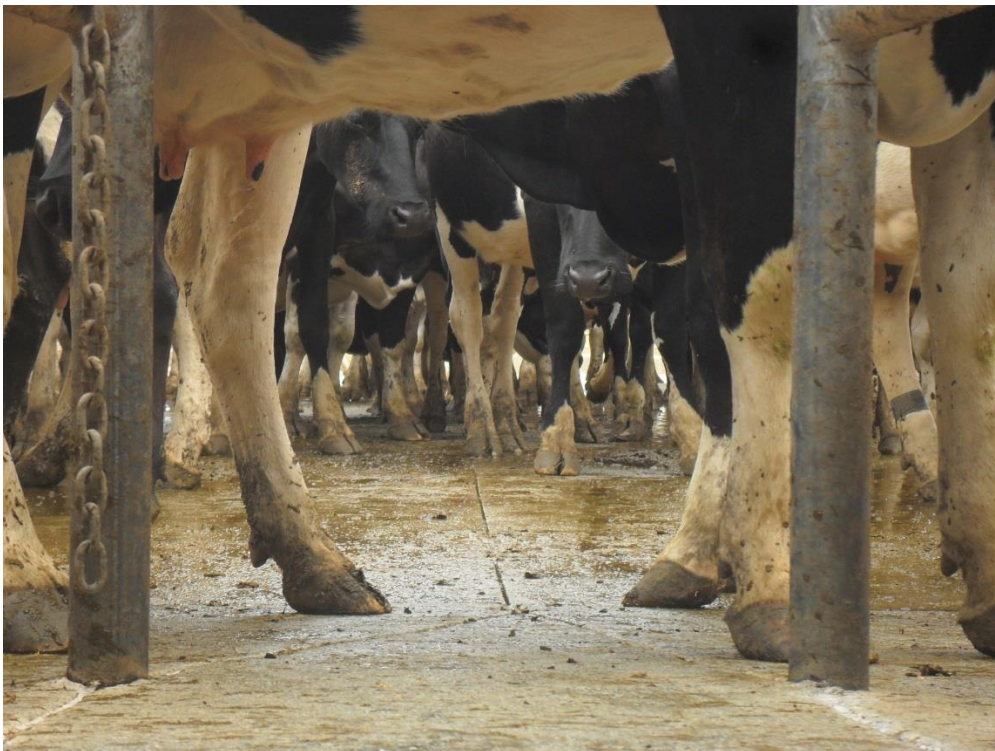


Figure 10. My view of cows from the milking pit

Captured in the above image (figure 10.) is my view of the cows waiting to be milked. Here the cows spend their time socialising with one another. The cows also spend their time watching the milkers work. Dipping their heads up and down, the waiting cows watch what is happening in the shed between the legs of their herd mates. One morning, while still bleary-eyed and half asleep I noticed the cows paying closer attention to the pit where I was standing. I had not noticed that there was a white bucket in the pit that morning. This new addition to the pit did not catch my eye, but was of great interest and concern to the cows. Curious and cautious of the bucket, the cows walked gingerly into the shed that morning. Cows are observant and cautious when new things appear in their environment. However, they learn quickly, and the following afternoon, once it had been established by the entire herd that the bucket posed no threat, the cows continued with milking as normal.

Cows would walk into the shed, often pushed forward by an automatic gate and take their place in the bails. If, and often more likely than not, the cows would not enter the bails, supplementary feed is used to lure them in to position. Production cows are fed supplementary grains in milking sheds. This practice is becoming common in New Zealand dairy farming and is carried out for a variety of reasons. Increasing milk production, improving body condition pre and post calving, and supplementing for lack of pasture feed are included in these. As I noted, in my family's shed the feed system is also used to encourage cows to enter the bails for milking. This is a routine interaction between technology, cow and farmer on productionist dairy farms. It is also a means of regulating and improving "good cows'" bodies via technology and feed. In his research into human and cow adoptions of new technologies in industrial dairying in Hokkaido, Japan, Paul Hansen (2014) found the milking shed to be a space where affective and embodied behaviours could be expressed by both cows and humans. While in my family's shed, I met cows who chose to

engage with the feed system in ways that influenced and impacted their relationships with the humans who work there, and their herd mates.



