

Restless Ecologies in the Andean Highlands

by

Allison Enfield Caine

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Anthropology)
in The University of Michigan
2019

Doctoral Committee:

Professor Bruce Mannheim, Chair
Professor Stuart Kirsch
Professor Joyce Marcus
Professor Benjamin Orlove, Columbia University
Professor Robin Queen
Associate Professor Elizabeth Roberts

Allison Caine

acaine@umich.edu

ORCID: 0000-0003-2054-4729

© Allison Caine 2019

DEDICATION

This dissertation is dedicated to Señora Concepción,
and it is in memory of my grandmother, Peggy Gene Michie.

ACKNOWLEDGMENTS

This research would not have been possible without a vast network of people and places that supported and nurtured me in innumerable ways over the past years. Above all, I am grateful to the community of Chillca. To the people of Chillca for welcoming me and sharing their homes, food, and lives with such generosity and patience; and to the places of Chillca, for sustaining me, calling me sharply into the present, and providing endless wonder and inspiration for the thinking, daydreaming, and scribbling that would become these chapters. I am especially grateful to the Rojo family¹ and to the glacial valleys of Antapata and Uqi Kancha.

The city of Cusco became my second home long before this research began. I come back each time to the welcoming arms and generous plates of the Huaman Escalante family: my *compadres* Janet and Ernesto, and my *ahijados* Leslie, Illapa, and Wayra. I am grateful for Jean-Jacques Decoster and the staff at Centro Tinku, my first landing spot in Cusco and a place to which I always return. Regina Tupacyupanqui Arredondo provided language instruction, translation support, and warm company during fieldwork. In 2015, I also benefited from the company of a robust research community, and I am especially grateful for my colleagues in the Cordillera Vilcanota. A special debt of gratitude is owed to Kelsey Reider for introducing me to the people of Chillca, and for continuing to be a deeply insightful intellectual partner. I am grateful for the support and enthusiasm of Baker Perry and Anton Seimon, as well as the other

¹ Per the regulations of the University of Michigan's Institutional Review Board (IRB), I am unable to identify participants in this research by name.

members of the Sibinaqocha Watershed Initiative and the Cordillera Vilcanota Research and Conservation Initiative: Kate Doyle, Giovanni Estrada, Dina Farfán and Jan Baiker, Julio Postigo, Charles Rodda, Preston Sowell, Alfredo Tupayachi, Gustavo Valdivia, and Karina Yager. My deepest gratitude extends to the Crispin family of Pukarumi, especially Felipe, Juliana, Wilian, Verónica, and Miriam. I am also immensely thankful for the friends and colleagues in Cusco that provided support and sustenance each time I returned from the field: Génesis Abreu, Céline de Visser, Devin Grammon, and Yésica Pacheco, and I thank Julia McHugh in particular for her continued friendship. Steffi Schien, although not based in Cusco, provided invaluable support from afar.

Bruce Mannheim has my utmost gratitude for being an endlessly encouraging and insightful mentor from the very beginning, and a bridge between the worlds of Peru and Michigan. I am thankful for my committee members: Stuart Kirsch, for bringing the larger threads of my research into sharper relief and for being a consistently uplifting voice; Elizabeth Roberts for always catching my blind-spots and encouraging me to dive into the murky depths; and Robin Queen, for sharpening my attention to animal physiology and behavior, and not letting me short-shrift the sheep. Special thanks go to Joyce Marcus for her generous and discerning eye, and to Benjamin Orlove, whose enthusiasm and encouragement brought a welcome gust of energy to the final uphill climb, and whose breadth of knowledge on global climate change and the Andes is truly inspiring. At the University of Michigan, Adela Carlos Rios skillfully assisted in the translation of Quechua, Bilal Butt provided comparative perspectives and literature recommendations on global pastoralism, and Krisztina Fehervary was a thoughtful and generous source of advice and guidance in the final years of the doctoral program. My undergraduate

mentor at Bates College, Loring Danforth, also provided support and encouragement throughout my graduate career.

My research benefited from many scholars outside my committee, especially my colleagues and friends in the anthropology department at the University of Michigan. I was lucky to have landed in a supportive, tight-knit cohort of brilliant minds and quirky dispositions, and I am endlessly thankful for both. Over the years, fellow graduate students have been generous in both their readings of draft materials and their care of my mind/body/spirit: Anna Antoniou, Yeon-ju Bae, Courtney Cottrell, Anne Marie Creighton, Jordan Dalton, Adrian Deoanca, Bree Doering, John Doering-White, Nick Emlen, Georgia Ennis, Chelsea Fisher, Hayeon Lee, Maire Malone, Prash Naidu, Sandhya Narayanan, Mike Prentice, Guillermo Salas Carreño, Kimberly Sanchez, Joshua Shapero, Jennifer Sierra, Alex Sklyar, Howard Tsai, Jennifer Tucker, Cheryl Yin, and Magdalena Zegarra. Special mention goes to Drew Haxby and Brenna Murphy for keeping me sharp as well as sane; Christine Sargent for her encouragement, humor, and friendship; and Jessica, Adam, and Maddie Lowen for making Ann Arbor feel like home.

Generous research and writing support was provided by the Wenner Gren Foundation, the Fulbright-Hays Program and the Foreign Language & Area Studies Fellowship of the U.S. Department of Education, as well as the University of Michigan Rackham Graduate School, the Center for Latin American and Caribbean Studies, the Institute for Research on Women and Gender, and the Center for the Education of Women.

It goes without saying that none of this would have been possible without the unwavering support of my family: especially my parents, Pam and Brian, to whom I credit my fondness of trudging up mountains, and my in-laws, Monika and Philip, for indulging my love of listening to long stories over hot coffee. I am grateful for my home, Mount Desert Island and Acadia

National Park, for always filling me back up when I'm running low. Finally, to my Sweet boys: Nik, my partner in all things and a profound source of wisdom and patience, and our son Rowan, whose birth during the final months of writing brought both firm deadlines and immense rewards. Given the topic of this dissertation, I should probably thank at least one animal, so, thanks to Cricket the cat for being a constant (if highly-critical) writing companion.

TABLE OF CONTENTS

DEDICATION	ii
ACKNOWLEDGMENTS	iii
LIST OF FIGURES	x
NOTE ON ORTHOGRAPHY AND TRANSLATION	xii
ABSTRACT	xiii
CHAPTER	
I. Introduction: Pastoralism and Socioecological Change in Chillca	1
Overview of Study	1
The Andes Mountains and Global Climate Change	10
Talking and Not Talking About Climate Change	15
Methodological and Ethical Articulations: Bottom-Up Approaches	22
Restless Ecologies: Theoretical Clarifications Amongst Unruly Entanglements	26
Summary of Chapters and Organization of the Dissertation	30
Chillca, <i>Por el Q'inqu Mayu</i>	35
The Herd-Household: Human and Animal Collectives	43
Consuelo and her <i>Uywakuna</i>	48
II. Entanglements of Expertise and Exchange: Becoming a Herder in Chillca	57

<i>Michiqkuna</i> : Women’s Work in Chillca	60
Gendered Histories of Pastoralism	63
Enacting Pastoralist Expertise	72
Becoming <i>Michiq</i> : The Making of Herds and Humans	81
Becoming <i>Valikuq</i> : Exchanging Animal Labor	89
Becoming <i>Warmi</i> : From Daughter-in-Law to Good Herder	94
Conclusion: Making <i>Alpaqueras</i>	99
III. Multispecies Modes of Evaluation: Climate Change and Human-Animal Communication	102
Human and Animal Interaction as Knowledge Production	108
The Day Begins: The Cooperative Work of “Driving” the Herd	114
Human-Animal Communication: Whistling, Vocalizations, and Theory of Mind	123
Tracing Disruption and Reading Animals	131
The Process of <i>Sut’i</i> : Scanning the Herd	134
Conclusion: <i>K’ita</i> as Ecological Knowledge	147
Post-Script: Bringing the Animals Home	149
IV. Substance, Absence, Presence: Shifting Landscapes of People and Place in Andean Ontologies	152
Quechua Ontologies: People and Place as Mutually Emergent	157
Practices of Commensality and Communication: <i>Dispachu</i> , <i>Phukuy</i> , <i>Q’apachiy</i>	168
<i>Wikch’usqalla</i> : Shifts in Communicative Practice and Conversion to Evangelicalism	175
Ontological Disruption: Substance and Absence	187

Conclusion: Who (or What) Emerges?	193
V. Moving the Herd: Adaptive Decision-Making in an Era of Uncertainty	195
Mobility as Adaptive Strategy in Pastoralist Systems	200
Overview of Pastoralist Mobility in Chillca	202
Flexible Mobility: Adaptive Decision-Making in Uncertain Conditions	212
A Year of Migrations in Chillcantin	219
Migration Summary and Comparison Across Sectors	229
Conclusion: Mobilities in Question	234
VI. <i>Mejoramiento</i> as Aspirational Imaginary: Land Tenure Change and “Better” Futures	236
Improving the Land, Improving the Self: Land Tenure and <i>Parcelización</i>	240
Aspirational Imaginaries: Better Futures through <i>Mejoramiento</i>	251
<i>Bonitos Animales</i> : Practices of Cultivating Ideal Animal Bodies	256
“They will be better than us”: Childhood Education and <i>Profesionales</i>	268
Improving Land, People, and Animals: <i>Mejoramiento</i> and Racial Imaginaries	274
The End of Chillca? Reproducing Animals, Reproducing the Community	277
Conclusion: Fragmented Futures	283
VII. Conclusion: “Will the Bells of Chillca Toll for Me?”	288
APPENDIX	299
BIBLIOGRAPHY	307