Figure 11. Working in the milking shed

Meeting 'Pullers'

Arluke and Sanders (1993, p. 379) suggest, those “who interact consistently and intimately with animals outside the artificial situations of conventional scientific inquiry typically see their nonhuman cointeractants as self-aware, planning, empathetic, emotional, complexly communicative, and creative”. It was here (as shown in the above image, figure 11.), amidst

the rhythm of machines and the coming and goings of cows I came to meet some very interesting cows. These cows are known as ‘pullers’ in my family’s milking shed. ‘Pullers’ are cows that are long enough in the neck to reach up, and with their tongues pull at the string that is connected to the chain and pull system that releases feed from the shute. They first caught my attention because during a milking, when a ‘puller’ was in the row of cows being milked, it was one of the only times the rhythm of changing cups over was broken. Meeting ‘pullers’ I began to consider how cows express themselves cleverly for complex social reasons and to achieve particular goals. The more time I spent with cows, the clearer it became that ‘pulling’ is one way in which cows express intentional agency in the milking shed.

In-shed-feed-systems are used as a coercive technique by farmers to lure cows into the bails for milking. Once cows have entered the shed and taken their places in in the bails, the feed system is activated by a milk harvester. Grain feed then drops and the cows eat. The following image (figure 12.) shows cows in my family’s shed with their heads down eating the feed that has just dropped from the white shute above.



Figure 12. Cows eating feed in the shed

The sound of a single shute of feed dropping signalled to the milk harvesters that there was a ‘puller’ in the row. The ‘pullers’ do not just pull at the string haphazardly. Rather, the ‘pullers’ wait until they have both finished the feed in front of them and until the refill noise has passed from the feed system outside the shed (figure 13.). Once the refill noise has passed it signals the ‘pullers’ that they have the opportunity to pull and get more feed.



Figure 13. The feed system outside the shed

It always made me laugh when I heard ‘puller’ being shouted out down the shed and watching the front milker sprint to climb the stairs out of the pit so they could manually switch the feed system off. In my time milking, I experienced how the feed system design did not take into account the many behaviours of cows. As Hansen (2014) describes, it is undeniable that cows “are thinking and feeling beings who, though dominated for centuries, manage to actively negotiate and influence the human and mechanical world; effecting and affecting as they go” (p. 126). With this in mind, ‘pulling’ is a communicative, embodied and emotional expression of ‘cowness’.

Amy Hatkoff (2009), writing on the amazing intellectual, social and emotional lives of farm animals notes that cows are competent and emotional learners (p. 62). In particular, cows

have been shown to have elevated heart rates and more animated behaviour in response to their own learning achievements. This discovery “is significant because it indicates that they [cows] have self-awareness, one of the key components of consciousness” (Hatkoff, 2009, p. 62). Head bunting, tail flicking and bellowing are commonly noted forms of embodied communication for cows (see for example Hansen, 2014, p. 126). In my own experiences of lingering in the space of cows, the ‘pullers’ who have taught themselves how to get more feed had an increase in animation after their success of gaining more feed. ‘Pullers’ would tip their heads back quickly, stomp their front hooves and flick their tails briefly before eating their extra feed. However, this depended on the individual ‘pullers’ amount of available space to move in. I also noticed during fieldwork that it was consistent for ‘pullers’ to nudge the cows next to them, alerting their herd mates to their accomplishment and letting them know it is time to eat.



Figure 14. ‘Pullers’

‘Pulling’ is an expression of cowness and it happens quickly. By chance, I happened to catch a moment with a ‘puller’ in the image above (figure 14.). The white cow is not being milked, but is sharing some extra feed with the black cow being milked who is the ‘puller’. Extra servings of feed dropped into the tray by ‘pullers’ is always shared with neighbouring cows. In this way, being a ‘puller’ is not a solo activity. Through cows’ learning ability to negotiate and master spaces designed to confine and control them, ‘pullers’ perform and express ‘cowness’ in intersubjective ways by sharing extra feed.

‘Pulling’ as an act of friendship: 401 and 330

While in Kevin’s shed I noticed how many cows appeared to be socialising with one another through play. In particular, I noticed two young cows had squeezed themselves into a bail together. Kevin laughed when he saw me staring at them out of concern. These two young cows went everywhere together he explained, even it seemed, into the bail when they could manage. He told me that the young cows had been brought into the farm together and refused to separate ever since. Although this is a coping strategy to reduce stress of being on a new farm, Kevin noted that this behaviour that normally dissipates over time as the new cows find their place in the herd. What was interesting about these two however, is that they had been on the farm long enough to establish themselves in the hierarchy. Kevin smiled when he talked about them and stated simply that they were best friends. Because of their friendship they did everything together, even in the milking shed when they could. While in the milking shed, I noticed that ‘pulling’ also a way cows expressed and experienced friendship.

The following images (figures 15- 16.) depict another of my ‘puller’ experiences. While walking around the shed with my camera one day, many cows took great interest in me, and

the camera. Walking towards cows 401 and 330 they both stopped moving to watch me. As I got closer they did not become startled as some cows did when I approached them⁶.

Retrieving my camera, I proceeded to take photos of them. Initially, I wanted to photograph what cows looked like in milking sheds. While these images do depict this, they also demonstrate how acts of friendship are expressed in the shed through ‘pulling’.



Figure 15. Meeting 330 and 401

⁶ Cows are considered participants in this research and I have extended ethics to them as nonhumans. When cows showed signs of trepidation, I did not proceed to photograph them.



Figure16. 330 and 401

Standing in front of 401 and 330 I felt as though I was partaking in a game of cat and mouse. When I looked down at my camera, the cows moved about. When I looked up again they stopped. Indulging my feelings of jest momentarily at the two cows playing with me I was startled when I heard the familiar whoosh of a ‘puller’ at play. The ‘puller’ was 330. She had pulled right in front of me to my absolute surprise. Reflecting on this experience I still smile, but I am also unsure if the two friends were purposefully teasing me. It certainly felt that way at the time. Nonetheless, 401 and 330 ate their extra feed then returned to curiously staring at me, and as I got closer, sniffing me.

I had noticed 401 and 330 enter the shed together on a few occasions. They did not stick together in the way that Kevin’s best friend cows did, but they were together enough that even I, as a part-time transient milker could recognise their friendship. Getting in close to 401

I felt her hot breath on my skin. After she had sniffed me, 401 returned to her friend 330. Although pushed close together by the bails, it was interesting to watch the ways they leaned their bodies into one another as if purposefully. I had experienced this feeling in the yard when I was learning to communicate with cows. From my perspective, I assumed that this was embodied communication between them. Watching 401 and 330 longer, I could see that when one fell out of touch with the other, they would lean back into one another again. But before I could witness any more of 401 and 330s friendship, the gate clicked open and I darted to get out of their way so they could leave for the paddock. Sure enough, while walking out of the shed, the two cows remained close, letting faster cows push past them.



Figure 17. 401 sniffing my hand

401 and 330 provide a small, but insightful glimpse into cow friendship. It is possible that their friendship is based on the feed reward from ‘pulling’. Nonetheless, it is maintained through communication and care for one another. Furthermore, I was granted temporary access to their friendship through ‘pulling’ which I then became a part of.

Literature on production cows suggests that modern milking sheds are places that alienate cows from their cowness by restricting their ability to socialise. The following images of my families milking shed (figures 18-24) illustrate how they do indeed look like industrial work sites from the outside with fragments of life appearing through metres of metal fencing.