LIST OF FIGURES

FIGURE

1. Map of study area	1
2. A young herder playing in a <i>bofedal</i>	14
3. Selected descriptions of changes in sun intensity	16
4. Selected descriptions of changes in precipitation intensity	16
5. Selected descriptions of deviations in seasonal weather patterns	17
6. The road to Chillca	36
7. The <i>centro poblado</i> of Chillca	38
8. Map of Chillca, with approximate boundaries	39
9. A cluster of herd-households in the sector of Chimpa Chillca	44
10. A herd of alpacas in an enclosure, freshly marked with <i>taku</i> for easy identification	46
11. Llamas carrying their cargo of <i>wanu</i> to take to the potato farms in Chillca	47
12. Consuelo's family tree, with the names of those family members featured in the dissertation	49
13. Location of Naranjo <i>astanas</i> and pastures (approximate)	50
14. Consuelo's dry-season <i>astana</i>	52
15. Sisters in the pasture	61
16. <i>Q'upi q'upi</i> (<i>Azorella biloba</i>)	62
17. Herders debating at the community assembly	71
18. The alpaca committee in Chillca medicating <i>majada</i> alpacas with vitamin injections	73
19. Preparing syringes	76
20. A woman herding alpacas	79
21. Melisa's Haircutting (<i>chukcha rutukuy</i>)	82
22. The table at the haircutting ceremony	86
23. A young girl wrangling an uncooperative llama	87
24. Preparing food for the <i>valikuq</i>	93
25. The well-worn paths of Antapata, traversed by humans and animals for generations	105
26. Herding Route, Sept 15, 2015	106
27. Herding with a <i>wark'a</i> (woven whip)	116
28. Map of Antapata and Hatun Wayku	117
29. Selected herding terms	119
30. Selected non-whistle vocalizations	126
31. Whistling to animals	129
32. Consuelo on the high ridge above Hatun Wayku, with Ausangate in the distance	132
33. Scanning the herd from a distance	136
34. Alpaca phenotypic variations	141

35. Evening in Chillca	150
36. A remedy for restlessness	152
37. Consuelo walking through the high valley of Uqi Kancha	157
38. Consuelo spinning wool in the high valleys of Antapata	160
39. A high Andean lake	161
40. Palumani Punta, Ausangate, and Warmi Saya	166
41. <i>Dispachu</i> placenames, August 1 st 2015	169
42. Consuelo preparing her <i>phukuy k'intu</i>	171
43. Consuelo and Agustín preparing the <i>dispachu</i>	177
44. The Catholic church in Chillca	182
45. Interior of a dry season <i>astana</i>	196
46. A dry season <i>astana</i> in Chillcantin, with Ausangate in the background	197
47. Map of the nine sectors and one annex of Chillca	202
48. Approximate location of seasonal residences and pastures	209
49. Sectors with ascending migration in the dry season	210
50. Sectors with lateral migration in the dry season	210
51. Sectors with descending migration in the dry season	210
52. Reported seasonal migration pattern in Chillcantin, July 2015 – July 2016	217
53. Observed seasonal migration pattern in Chillcantin, July 2015 – July 2016	218
54. Map of 2015-2016 <i>astanas</i> in Chillcantin	219
55. Cleaning the canal that irrigates the reserve enclosures	221
56. The wet-season <i>astana</i> of Suqlla	222
57. House-raising labor in Chillca	224
58. The town of Chillca, as seen from the potato plots on the northern hillside	228
59. Herders gathered for a communal work event	244
60. An NGO presents their project and distributes blankets at the community assembly in Chillca	255
61. <i>Suri</i> alpaca for sale at the animal market in Pampamarca	260
62. Evaluating alpaca fiber quality	262
63. “Improvement of the Competitiveness of Producers of Alpacas and Llamas of the District of Pitumarca” Program Workshop Document, district municipality of Pitumarca and Heifer International 2011-2014	263
64. Women’s attendance at a campaign to register household dogs and vaccinate against rabies	271
65. Checking alpacas for mange at the <i>karachi hampiy faina</i>	280
66. Consuelo in the evening	297

NOTE ON ORTHOGRAPHY AND TRANSLATION

For Quechua words and phrases, I follow the standard conventions for Peruvian Quechua, relying on the three-vowel system of orthography: /a/, /i/, and /u/. Spanish loans embedded in Quechua speech are transcribed following Quechua orthography when appropriate, for example, when the speaker is a monolingual Quechua-speaker (i.e., for words and phrases like *awir* [*aver*], *piru* [*pero*], or *phinu* [*fino*]), or when the word has been conjugated in Quechua (i.e., “*dalimushan*,” from Spanish “*dale*” [colloq. *go, give*] to mean goes, does, or moves). I include the Spanish vowels /e/ and /o/ when pronounced. Exceptions to the three-vowel rule include place names (i.e., Quesiuunu) and surnames (i.e., Huilca), in which case I try to be consistent with local orthographic conventions. While the orthography of both place names and surnames tends to be inconsistent even within a small community, I try to include the most widely used representation.

Unless otherwise noted, all Quechua in this text is from Quechua speakers *de comunidad*, and is not derived from dictionaries, ethnographic literature, popular media, or other sources. All Quechua and Spanish language translations in the text are free translations, presented without interlinear glosses of any kind. I chose this method of presentation in order to enhance the readability of the text for a primarily English-speaking audience. I realize this choice (as with any choice) is problematic, and I have included the original text in either footnotes or parentheses for transparency. All errors in translation or interpretation are my own.

ABSTRACT

This dissertation explores the ecological knowledge practices and strategies of Quechua-speaking pastoralists in the Andean mountains of Peru who are facing rapid climate change. It reveals how people interpret ecological and social change in the routine practices of daily life and how they envision, plan, and bring about viable futures in the face of those changes. In the Cordillera Vilcanota mountain range of the southern Peruvian Andes the impact of global climate change includes glacial retreat and the increased unpredictability of seasonal weather patterns, both of which have profound effects for communities of alpaca herders that herd their animals on glacier-fed wetlands and rotate their pastures seasonally. In this region, women are the primary herders, and their knowledge and skill are vital to surviving under changing social and environmental conditions. Based on twenty-two months of fieldwork with high-altitude, glacier-dependent pastoralists, this research attends to the experiences of Quechua women as they respond to ecological change through the daily routine practices of herding animals. Herd animals become increasingly unresponsive to human cues under drought conditions and landscape beings cease to be frequent interlocutors under shifting realms of religious and economic practice. These breakdowns in communication between humans, herd animals, and landscape beings alert herders to a broader socioecological instability. The Quechua term *k'ita*

(restlessness) articulates the spatiotemporal unpredictability of various phenomena that signals this disruption. In sum, particular forms of relationships linking humans, animals, and landscapes have been constitutive of life in the Andes, and their unraveling is indicative of the increased precariousness of that life in an era of climate change. In response, herders implement a range of strategies through which they reorganize and regulate relationships, including the strategic circulation of animals and labor as well as vital substances and essences. As they contemplate viable futures in moments of socioecological precarity, herders envision new assemblages of humans, animals, and places that draw on broader gendered and racial hierarchies and configurations of power. These findings have broader implications for future research on the impacts of climate change, by emphasizing the importance of ethnographically-grounded, bottom-up approaches to climate change adaptation that privilege the ontological premises and epistemological suppositions of indigenous people sensing a changing world. Furthermore, it demonstrates the ways in which daily, routine practices are the site of revelatory processes through which climatic changes become known and addressed.