Figure 18. My family’s milking shed



Figure 19. Cows waiting to be milked



Figure 20. The in-shed-feed-system



Figure 21. Cows in the yard under the electronic gate



Figure 22. Cows in the milking shed



Figure 23. The vat room



Figure 24. A cow watching through the metal bars

'Pulling' is a discernible illustration of cows' adaptability. Using 'pulling' in this way, cows are able to be responsive and flexible in an industry geared toward the mechanisation of their bodies. However, not all cows are 'pullers', although all cows can be 'pullers' because the milking shed is space in which cows can move. Albeit with only a little space available for cows to move in, they can still perform many aspects of 'cowness' such as communication and hierarchy formation. Hence, play mediates and carries the collective agency of cows, because if one can 'pull' it is possible for all to 'pull'. In this way, cows continue to resist, reorder and reshape what it means to make more than milk in milking sheds. As 401 and 330 illustrate, even friendships play out in this space. Milking sheds also provide us with an illustration of the multi-layered contexts in which cow/farmer relationships become durable.

'Pulling' together cow/farmer relationships

Cowness is constructed, experienced and reproduced through socialisation. At times I joined in feeling a sense of happiness and achievement for 'pullers' regardless of the stress it was causing my fellow milkers. During my time in the shed, I noticed how being a 'puller' was intersubjectively experienced across the species divide as my experience with 401 and 330 demonstrates. While 'pullers' caused panic for the milkers, the milkers also did little to prevent them. Occasionally when a 'puller' was recognised by a milker prior to entering the bails, the feed system was turned off as a preventative measure. However, not all 'pullers' are known to milkers because for some cows it is not a consistent behaviour. For others, 'pulling' is a twice daily activity. Consequently, 'pulling' highlights the fluidity of milking shed boundaries formed by humans and technology. Hence, agency is performed through

‘cowness’ because being a ‘puller’ is a matter of degree, rather than a fixed behaviour or identity of “good” or “bad cow”.

In her research on sentient commodities and productive paradoxes in Scotland, Rhoda Wilkie found that farmers befriended a few animals because it assisted them to “manage other animals and makes their job more interesting” (p. 223). ‘Pullers’ evoked responses of affection and humour amongst the milkers. I certainly found ‘pullers’ amusing. ‘Pullers’ are thought of as cheeky children testing boundaries, rather than aggressive animals, or “bad cows”. However, discussing ‘pullers’ with my father evoked a contrasting response. My father does not spend time in the milking shed with the ‘pullers’. For him, ‘pullers’ question his “good farmer” identity because extra feed also means extra money spent on cows, and could also mean that some cows missed out on much-needed supplements for their general health and their production capacity. As capitalist rationality of the productionist paradigm dictates, a farm is a business and a cow is a commodity (Gunderson, Schewe & Stuarts, 2013, p. 216). As a consequence, ‘pullers’ form different meanings to actors with varying interests in productionist networks.

In the previous chapter, I discussed how “good farmer” identities are both constructed and contested by “good cows” and vice versa. In a similar vein, ‘pullers’ challenge the authority of milkers, and the rigidity milking sheds physically impose on expressions of ‘cowness’. A ‘puller’ is not a “good cow”, a “bad cow”, or the symbolic and embodied representation of “good farming”. Rather, ‘pullers’ represent intersubjective experiences of ‘cowness’. As suggested by Little ANThropologist, flows are both spatial and relational. They can occur in spaces such as milking sheds, and also shift relations in those spaces (Nimmo, 2011b, p. 58).

In this sense, ‘cowness’ is not fixed by spatial boundaries, but rather a fluid embodiment of cow agency through creative uses of space.

All the farmers who participated in this research used some form of supplementary feeding, and two used in-shed feeding systems similar to the one in our family’s milking shed.

Although the farmers did not mention ‘pullers’ during their life stories, they did discuss various ways that cows interact with other cows and farmers through intentional agency.

Individualisation

‘Pullers’ perform important social functions in milking sheds. They challenge human authority in what could be an alienating space in milking sheds. Furthermore, ‘pullers’ serve to form hierarchies in herds and are an act of sharing and care for cows by cows, and by the humans who either turn a blind eye to this behaviour, or join in to enjoy it. ‘Pulling’ individualises certain cows to farmers. Hence, cow ‘pulling’ serves to remove some of the ambiguity inherent in productionist cow/farmer relationships. In this sense, cows are not just numbered machines and farmers are not only technicians.

For humans and for animals, there is work and there is *work*. There is work that emancipates and work that alienates. The positive or negative effects of work depend on the system of production. Work can heighten an animal’s sensibility and develop their capacities or, on the contrary, exhaust them and cause them suffering (Porcher & Schmitt, 2012, p. 57).

Working in my families milking shed was mundane. ‘Pullers’ broke some of the routine of milking, but ‘pullers’ also came and went at their own will. Learning to milk with my grandparents as a child I often interacted with cows in the shed. I would race my Nana to see who could change over cups the fastest. When my Nana’s favourite cow came into the shed, I would pat her snout and ask her about her day. Nana’s cow would often initiate this interaction by turning her torso in the bail so that she was facing us. Bellowing quietly when we left her to change over cups on other cows, it was hard to resist returning to her side to give her an extra scratch behind her ears, or let her tease me as she tried to lick my fingers. Interactions, such as these suggest that social exchanges between farmer and cows can be understood as emotive discourse that is not limited to ‘pullers’. For farmers, these interactions relieve some of the tensions of productionism, and individualise cows as more than production machines.

Conclusion

‘Cow, I am happy we got to see what cows do at work with their human co-workers. It showed us how milking is a shared experience through embodied communication enabling cows and farmers to transverse species-boundaries’. Agreeing, Cow then said, ‘As a consequence, we saw that cow/farmer networks are woven with empathy and care of the other, regardless of species.’ ‘Yes’, agreed Little ANThropologist, ‘Furthermore, ‘pullers’ provided details of how ‘cowness’ is expressed at work in the milking shed. In doing so, they revealed that the fluidity of their being is not restricted by milking sheds which are designed to control and regulate their productionist bodies. Hence, as cows continue to find creative ways to interact, communicate, and form friendships, they are reforming how they are enrolled in productionist networks with their human co-workers. In this way we saw how cows have agency as they continue to resist, reorder and reshape what it means to make milk

in Manawatu milking sheds'. Nodding, Cow added, *'In a similar way, Little ANthropologist, we also see farmers provided with alternative ways of becoming "good farmers" in the mundane*'. Before Little ANthropologist could respond, Cow began walking them towards the water trough. *'I thought you might like to be close to the water Little ANthropologist*'. *'Why is that Cow?'* *'Because our story is almost over Little ANthropologist, and I thought you might like to be by the water as we reflect on our adventure together*'. *'Will Cassie be there too?'* Little ANthropologist asked apprehensively. *'Of course! Cassie has always been with us Little ANthropologist. If you look towards the water trough, I think you will see her waiting for us there*'. And with that, Cow and Little ANthropologist made their way to the water trough, eager to hear what Cassie thought about the story of how cow/farmer relationships are made.

Discussion

Little ANThropologist was resting on the edge of the water trough with Cow standing beside him. Looking into their blurred reflections in the water, they listened to Cassie as she discussed how her anthropological research has provided understandings of cow/farmer relationships, and offered new ways of considering making “good cows” and “good farmers” as a humanimal experience. Early in my life, I began understanding humanimal relations in dairying through my relationships with pet calves. From these experiences emerged the question that has broadly framed this research: “How are humanimal relations between cows and farmers in the Manawatu made and experienced?” Kevin, Pete and Sal’s stories of their dairying lives with cows illustrated a blending of their lives in and beyond the socio-material boundaries of the productionist paradigm. They experience purpose and care in their relationships with cows. As cows resist and conform to ideas of “good farming”, they reshape the productionist networks in which they are enrolled. However, this is often a conflicting experience for farmers as cows can be both and co-worker and milk producing machine.