CHAPTER I

Introduction: Pastoralism and Socioecological Change in Chillca

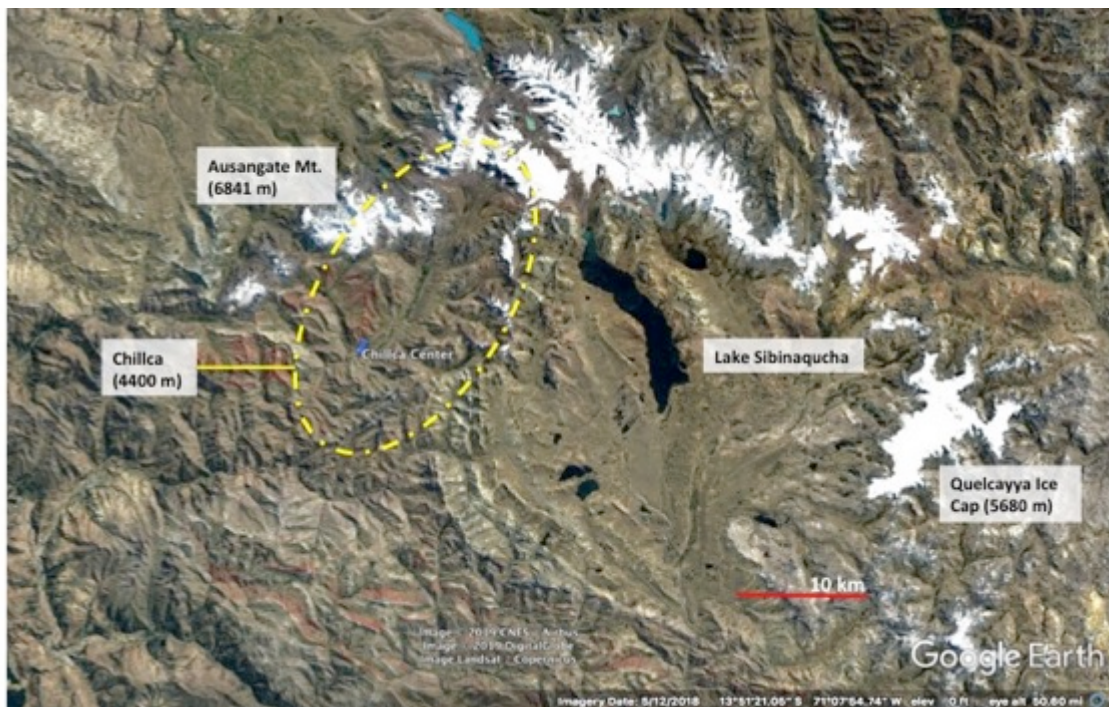


Figure 1: Map of study area

Overview of Study

In the high Andean grasslands at 4500 meters (~15,000 feet) above sea-level, life emerges in gasps and bursts: tufts of spiky grass, splashes of rockfall, the sharp and sudden flight of a flock of starlings from a hillside or vicuñas fleeing across a ridge. Communities of pastoralists live tucked into bare hillsides at the mouths of glacier-fed valleys—the glaciers above them, as we are now well aware, have retreated farther and more rapidly in the past fifty

years than at any point in the previous six millennia. The grasslands are shifting in ways that are at times shocking, such as when a glacial lake bursts, burying everything below it in a fury of mud and ice. But most of the time the shifts are delicate, nearly imperceptible. In recent decades these grasslands have sparked the interest of climate scientists, who come in search of the traces of global environmental processes in the ice, soils, plants, and animals of the Andes mountains. The people living in these spaces also encounter and interpret a range of phenomena through the daily practice of animal husbandry, traversing the landscape with their herds of alpaca, llamas, and sheep. It is here, in these migrations and moments of perceptive engagement with animals and landscapes, that this research takes hold.

My research is motivated by two central questions: (1) how do people encounter the traces of ecological and social change in the routine practices of daily life? And (2) in the face of those changes, how do people envision, plan, and bring about viable futures? I situate these questions within the context of high-altitude pastoralism in the southeastern Andes of Peru, to ask how Quechua herders cooperatively produce ecological knowledge and strategy in their shared lived experiences with animals and landscapes of the high Peruvian *puna*. I explore how these herders evaluate environmental changes and forge adaptive strategies in the daily interactions among humans, herd animals, and landscapes of the southern Cordillera Vilcanota mountain range,² in the small pastoralist community of Chillca, Peru. As the impacts of climate change³ reverberate throughout the globe, pastoralists in Chillca traverse a progressively shifting terrain, marked by vacillations in agricultural calendars and ecological zones, increases in human and livestock disease, and the loss of vital landscape features. At the broadest level, I ask how

² A glacierized mountain range in southeastern Peru, extending roughly 60 km east to west, encompassing Ausangate mountain (6384 masl) and the Quelccaya Ice cap.

³ Global climate change is here defined per the UNFCCC definition: “a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability” (United Nations Framework Convention on Climate Change, Article 1)

people gather knowledge about their ecosystems, evaluate their vulnerability, and forge strategies in relation to transformative environmental changes— in this case how herders recognize shifts in their surroundings and modify their practices in response.

However, to return to the initial question (how do people encounter the traces of ecological and social change in the routine practices of daily life?), documenting the process of *tracing* ecological and social change is not a straightforward endeavor. It requires an engagement with forms of knowledge production and chains of causality that do not necessarily map on to conventional interpretations of climate change impacts. Here, I draw the concept of *trace* from the Quechua word *sut'i*, which expresses the concept of a legible marker that indexes a previous event or action, tells of an underlying condition, or hints at an event or action to come.⁴ Herders in Chillca are constantly reading the traces of change in the world around them, and I heard them present a range of scenarios in which the concept of trace (*sut'i*) expressed past, present, and future: a person's face appears sad, telling of their misfortune (“they’ve been robbed,” *sut'i kashan suwasqa*); an alpaca's belly is hanging low, indicating that the animal is pregnant (*sut'i kashan wiksa urayashanña*); or rain clouds loom over a distant hill, signaling that rain is soon to come (*sut'i kashan pararinqa*). While no perfect translation exists, herders expressed the Spanish-language equivalent as *al aire* (literally “in the air”; in plain sight, revealed, exposed, laid bare, discovered).⁵ Importantly, it is a process based on *vision*, and is one that can be undertaken by sighted beings, whether human, animal, or earthbeing. Tracing, in my interpretation, is like any scientific methodology in that it is a process that involves the “selection and reassemblage of ideas and practices, of their creative elaboration and modification,

⁴ Definition from the Academia Mayor de la Lengua Quechua: adj. *claro, visible, iluminado, diáfano || manifiesto, evidente, lógico, cierto*.

⁵ In the community of Phinaya, Ben Orlove notes that herders expressed the visible markers of glacial melt as being “in plain sight” (*sut'i, a la vista*) and “contrast[ed] them with other processes and features that might require specialized knowledge or apparatuses to detect” (2009, 141).

undertaken by specific groups of people in specific institutional, political, and cultural locations” (Stepan 1991, 7). Herders trace the legible changes in their world through visual observation, and, as I’ll argue, through various forms of communicative practice, and they make sense of those changes within Andean ontologies of place, person, and animal.

As Catherine Allen has written, “To participate in a *pacha*, a world-moment, is to share in its *sut’i*, its clarity” (1998, 22).⁶ My goal is to share in the processes of tracing through which herders render their world legible, bringing to light the transformative changes that constitute the present moment in the high Andes. In Chillca, for example, the emergence of ecological disruption often manifested in the shifting social relations between humans, animals, and landscapes, such that a capricious mountain or an inattentive sheep became critical interlocutors in articulating socioecological precarity. My research seeks to capture how changes to the landscape and shifting seasons were interpreted and addressed through the daily spatial practices of animal husbandry, and how these changes were articulated through idioms of relatedness and social obligation between humans and non-humans alike. As a methodological and ethical stance, I took seriously ontological premises of socionatural relatedness in Chillca and sought to understand the processes of identification and objectification through which individuals located themselves in relational ecologies that confounded the artificial contrasts between nature and culture. To that end, this project is grounded in the modes of identification and methods of analysis of the herders themselves, using that framework as the starting point from which to understand how they pinpoint the emergence of incongruity, tension, and danger in their daily lives.

Within this frame, what Western researchers might identify as the traces of “climate change impacts” are not so easily separated from the intricacies of everyday life in contemporary

⁶ As Allen notes, the term *sut’i* has as synonyms “*kunan*, or ‘now’ and *chiqaq*, or ‘true or straight’” (1988, 22).

highland Peru. In addition to finding cause for concern in droughts and delayed herding schedules, herders also detected subtle changes in the emotional states of their animals and the rhythm of their daily herding tasks; shifting soundscapes of running water and cracking glacial ice; the disparate presences of plastics and smoke; and in the shifting tenor of their interactions with others, both human and non-human. These subtle shifts index broader transformations in the social relations between herders and their communities and herds; neighboring communities, city-dwellers, development agencies, and the state; and the sentient beings that inhabit their landscapes—mountains, glaciers, rock outcrops, and other socially agentive places. Rather than appearing as singularly linked phenomena, climatic changes emerged inextricably within a constellation of socio-environmental concerns. Methodologically, this complexity was reflected in the ways that conversations and practices unfolded in the pasture, moving through a multiplicity at once, leaving me—in the early days of fieldwork—stumbling and searching for the legible threads of continuity that aligned with how I strung phenomena together in chains of causality. It required a shift on my part to share in the herder's *sut'i*.