Listening and engaging with the life histories of farmers, I was intrigued by the complexity of their entanglements with cows as production machines and as a species with their own ways of being, and sharing their world. This research has focused on the mundane and prevailing constitutions of New Zealand dairy culture. Although focusing on the most prevalent form of dairying highlights how New Zealand dairy has remained a powerful exporter, not given attention in this research is alternative forms of dairying, such as organic. Although it was not an intention in this research, looking beyond mainstream dairying may provide further understandings of how cow/farmer relationships form as they enrol in networks of agriculture that have alternative drivers to productionism. I have shown in this research how

constructions and perceptions of cow and farmer identities are interwoven with dominant cultural, political and economic discourses. Therefore, understanding cow/farmer networks in differing cultural, political and economic landscapes may offer further understandings of how ‘cowness’ is materially fluid.

Spending time with cows during fieldwork, I began to understand that their bodies are much more complex than milk-making machines. Cows’ bodies are intentionally and unintentionally sites of resistance to pressures of productionism. Enrolling ANT, power relations have been ‘flattened’ in this research through the concept of generalised symmetry. As a result, cows have been considered as actors with species-specific agency. Although fragmented into hooves, udders, wombs and ear tags, this research has demonstrated how cows have agency in their body parts, and also their whole bodies as they are mobilized as actors that act in ways which continue to reshape their relationships with farmers and the networks in which farmers and cows are enrolled. This research shows how “good cow” bodies mediate “good farmer” identity. Further, “good cow” and “good farmer” identities are shown to be unfixed because there are multiple possibilities of becoming “good” through cow/farmer relationships in networks of productionism. This research suggests that production networks are also unfixed because cows and farmers are both mobile in their different, yet relational modes of becoming “good cows” and “good farmers”.

Humanimal Methodologies

Through the course of this study, I have come to see ‘cowness’ as not only fluid, but as a way of being that is constructed and experienced jointly with farmers in networks of

productionism. Upon completing fieldwork, I recognised the value of humanimal research methodologies. ‘Empathic apprenticeship’, as it has been applied in this humanimal research to understand nonhuman participants’ “lived and felt realities” (Farrelly & Nabobo-Baba, 2014, p. 323), led to richer understandings of the embodied, emotive and intersubjective nature of cows’ lives. Using my feet, I walked the path of cows. In tracing their steps, I discovered alternative ways of making sense of non-human participants’ lives through my body, and my imagination of cows’ bodies. The humanimal methodologies I used in this research have shown how it is possible to research with nonhuman animals as I have used them to make sense of the complexities and competing tensions inherent in cow/farmer relationships. Further, this research illustrates that animals can engage as ethnographic research participants when the research is conducted with care and concern for animals’ lives.

The Importance of Imagination

Not wanting to be left out, Little ANThropologist and Cow joined in the discussion. *‘I think it is important to remember that this research project, in its entirety, has been developed, shaped and presented through imagination.’ ‘Yes, I do agree Little ANThropologist. Our narratives made sense of how ANT is used in this research, and the complexities involved in applying this theory to understand nonhuman agency in productionist networks. Further, without imagination Cassie would never have enrolled us to help tell the story of cow/farmer relationships.’ ‘And remember Cow, imagination also provided a creative platform for Cassie to tell the story of cow/farmer relationships to humans.’ ‘Indeed,’* agreed Little ANThropologist. *‘Through our many conversations, we have made sense of how “good cows” and “good farmers” are marked and moulded in their resistance and reshaping of cow/farmer networks. Additionally, we are the embodiment of the care and concern that*

Cassie has for the lives of nonhuman animals.’ ‘Yes Little ANThropologist, we can see from our adventure together with Cassie, how through care and concern for nonhuman animals, species-boundaries can be traversed through creative writing. Additionally, through imagining the lives of non-humans, richer understandings of the world as a materially and socially diverse place become available.’

Sitting with on the edge of the trough, I realised that my reflection blurred with that of Little ANThropologist and Cow. In a similar way, my identities as an anthropologist and potential farmer have also come together in this research as I engaged in the lives of cows’ to explore how cow/farmer relationships form in productionist dairy farming. Although networks of production are complicated and mitigated by cultural narratives of what makes “good farmers” and “good cows”, I have shown that cows have agency. In doing so, cows are shown to do more in their hard-working and short lives than make milk and offspring.

In the spirit of companionship across the species divide, I leave the last words to Little ANThropologist and Cow. *‘Well, I think we are done Little ANThropologist’. ‘For today, perhaps we are Cow’. ‘Only today Little ANThropologist? Was jumping the moon not enough for you?’ ‘Oh no Cow, after all that we have achieved with Cassie, just imagine the places we can now go together!’* Pausing momentarily, Cow then nodded to her brave little friend in agreement. And with that, Little ANThropologist once again climbed atop his gentle friends crown as they wandered through the paddock, confident their next adventure will be together.

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Appendices



Massey University

Te Kunenga ki Pūrehuroa

Cows, Farmers and Technology: Exploring Reproduction on Manawatu Dairy Farms

INFORMATION SHEET

Researchers Introduction

Hello, my name is Cassandra McTavish and I am conducting postgraduate research to explore dairy reproduction in the rural Manawatu. This research is being undertaken to complete my Masters Degree in Social Anthropology at Massey University, Palmerston North.

Project Description and Invitation

This research project aims to explore how reproduction is addressed by Manawatu dairy farmers. I am interested in the ways in which reproduction is approached by farmers and the reproduction practices used on your farm. I would also like to know what you think about the changes you have seen or expect to see in reproductive technologies and practices.

I have provided you with this information sheet because as a Manawatu dairy farmer milking twice a day and engaging in reproductive practices it is your experiences and perspectives I am most interested in understanding. I would like to invite you to participate in this research project. However, you are under no obligation to do so.

Participant Identification and Recruitment

- Potential participants will be identified through word of mouth.
- All participants must be sixteen or older and be full-time dairy farmers.
- Four dairy farms will be selected to participate in the research.

Project Procedures

- Each participant will be invited to meet at a location convenient and comfortable for both of us. This initial meeting will be to arrange a convenient time and date for a farm visit and an interview afterwards.
- Following the initial interview a second interview will take place to clear up any questions or to discuss any ideas arising from the first interview.
- Interviews will take place at the participant's home or at another agreed location.
- All interviews will be voice recorded with your permission.
- Interviews will be carried out in the format of an informal discussion. I will aim to keep these to one hour to minimize disruption to your daily life.
- Participant observation will take place on your farm and involve me participating in, and observing general farming activities and reproduction practices.

Data Management

- Interview material will be kept strictly private and confidential and will be either password protected on a computer or in a secure lock box.
- A summary of the findings of the research will be made available to all participants on request.
- I will use pseudonyms to protect the identities of all participants and identities will remain anonymous during the writing of the project and in any potential resulting publications.

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 particular question;
- request that the voice recorder be turned off;
- withdraw from the study;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used; and
- be given access to a summary of the project findings when it is concluded.

Project Contacts

Please do not hesitate to my supervisor or myself with any questions about this research project at the following locations

Dr. Carolyn Morris

Massey University

School of People, Environment and Planning

Phone: (06) 3505799 ext: 2014

Email: C.M.Morris@massey.ac.nz

Dr. Trisia Farrelly

Massey University

School of People, Environment and Planning

Phone: (06)3505799 ext: 3509

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Cassandra McTavish

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Email: cassandramctavish@gmail.com

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application ___/___ (*insert application number*). If you have any concerns about the conduct of this research, please contact Dr Ralph Bathurst, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x 43404, email humanethicsnorth@massey.ac.nz.

Low Risk Notification

“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 Professor John O’Neill, Director, Research Ethics, telephone 06 350 5249, email humanethics@massey.ac.nz”.



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PARTICIPANT CONSENT FORM - INDIVIDUAL

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

I _____ (write your full name), consent to being:

Interviewed Interviewed and voice recorded

(Please tick the boxes if you agree or place an X in the box if you disagree)

I understand that at any time

I can decline to answer a question.

I can request that the voice recorder be switched off.

I can withdraw from the study at any time.

I can ask any question about the research.

at the conclusion of the research project I can request a summary of the research findings.

I will be providing information with the understanding my real name will not be used.

Signature:

Date:

.....

Full Name - printed

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