This participation in the herder's world has yielded two key insights: the first concerning practices of knowledge-making (Chapters Three and Four), and the second concerning strategies in response to change (Chapters Five and Six). First, I argue that communicative and symbolic practices between humans, animals, and landscapes are world-making practices through which herders both constitute and make sense of their world. In the context of climate change, these practices are powerful knowledge-making techniques through which Andean herders analyze their own vulnerability as deeply embedded and emergent within broader socioecological worlds. What herders find in these moments of interaction and evaluation is an increasing unpredictability. As drought conditions alter the grasslands, the animals become increasingly

difficult to work with, refusing to heed the plaintive whistles and verbal cues of the herders. Weather phenomena is likewise harder to predict— everything is more *intense*: the sun burns brighter and hotter, cold nights are colder, rain and hail fall harder, and wind blows faster and stronger. And nothing seems to come in its time: rains appear in the middle of the dry season, and dryness settles deep into the wet season. Relationships between humans and the place persons with which they share their territory are likewise falling away, as communicative practices wane and novel substances and essences appear that signal the emergence of other social actors (development institutions, pharmaceutical representatives, evangelical churches, etc.). This unpredictability in the socionatural world of the herder— shifts in engagement between human, animal, and landscape— constituted the very conditions of the herders’ precarity. As Anna Tsing writes of precarity, it is “the condition of being vulnerable to others” through which we lose our bearings:

Unpredictable encounters transform us; we are not in control, even of ourselves. Unable to rely on a stable structure of community, we are thrown into shifting assemblages, which remake us as well as our others. We can’t rely on the status quo; everything is in flux, including our ability to survive.
(2010, 20)

Tsing’s articulation of precarity aligns in crucial ways with that of Judith Butler, which likewise emphasizes social disconnection and marginalization, albeit on a larger scale. Butler defines precarity as “the politically induced condition in which certain populations suffer from failing social and economic networks” (2009, 25). Both of these articulations are predicated upon one’s dependence on others as a necessary condition of embodied human life (Butler 2006).⁷ Precarity

⁷ In a recent review article, Clara Han has delimited “two poles” of precarity, one “ontological,” (of which Butler is a key theorist) and the other relating to the more bounded, historically-situated context of post-Fordist labor instability (Han 2018; see also Hinkson 2017). I consider Anna Tsing’s definition to align with other theoretical articulations of the first pole. I recognize, however, that the term “precarity” (translated from the French *precarité* and thereby differentiated from “precariousness”) is rooted in a particular intellectual tradition around insecure forms of labor (Allison 2013; Berlant 2011; Standing 2011). I intentionally leave this connection intact, although

in this sense is especially appropriate to the current state of vulnerability faced by herders in Chillca. In Southern Quechua ontologies (Mannheim, forthcoming) a being's material and meaningful existence is predicated upon their interdependence with others. To be is to be-relational, and the conditions of precarity thus emerge in the weakening, severing, or shifting of the significant binds that keep social worlds intact. The various components of the herder's world have become unruly and restless, no longer staying in their place and time or adhering to former codes of conduct that made for stable relationships with other components of that world.

Here, I draw from the Quechua concept of *k'ita* as a powerful analytic for understanding these forms of precarity as they emerge under the conditions of climate change. As I'll elaborate in a later chapter, herders in Chillca use the word *k'ita* to describe the agitated state adopted by herd animals under drought conditions, and it is also used to describe humans that wander aimlessly or drunkenly. The dictionary of the Academia Mayor de la Lengua Quechua translates *k'ita* as feral (*cimarrón*) or elusive (*esquivo*), carrying the connotation of either having been domesticated previously (*cimarrón*) or evading expected social interaction (*esquivo*).⁸ However, I have translated *k'ita* into English as “restlessness” in an attempt to capture the spatiotemporality of this shift, as a sort of agitated wandering that frustrates and complicates social connections— but may not sever them entirely. Therefore, although it does share some analytical space with ferality or wildness, I hold back from defining *k'ita* as feral. Whereas “feral” implies a severing of social ties, *k'ita* beings are still firmly held within the realm of the social, even as they act in ways that exceed the bounds of acceptable social behavior. While they may defy their relationality with other beings, they are still bound to them in ways that feral

undeveloped in this research. I do, however, distinguish precarity from vulnerability, in that precarity gestures to social marginalization as a key component of one's exposure to threat.

⁸ In verb form it is translated as *evadirse*, *fugarse*, or *escaparse* (to evade, run away, or escape) and a notable variation is *k'itallu*, “a person who frequently misses work or study.”

entities are not. In this way, it overlaps conceptually with “unruly” (Tsing 2012). I also extend the term *k’ita* as a heuristic through which we might understand the temporal displacement of entities under conditions of climate change, especially the increasingly disordered state of climatic phenomena, which are described by herders in Chillca as more intense and/or appearing “out of their time.”⁹ As predictable relations slip and phenomena come untethered from their expected positions in time and space, there is a persistent sense of *restlessness* that pervades our present moment: an agitated speeding-up of planetary processes.¹⁰ Where *k’ita* shares analytical space with *feral* is in its suggestion that climate change constitutes a coming-undone of relationships, especially those between humans and the other beings and entities with which we share the planet.

That being said, the scope of this work is very much grounded in the southeastern Peruvian Andes, and particularly in the community of Chillca, and I attend to these relations and responses as they are emergent within that locality.¹¹ This is especially the case in the final chapters, in which I elaborate on the strategies through which herders adapt to changing socioecological conditions. As the socioecological landscape shifts, herders in Chillca implement a set of practices that has been used for centuries in the Andean highlands: they move their herds between pastures. I attend to these practices of mobility in all their messy complexity in order to express how adaptive strategies emerge not as uniform reactions to ecological change, but as emergent processes within a broader social world of both cooperative and antagonistic exchange. In short, herders decide to move pastures for all sorts of reasons that include animal behavior and

⁹ It is important to note that, while herders use the word *k’ita* in reference to animals and people, I have never heard it used in reference to place persons, or to describe climatic phenomena such as wind, rain, sun, heat or cold. Its use in reference to these entities is purely my own, and constitutes my extension of the term as a general analytic.

¹⁰ Take, for example, the recent news that permafrost in the Canadian arctic is melting 70 years earlier than expected (Farquharson et al. 2019)

¹¹ Locality as defined by Hugh Raffles as “a set of relations, on ongoing politics, a density, in which places are discursively and imaginatively materialized and enacted through the practices of variously positioned people and political economies” (1999, 324).

drought conditions as well as expectations of labor exchange, conflicts with neighboring communities, shifting agricultural sites, family feuds, twisted ankles, and church or school obligations. Historically, the inherent “messiness” of pastoralist migrations has fed into assumptions about a lack of coherent strategy in the face of change, when in fact this variability is constitutive of the necessary flexibility with which people move through shifting worlds and keep vital relationships intact.

However, as their worlds change, herders also envision futures that are, in some cases, radically different and may involve the separation and reconfiguration of humans, animals, and landscapes. In 2015 and 2016, people in Chillca were considering a form of land-use change that would involve subdividing the communal land into individual parcels. The conversations that led to this consideration— and the debates that emerged out of it— revealed how the articulations of improvement (*mejoramiento*) and “better futures” that emerged out of land tenure discussions are shaped by broader ideologies of race, class, and gender in Peru.

In sum, my key findings are the following:

- Particular forms of relationality between humans, animals, and landscapes are constitutive of life in the Andes, and the failure of relational practice between these entities indexes precarity in a time of climate change. Here I employ the Quechua analytic *k'ita* to articulate the spatiotemporal unpredictability of various phenomena that constitutes a broader ecological instability.
- In these moments of precarity, people implement a range of strategies, some of which draw on longheld relationships while others open up the possibility of new ones. In their imaginations of viable futures, many people envision new assemblages of humans,

animals, and places that draw on historical relations of power and may foreclose the possibility of other forms of living.

Although the composition of an academic dissertation has required me to divide and segregate phenomena into distinct themes, trends, and ethnographic moments, I have tried to keep them entangled as much as possible. And while “climate change” as a bounded concept often falls away—to be replaced by restless sheep, capricious mountains, plastics and smoke—it is important to return briefly to the topic here, to provide a general understanding of the current state of climatological change in the Peruvian Andes.

The Andes Mountains and Global Climate Change

The Andes mountain range of South America has long been a site of knowledge production concerning the earth’s climate and the interrelation of atmospheric, terrestrial, and aquatic life. Running nearly 7,000 kilometers along the western edge of South America, the spine of the Andes emerges from the northern coastal shrublands of Venezuela before traversing Colombia, Ecuador, Peru, Bolivia, Chile and Argentina, and finally submerging at the continent’s southern tip. At the turn of the nineteenth century, Alexander von Humboldt’s expeditions in the Andes laid the groundwork for the ecological sciences by positing a holistic understanding of the earth’s processes: an interrelatedness of biotic communities and earth, atmospheric, and oceanic systems in a total “unity of nature.” On the flanks of Chimborazo mountain, Humboldt mapped lines of relations among phenomena—altitude, temperature, atmospheric pressure, humidity, and the corresponding plants and animals—and in doing so, ordered the world in a such a way that continues to inform our understandings of the paired

trajectories of global climatic zones and the species housed within. Western researchers continue to map the progressive, accelerating warming of the earth's climate through proxies in the high Andes (ice cores, snowmelt, precipitation) and have documented the impacts of a warming atmosphere on this mountain ecosystem.

The resulting data present a stark picture. Atmospheric warming in the Andes has been rapid: average surface air temperatures in the tropical Andes increased at a rate of 0.1 degree Celsius per decade in the late 20th century, increasing in total by 0.34 degrees Celsius in the past 25 years (Vuille et al. 2003, 2008; see also Bradley et al. 2009; Salzmann et al. 2013).¹² This warming trend is predicted to continue and likely accelerate, with projections indicating that temperatures in the high tropical Andes could increase by 3-6 degrees Celsius by the end of the 21st century, compared to late 20th century averages (1961-1990), leading to more major El Niño events, more frequent heat waves, and fewer frost events (Bradley et al. 2009; Seiler, Hutjes, and Kabat 2012; Thibeault, Seth, and García 2010; Urrutia and Vuille 2009; Vuille et al. 2018).¹³

A devastating result of this temperature increase is the loss of glacial ice cover in the Andes. Tropical Andean glaciers have been progressively retreating for an extended period of time, with periodic moments of stabilization and mass gain during the Little Ice Age between 17th–18th century, and other intermittent periods of stabilization such as the mid 1960s–early 1970s in the Cordillera Real (Vuille et al. 2018). However, glacier retreat has been notably accelerated since the 1970s, with most glacier cover in the tropical Andes decreasing significantly in volume, surface area, and length due to the persistent ice loss associated with the

¹² This warming trend continues regardless of El Niño or La Niña events (Pacific SSTs/ ENSO phenomenon), which are used to predict cold/warm periods in the Andes (Vuille et al. 2018).

¹³ Evidence suggests that highland environments in the Andes experience accelerated increases in temperature compared to lower elevations, due to elevation-dependent warming (EDW) (Pepin et al. 2015; Rangwala and Miller 2012; Aguilar-Lome et al. 2019).

rise in freezing level height (Rabatel et al. 2013; Schauwecker et al. 2017; Thompson et al. 2013; Vuille et al. 2008). Furthermore, increasingly strong El Niño events, characterized by increased air temperatures and associated decreases in snow accumulation, have contributed to lowered albedo and increased radiation absorption, leading to further glacial mass loss (Vuille et al. 2018). The most recent El Niño event (2015-2016) produced greater ice wastage along the margin of the Quelccaya ice cap than in the previous fifteen years, and future El Niño events are predicted to be stronger and result in increasingly accelerated mass loss on Peruvian glaciers (Thompson et al. 2017). In 2013, in the lead-up to the United Nations Climate Change Conference (COP 20, held in Lima of December 2014), the Peruvian government updated its national glacier inventory to reflect the 40% reduction in the country's glacial cover since the 1970s (UNFCCC 2014). In the Cordillera Vilcanota, deglaciation due to increasing temperatures has been well documented (Mark et al. 2002; Nadine Salzmann et al. 2013; Thompson et al. 2017, 2011). Analyses of satellite imagery has shown a substantial decrease in ice cover in the Vilcanota, from 440 km² to 297 km² between 1962 and 2006, with 25% area loss in the Cordillera Vilcanota between 1962 and 2009 and a steady rate of decline of 13% in the past decade alone (Hanshaw and Bookhagen 2014; Poremba et al. 2015; Nadine Salzmann et al. 2013).

Glacial retreat is thus projected to continue in the future, regardless of various emission scenarios, and many of the smaller Andean glaciers— particularly those under one square kilometer, which constitute about half of the total glacierized surface area— are predicted to disappear in the coming decades (Rabatel et al. 2013). Many small, low-elevation glaciers in the tropical Andes are projected to disappear within a few decades and 90% of all remaining permanent ice cover could be lost by 2090, part of a global trend of glacier loss (Huss et al.

2017; Vuille et al. 2018). Recent indications suggest that the Quelccaya Ice Cap is likely to disappear entirely within the next century (Yarleque et al. 2018). Currently, glacier retreat has led to a temporary increase in stream output, river flow, and thus a surplus of water availability in the dry season (Hanshaw and Bookhagen 2014; La Frenierre and Mark 2014). However, glacial meltwater contribution to glacier-fed streams will eventually peak and then taper off as the ice disappears and glacier-fed water catchments shrink. Future water scarcity is all but inevitable throughout the Andes, and in the coastal regions and cities that depend on glacier water, particularly given the increasing demand of urban population growth and expansion of water-intensive agriculture, mining, and hydropower (Bebbington and Williams 2008; Bebbington and Bury 2009; Boelens 2014; Bury et al. 2013; Buytaert et al. 2017; Carey et al. 2017; Drenkhan et al. 2015; Finer and Jenkins 2012).

Of utmost concern for herders is the loss of montane wetland environments (*bofedales*, also known as cushion bogs, or tropical unforested peatlands), the preferred pasturage for alpacas, which would be the ecosystem most heavily affected by changes in meltwater discharge, especially in the pronounced dry season of the Central Andes (Dangles et al. 2017; Loza Herrera, Meneses, and Anthelme 2015; Perry, Seimon, and Kelly 2014; Polk et al. 2017). During the dry season (*chirawa*), between approximately May and October, precipitation is scant to non-existent, and there is a higher level of moisture evaporation due to a lack of cloud-cover. Given the low levels of moisture in this season, *bofedales* are vital glacier-water catchments that provide essential nutrients for alpacas, habitat for wildlife, and perform ecosystem services such as regulating and filtering water flow. Future decreases in hydrological output from glaciers and glacial catchments will lead to wetland shrinkage and fragmentation, leading to the creation of patches that could no longer sustain the multitude of species that rely on them for both habitat

and sustenance (Polk et al. 2017). Researchers have determined that many high-Andean wetlands have already lost aquatic connectivity to glacial meltwater, and have undergone plant community changes indicating severe reductions in the dry season water table (Reider 2018; Seimon et al. 2017). Further compounding this loss of glacial water, precipitation in the central Andes is projected to decrease significantly by the end of the century (Kronenberg et al. 2016; Neukom et al. 2015).



Figure 2: A young herder playing in a *bofedal*

In addition to the loss of wetland ecosystems, increasing temperatures carry a range of other impacts that will adversely affect highland pastures, including current and predicted upslope migration of ecozones (E. Anderson et al. 2011; Larsen et al. 2011), with altitudinal shifts in timberline and vegetation communities (Feeley and Silman 2010; Feeley et al. 2011; Lutz, Powell, and Silman 2013; Morueta-Holme et al. 2015; Zimmer et al., n.d.). Notably, rising temperatures may lead to the upward migration of arable land (Hole et al. 2011) creating spatial limitations on grazing areas and increasing conflict. There is also documentation of the upward

migration of animal populations, particularly the upslope range expansion of vertebrates to the upper limits of the biosphere (Seimon et al. 2007, 2017; Reider 2018). This leads to a concern regarding the subsequent upslope migration of pest communities, including potato tuber moths (Dangles et al. 2008), the deadly amphibian chytrid fungus (Reider 2018; Seimon et al. 2007), and malarial mosquitos (Siraj et al. 2014).

Dramatic changes in temperature, glacier cover, and precipitation indicate a rapid ecological change occurring in the Cordillera Vilcanota that is likely to accelerate in the future. While this represents a cursory overview of the climatic changes occurring at a macro-scale in the high Andes, moving forward I return back to the community of Chillca to capture what community members have expressed in conversation about climate change.

Talking and Not Talking About Climate Change

When people in Chillca spoke in broad terms about the changing climate—which wasn't often, as I'll explain below—their observations were reminiscent of what has been called “global weirding” in the climate change parlance: as one woman summarized it, “the heat, the sun, and the wind burns; in the rainy season it is dry, in the dry season it rains” (*Ruphaypas intipas, wayrapas wayran k'araqta... puquypis chirawa, chirawa puquy ayna riki*). The common consensus was that environmental phenomena had become more intense (*fwirti*). In the dry season, herders noted an increased intensity in sun, heat, dryness, and wind, as well as nightly cold and frosts. Climatic changes were often linked to the strength and intensity of the sun—for example, when I asked an older woman how the climate had changed in her lifetime (“*Ñawpa timpupi, imayna clima, timpu? Kayhinachu utaq huq niray?*”), her granddaughter reframed the

question by asking about the sun (“*Imayna intikunanpis karan?*”). People reflected that the sun is stronger and hotter than it used to be:

<i>Original</i>	<i>English translation</i>
Intipis intin tantu.	The sun is shining brighter
Antes cuando yo era niño, el sol no era así, era un poco amarillo. Ahora está llevando más fuerte ya.	When I was a kid, the sun wasn't like this. It was slightly yellow. Now it is stronger.
Intipis mana fwirtichu kaq.	The sun wasn't [as] strong [in the past].
Ruphaypis kunan fwirtimá. Mana chaynachu kaq.	The heat is so strong now. It wasn't like that [in the past].

Figure 3: Selected descriptions of changes in sun intensity

People noted that this combination of heat and brightness from the sun burns the pasture, reducing it to yellowed dry stalks that are then swept away by the strong winds of the late dry season— which are also stronger than before (“*wayrapis wayran tantu*”). In the wet season, I was told that the rains were less frequent, but when they did come they were stronger than before and accompanied by damaging hailstorms:

<i>Original</i>	<i>English translation</i>
La lluvia también cambia, fuerte también esta cambiando cuando llueve, ¿cierto?	The rain is changing too, when it rains it is becoming intense, right?
Ñawpa timpupi samphan kaq parapis.	In the past the rain was calm.
Parapis mana nishuchu kaq, rit'i kaq, kunaanqa chikchipis millaytan tuqapushan. Mana chayñachu kaq.	The rain and snow weren't as much, now the hail beats down terribly. It wasn't like that before.
Ahora está lloviendo más fuerte cuando llueve, antes despacito no más.	Now it is raining stronger when it rains, before it was slower/lighter.

Figure 4: Selected descriptions of changes in precipitation intensity

Herders remarked that the increased intensity of heat, cold, wind, and rain has impacts on both animal and human health. Intense cold causes stomachaches, diarrhea, and headcolds, while

intense heat and sun causes headaches, diarrhea, fever, and lethargy in both people and animals. Excessive precipitation causes sodden corrals, leading to a cascade effect of illness: if a corral becomes too wet, it can split the animal’s feet, give them worms, and increase their likelihood of developing gastrointestinal illness such as enterotoxaemia. The solution is to either shovel out the mud, or have the animals sleep out of the corral, which makes them more susceptible to predators. Furthermore, unrestrained animals move to pasture too early in the morning, which can also make them sick— the nightly frost (*q’asa*) freezes groundwater which melt into pools (*sullu*) in the morning in which particular worms (*sullu kuru*) live that the animals consume before the pools are evaporated. If the ground remains wet as the sun comes up, herders say that the vapor that is produced causes gastrointestinal illness in the young alpacas.

Every herder I spoke to about the rains also noted that they no longer came when they were expected to arrive:

<i>Original</i>	<i>English translation</i>
Parananpitaq ch’aki kapushan.	When it should be raining it is dry.
Manan chaynachu kanan, paranan karan.	It shouldn’t be like this; it should be raining.
Puquypis chirawa, chirawa puquy ayna.	In the wet season it is dry, in the dry season wet.
Antes había la lluvia en su debido tiempo.	The rain used to come at the right time.
Muy tarde está comenzando a llover. Antes no caía así.	It’s starting to rain late. In the past [the rain] didn’t fall like this.
Chay kusicha killakunaqa munaytaya aqnacha kashaqtiyqa ch’akirikuq, aha timpullanpi. Kunantaqya manan chaynachu kapun.	In the harvest months it was nice when it was dry like that, uh-huh, in its time. Now it is no longer like that.
Parananpi q’asa kapushan, parananpitaq ch’aki kapushan, aqnana timpu kambianpushan.	When it should rain the frosts come, when it should rain the drought comes, that’s how the weather is changing.
Cuando yo era niño, la lluvia, tiene que llover en su momento, no? No llueve como en su debido tiempo, sino que retrasa o anticipa.	When I was a child, the rain, it has to rain in its time, no? It doesn’t rain at the right time, but is delayed or early.

Figure 5: Selected descriptions of deviations in seasonal weather patterns

The wet season rains came late the year that I lived in Chillca: during the transition from the dry season to wet season in 2015 (September - November), the rains were noted to be about three weeks late, which shifted agricultural schedules and seasonal herd migrations throughout the various sectors of Chillca. Herders noted that the rains were also slow to arrive in November and December of the previous year (2014), and that they also received a number of intense rainstorms in June, during the dry season, which affected the production of freeze-dried potatoes and disrupted their ability to collect dried alpaca dung (*ucha*) to store for fuel. The appearance of weather phenomena outside of its expected time had also led to increased incidents of animal illness. The late onset of rains meant that the animals were not recuperating from the dry season as expected: as one herder reflected in September, “the animals are skinny now. But in the past this season wasn’t like this, they were already recuperating. They should be recuperating already.” (“*Los animales también están flacos ahora pe. Pero esta temporada antes no era así pe. Yá estaban recuperando. Yá debe de recuperar.*”). The presence of intense heat during the rainy season was understood to cause *wiksa punkiy* (enterotoxaemia) in sheep and alpaca, a gastrointestinal bacterial illness that leads to anorexia, lethargy, recumbency, and the distended abdomen that gives the illness its name (“swollen belly”).

Given the extensiveness of glacial retreat in the tropical Andes, one might expect the loss of glacial ice to be the most salient impact of global climate change, yet there was comparatively little discussion of glacial ice loss in Chillca. This was notable, given that I found the topic of glacial retreat to be a prominent concern in the community of Ausangate, located on the opposite side of Ausangate mountain from Chillca. In Ausangate, glacial retreat was articulated in terms of the decreasing visibility of snow on Ausangate mountain: it had appeared whiter in the past,

and was now darkening.¹⁴ Indeed, the north face of Ausangate mountain has more visible snow loss than the south face, where the community of Chillca is located, which perhaps explains why glacial retreat, as a visible marker of climate change, is much more likely to arise in conversation in Ausangate. In Chillca I heard mention of glacial retreat most often in the sectors of Phinaya, Killeta, Antaparara and Qampa, located at the base of several peaks on which glacial ablation and retreat was much more visible. In these sectors, herders tied the darkening of white peaks explicitly to future water loss. As an older man in the sector of Antaparara noted:

The wetlands were nicer [in the past]. Now they are drying out. That white peak over there, the snow is disappearing. [See] how Ausangate is white, right? That's how those mountains used to be. Now they are melting bare, they are turning black... The water just isn't like it used to be. Then it will dry out, there won't be any water [in the future].¹⁵

Another middle-aged man, in the sector of Qampa likewise expressed his concern, noting that the water was already diminishing, and it was getting more difficult to gather water for daily household use in the dry season:

Javier: With us, my concern is water. When the snow disappears, how are we going to live? The snows were still extensive in the past. That part [gesturing to nearby peak], around there, that was pure white. Those [gestures to surrounding peaks] were totally white. The water was plentiful, now it is little, look [gestures to river]. Year after year, I don't know what is going to happen.

Allison: Are you noticing the water diminishing near your house?

Javier: Just this season. [Down the valley] there is still, but in the highest parts there isn't any. Also in the mornings, it freezes so that we can't gather water [for household use]. So we gather it in the afternoons, we bring the water and store it in the house. As there is only a little, it dries up and freezes. Little by little it will diminish more. It's the same [down the valley].

Allison: But is it always like this in [the dry] season?

¹⁴ For other examples of glacier retreat articulated as the “darkening” of white glacial peaks see (Bolin 1999, 2001; Rhoades 2000, 2008).

¹⁵ “Aswan sumaq uqhu karan. Kunanqa ch'akipushanmi. Kay mama yuraq rit'i wiñaq rit'i chaymi tukukapun. Imayna Ausangatipis yuraq kashan riki anchaynan karan chay urqukuna. Chaymantan kunan q'ala chullupun chayqa yasta yanallana kapushan... Mana ñawpahinanachu yasta unupas kunallanmi kashan. Chaymantaqa ch'akirapunqa, mana unuqa kapunqachu.”

Javier: Yes, it's always like this, but it is much lower now. In the past it was plentiful they say, during this season. But not anymore.¹⁶

Discussion of climate change was a comparatively minor part of my overall fieldwork. In particular, I rarely if ever discussed the abstract concept of “global climate change” in Chillca—it never emerged spontaneously in conversation unless I brought it up, and even then it often led to clunky, forced conversations. In the beginning (and periodically throughout my fieldwork, as people became more comfortable with my presence in the community), I attempted to ask people directly about their opinions on climate change. It was a largely unsuccessful endeavor, for many reasons. First, there was the basic issue of translation. Inserting the Spanish language phrase *cambio climático* into Quechua conversation was ineffective: I found that *clima* translated as weather, in the sense that we use it in English: the short-term, immediate state of phenomena such as heat, dryness, sun, wind, or precipitation. *Timpu* was a more effective translation for climate in terms of longer-scale weather patterns, and indeed the phrase “*timpu kambianshan*” was often successful in articulating long-term weather pattern change. However, even this particular phrase became complicated during the transitions between seasons, when questions about a changing climate were interpreted in reference to the shifting season, rather than the changing climate over time. Ultimately, the most effective form of asking about climate trends over time was to either ask how certain phenomena are different now than before (“When you were a child,

¹⁶ Javier: De nosotros, lo que, mi preocupación mía es el agua. Cuando se va a terminar la nieve, [de] que cosa va a vivir. La nieve antes era grande todavía. Esa parte, alrededor que hay, ese era puro blanquito. Esas era todo blanco. El agua era más harto, ahora es poquito, mira. Año tras año no sé que cosa pasará.

Allison: Por tu casa, estás notando que el agua está bajando?

J: Está temporal no más. Si de nosotros también esta temporal no hay agua, casi, en Antaparara hay todavía pero más arriba ya no hay. En las mañanas también, lo congela así no hay para sacar agua. Entonces de la tarde nos sacamos, traemos el agua y guardamos en la casa. Como viene poquito no más, seca, lo congela. Poco a poco va a bajar más. Igualito es en Antaparada.

A: Pero siempre es así en esta temporada?

J: Sí, siempre es así, pero ahora aun mucho está bajando siempre. Más antes era harto dicen estas temporales dicen. Pero ahora ya no.

what were the rains/sun/wind like? Is it the same or different?), or to make reference to changing patterns elsewhere as a primer (“In the United States, people say it is getting drier and hotter, is that true here too?”).¹⁷ Furthermore, the form of direct questioning involved in interview-style engagements was not a productive methodology because it did not reflect the ways in which people engage in conversation in the Andes, and typically led to stunted, uncomfortable interactions. This was especially true for conversations with women, as I will speak more to in the following chapter. For this reason, I rarely held interviews with community members in a formalized sense, preferring to periodically raise questions or musings about climatic trends into conversation as similar topics came up.

There were, however, a number of fascinating observations that emerged during conversations around “global climate change” that warrant mention here. Especially with women herders, many of the associations they had with *cambio climático* or *calentamiento global* (global warming) originated from the radio programs they listened to while herding. Both on the radio and in our conversations, as I mentioned earlier, there was a consistent association between the increased heat and the proximity or strength of the sun. A number of herders made an association between a stronger sun and the hole in the ozone layer: they had heard on the radio that increased trash, smoke, and plastics had burned a hole in the ozone layer (or caused it to wear out [*thantachiy*]), and the earth was getting hotter because the sun was shining brighter through the hole. However, another herder I spoke to disagreed with this idea, countering that the heat was due to the fact that the sun was *closer* because the earth is slowly rising up:

¹⁷ This also helped to make the question less direct, by asking the person to reflect on what is said about the topic, rather than to articulate their own opinion on it. In Quechua there are certain linguistic affordances that allow one to distance oneself from an idea/utterance, by saying in a variety of ways “it is said,” or “people say.” The suffix *-si*, for example, communicates this measure of distance (in opposition to the suffix *-mi*, which communicates first-hand experience with the statement). This allowed the people I was talking with avoid occupying a stance of authority, which would require that they have first-hand experience that supports the claim. If I took steps to distance myself first— by opening with “they say that the climate is changing”— this also put people more at ease.

The sun is sunnier, the wind is windier. It wasn't like this before... Now the earth is growing. If you put little rocks [as a marker] every year they will rise up, they are being lifted as the land grows. They are getting closer to the sun, that's why it is like this. 'The trash, the cans, the plastics, they've made a hole in the sun,' they say. But I doubt these things make a hole, I believe the land is lifting itself higher and higher... if [the land] is getting closer, the sun burns more.¹⁸

While I don't engage with these observations in this research, it would be worthwhile to investigate how these associations emerge through discourses around atmospheric phenomena in the Andes. What people *did* want to talk about—in great length and detail, and with much interest, enthusiasm, and preoccupation—were their animals. Thus, the majority of my conversations, and indeed my fieldwork, coalesced around the preferred focus of attention: alpacas, llamas, and sheep.

Methodological and Ethical Articulations: Bottom-Up Approaches to Climate Change

In total, I lived eighteen months in the Cordillera Vilcanota. The first six months I traveled between a number of communities on the north and south sides of Ausangate mountain as a means of enriching a comparative perspective of diverse land tenure systems— from communal land holdings to privatized parcels— within a single glacial watershed ecosystem. The final twelve months (June 2015 – June 2016) I lived in Chillca, a community of around 350 individuals that herded their animals in a sixteen-hectare glacial valley system on the southern slopes of Ausangate mountain. There, I was able to explore the management of herds in a communal land tenure system in greater depth. I used an array of methods, ranging from daily

¹⁸ “Intipas intin, wayrapas wayran tantu riki, mastá. Mana chaynachu unayqa karan. Wayrapas manan chaynachu karan, timpu, ankay tierra kunan wiñapushan, rumichakunata churaykunki chayqa altupiña altupiña wataman, uqaripushan aqnata, hallp'a wiñapuspa intiman aypupushanchis riki, chaytaqcha chayna kamushan riki, basurakunapas, ninkutaq chay latakuna plastikukuna inti t'uqushan, manasuna piru chaytaqa t'uqunmanchu, wiñansuna tierra altuman uqarishan altuman, riki, aqnata aqnataq cielo kashan, chayqa aynata aypashan chayqa más ruphana riki.”

participant observation, field notes, spatial analysis and mapping with the use of a GPS unit, to audio recordings and detailed notation of conversations between herders during casual encounters, ritual activities, and community meetings. This allowed me to present a more holistic picture of socioecological transformation across space and time, and to better capture the sociospatial practices of herding animals in Andean glacial valley ecosystems.

The vast majority of my time was spent herding. The key insights in the dissertation thus emerged from detailing the minutiae of daily practice and attentive engagement with herder whose lives are intricately bound up with those of their animals and landscape. This “experience-near” (Geertz 1983) methodology allowed me to better engage with the “situated connectivities” among humans, herd animals, and landscapes that frame understandings of socioenvironmental shifts (D. B. Rose 2009). It allowed for a fine-grained analysis of the particular techniques, tools, and methods of observation and objectification through which phenomena become coded as risks or opportunities, requiring intervention in various ways. In doing so, I emphasize the herder’s experience of her social world, seeking to make sense of climatic changes from within that framework— elucidating the moments and interactions through which environmental stress becomes visible, palpable, or knowable for the herder. In other words, I engage with the process of *tracing*, sharing in the moments of *sut’i* through which the world becomes legible.

The anthropology of climate change is a crowded field, and this study joins—and hopefully, extends— a large body of literature on climate change and indigenous communities. Anthropological attention to climate change has yielded valuable insights into climate-based impacts in communities and institutions throughout the world (Barnes et al. 2013; Crate 2011; Crate and Nuttall 2009; Fiske et al. 2014; Whittington 2016). This work has led to a critical re-evaluation of theories of adaptation, with an emphasis on the culturally-contingent nature of

vulnerability within particular socio-natural ontologies (Adger 2006; Adger et al. 2013; Agrawal et al. 2012; Berkes and Jolly 2002; Leonard et al. 2013; Orlove 2005, 2009). While notions of adaptation, resilience, and vulnerability consistently appear in policy and development discourse and practice, it was only relatively recently that these theoretical concepts were translated from the ecological to the social sciences and their application to social systems remains problematic (Adger 2000; Lemos et al. 2007; Gallopín 2006). Anthropological research has revealed the limitations of the terminology in representing the evaluations and practices of climate-affected communities (Orlove 2009; Eakin and Luers 2006). In particular, anthropologists have elucidated the ways in which environmental hazards are deeply contextualized within specific ontologies of human-environmental relatedness that belie rigid dichotomies of nature/culture, history/event, and normal/abnormal (Cruikshank 2005; Kirsch 2004).

In essence, I've adopted what has been called "bottom-up approach" to climate change in Andean ecosystems (Vuille et al. 2003, 2008).¹⁹ A bottom-up approach stands as a corrective to the typical top-down, "experience-distant" (Geertz 1983) structure of climate vulnerability assessments, in which evaluations of local impacts are based on generic models of human systems and short-term survey methodologies. These evaluative structures reproduce dominant Western perspectives while glossing over the primary concerns and ontological premises of the affected communities themselves. Mobilized within policy discourse, notions of vulnerability and adaptation are unmoored and abstracted from human experience, obscuring how climate-affected communities evaluate and address transformative changes in their daily lives. One iteration of a bottom-up approach in the natural sciences is citizen science, which involves not

¹⁹ Similarly, Karina Yager and colleagues have recently articulated the importance of "two-way communication" or "co-participatory research" (which they distinguish from "one-sided" or "top-down" approaches) to understanding land use change. In the context of rapid climate change, participatory approaches are "essential to build trusted and actionable knowledge [...] and can strengthen the identification of local adaptation strategies in the context of rapid global and environmental change" (Yager et al. 2019, 4).

only a critical attention to local perspectives but “the participation of the general public in the research design, data collection and interpretation process together with scientists,” a methodology that has arguably been in practice in various forms for centuries but has previously gone unacknowledged (Buytaert et al. 2014, 1). Within anthropology, a “bottom-up approach” articulates in many ways the core commitment of the discipline— as the foundation of ethnography itself, or as the basis for increasingly collaborative ethnographies that emphasize co-authorship. It aligns with the renewed commitment to “taking seriously” (Viveiros de Castro 2011) as the core tenet of the ontological turn, described by Marisol de la Cadena as taking “literally, rather than metaphorically” the practices and presuppositions of the people with whom we work (de la Cadena 2010, 361). Critically, “taking seriously” deviates from citizen science in that it requires, as Matei Candea writes, “a self-imposed suspension of the desire to explicate the other, to verify the other’s possible world” (2011, 147). Rather than aligning (or subsuming) indigenous knowledge with(in) dominant realms of knowledge, it places the analysis of the researcher firmly within the methods, logics, and histories of the informants—an approach that predates the ontological turn (Henare, Holbraad, and Wastell 2006; Ingold 2000; Kirsch 2006; Nadasdy 2007; Povinelli 1995, 2001). In this research, in seeking a “bottom-up approach” to climate change, I strive to employ the analytical concepts of the herders to explain the broader world.

By grounding my research in Andean ontological premises of socionatural relatedness, I join these researchers in eschewing a portrayal of climate change as an *a priori*, singular object that exerts a unidirectional impact on human communities and evokes predictable responses. However, as Morgan Scoville-Simonds recently argued, while there is a large body of research on “perceptions” of climate change, there is comparatively less engagement with the

epistemological practices through which climate change phenomena are made legible (Scoville-Simonds 2018). This is especially true of the routine, mundane practices of everyday life through which people produce knowledge about changes occurring in the world. By grounding my research in practices of daily life in the Andes, I seek to engage with the particular epistemological and ontological premises through which environmental changes come to be recognized and coded as risks or opportunities, and the material, social, and ritual practices through which communities define the qualities of vulnerability and forge adaptive possibilities. This stance is further driven by a commitment to decolonizing climate knowledge by engaging with non-western ontologies and practices of evaluation that trace connections across domains, species/biotic communities, and scales (Castree 2015b, 2015a; Schulz 2017; Tilley 2011). Below, I outline my theoretical engagements and explain how they are critically rooted in Andean ontologies of socioecological change.

Restless Ecologies: Theoretical Clarifications Amongst Unruly Entanglements

The title of this dissertation, *Restless Ecologies in the Andean Highlands*, reflects two key theoretical and methodological articulations in this research: *restlessness* and *ecologies*. In employing the concept of ecologies, I am gesturing to a broader approach to ethnographic research that is premised upon essential and inextricable connections between species, biotic processes, material and semiotic practice, and memory and history (Cassidy 2012; Descola 2013b; Kirksey and Helmreich 2010; Kohn 2007; Haraway 2008; Nading 2013; Ogden 2011). In this sense, ecologies overlaps conceptually with assemblages. As Anna Tsing notes, the concept of assemblages helps “get around the sometimes fixed and bounded connotations of ecological ‘community,’” by acknowledging the indeterminate quality and flexibility that constitutes

relations between various elements: “assemblages are open-ended gatherings. They allow us to ask about communal effects without assuming them. They show us potential histories in the making” (Tsing 2015, 23). As such, this research is aligned with recent literature on multispecies interactions and entanglements, acknowledging that humans, animals, places and their various “lifeways” (Tsing 2015) are always entangled in processes of mutual becoming. Therefore anthropology, as the study of human life, must pay attention to these entanglements as constitutive of human life. As Eben Kirksey and Stefan Helmreich argued, especially in a moment of transformational change largely wrought out of global-scale anthropogenic climate forcing, it is imperative now more than ever that we “acknowledge our ‘situated connectivities’ within collectivities of human and non-human life,” as we share common fates (2010, 549; D. B. Rose 2009).

Within that frame, my goal in this research is two-fold: first, I strive to be attentive to these entanglements through an engagement with everyday interactions or “intimacies” (Govindrajan 2018) between humans and the other entities with which they make their world, paying attention in particular to the “new spaces of possibility such interactions can create” (Kohn 2007, 4). This analytic of entanglement is also especially suited to an Andean context, given that it closely resembles and at least partially articulates relational ontologies in the Andes. In high Andean ontologies, humans, herd animals, and sentient landscape features are all nodes in a vast network of social obligation animated by practices of feeding and care (Allen 1988; de la Cadena 2015; Mannheim and Salas Carreño 2014; Salas Carreño 2016, 2019). The relationships between human communities and their places are governed by a system of mutual reciprocity (Alberti and Mayer 1974; Bolin 1998; de la Cadena 2010; Mannheim 1991; Paerregaard 2017) and social contract (Salomon and Niño-Murcia 2011). A practical implication

of this configuration is that “environmental management” in the Andes does not entail human management of inert resources, but rather a complex management of social relations that run through human communities and into the surrounding landscape (Boillat and Berkes 2013). However, taking this perspective seriously does not require collapsing the entire material world into the realm of the social, replacing environmental determinism with social determinism (Kosek 2006). Indeed, the material qualities of the non-human world do shape the social, political, and material possibilities of human life in significant ways— and this is well understood by the herders, who have extensive knowledge of camelid physiology, climatology, and grassland ecology (Orlove, Chiang, and Cane 2002). Keeping these material affordances intact, my research seeks to identify how the referents and resources that Andean herders draw upon to make sense of environmental change emerge in the “contact zones” (Haraway 2008) between humans and non-humans.

Therefore, the methodological foundation of this research is an engagement with the specific *practices* through which herders come to understand their world and the changing relationships between different components of it. In this sense, my use of the concept of ecologies is similar to that of Timothy Choy, whose book *Ecologies of Comparison* (2011) articulates how different groups of people in Hong Kong use systematic practices of comparison, differentiation, specification and exemplification to draw connections between phenomena (places, species, forms of life, as well as particularities and universals, specificities and generalizations, details and abstractions, etc.) and then reify these connections as real and significant (i.e., politically pressing) features of the world. As Choy’s work reveals, articulating an environmental “problem” requires making connections of a particular kind among phenomena— and for him, these connections are the “ecology” in question. Through an attention

to these processes of knowledge production, I join Choy in seeking to address the broader question of how ontological status and related claims come into being through particular practices. However, this goal does not represent a departure from the previous one. For example, I am not saying that we must emerge out of the entanglement to make sense of it from the herder's perspective. Rather, the processes of knowledge production through which herders make sense of the world are constitutive of that world in the first place. As Eduardo Kohn has written, citing Terrence Deacon (2003):

The distinction, then, is not between an objective world, devoid of intrinsic significance, and humans who, as bearers of culture, are in a unique position to give meaning to it (Sahlins 1976, 12). Rather, as Terrence Deacon... has argued, 'aboutness'—representation, intention, and purpose in their most basic forms—emerges wherever there is life; the biological world is constituted by the ways in which myriad beings—human and nonhuman—perceive and represent their surroundings. (2007, 5)

It bears noting that, in contrast to Kohn's work, my engagement here remains anthropocentric in ways. In fact, this is where I depart from the more expansive goals of the "ontological turn," particularly where it begins to slide into vibrant materialism (Bennett 2009). Ultimately, I do not privilege the life-worlds of alpacas, sheep, llamas, dogs, mountains, landscape features, or a multitude of other significant beings with which Andean herders share their world—an approach that Bubandt and Tsing call "ethnobiology in reverse" (2018, 4). This is partly a methodological choice, in that I was more interested in engaging with the herders than I was the animals at the time. And part of this represents a commitment to privileging the knowledge practices of the herders within a broader global climate discourse. Herders in the Cordillera Vilcanota are among the first humans on the planet to experience the impacts of global climate change, a temporal predicament they share in common with other communities of the global south. As the international climate change discourse (channeled through the Intergovernmental Panel on Climate Change [IPCC] and the United Nations Framework Convention on Climate Change

[UNFCCC]) becomes more robust and targeted through policy and development interventions, it is critical to give analytical space to the people currently experiencing transformative shifts in their surroundings. Conflicting readings of the landscape have real social and political consequences, particularly when local communities are excluded from conversations about the places they inhabit (Fairhead and Leach 1996). As such, this research affords analytical weight to the ways in which high-altitude pastoralists themselves detect, evaluate, and address shifts in the world around them.

That being said, I also want to clarify that an essential component of this research is representing different knowledges and opinions within the community of Chillca. Local understandings are often represented as homogeneous, monolithic, without regard to internal differentiation among lines of race, ethnicity, gender, class, religion and religious practice, or political affiliation (Bhattarai, Beilin, and Ford 2015; Scoville-Simonds 2018; Pyhälä et al. 2016). There is no singular narrative of climatological or social change in Chillca, and I have strived to be attentive to how demographic and social differences shape the ways in which people in Chillca encounter and interpret environmental change.

Summary of Chapters and Organization of the Dissertation

Chapter Two, “Entanglements of Expertise and Exchange: Becoming a Herder in Chillca,” lays out the stakes of a central claim in this research: that women are the primary herders in many, if not most, herding communities in southeastern Peru. By this I mean that women perform the majority of the daily labor involved with herding, particularly taking the animals out to pasture, monitoring the health of the animals and grasslands, and implementing most of the daily and seasonal strategies involved in their care. However, women’s knowledge

and skill go unrecognized in development initiatives related to climate change because they do not enact their expertise in ways that are legible in these contexts. Rather, their knowledge is embedded within broader socioecological networks and histories of emplaced skill-making. Ultimately, being a competent herder is coterminous with being a competent Quechua woman: the daily practices of pastoralism are inextricably situated within a wider array of practices through which women sustain broader social networks, and at the same time, affirm their own gendered personhood as relationally configured within that broader social world. As they move through the various stages of their lives— from children, to young single women, to new daughter-in-law, and to established kinswomen, their social personhood is marked and affirmed by their ability to perform the tasks and skills necessary to sustain the networks of animals, humans, and landscapes that constitute their social world.

Chapter Three, “Multispecies Modes of Evaluation: Climate Change and Human-Animal Communication,” is organized as a narrative of the daily work of herding, in order to explore in detail the situated practices of pastoralism and animal husbandry that comprise the labor of herding alpacas, sheep, and llamas in the Andes. It contains two central presuppositions: (1) that the work of herding is a form of cooperative labor performed by humans and animals in tandem, which is reflected in how herders describe their own work; (2) that a key aspect of this labor is human-animal communication, particularly the vocalizations (whistles, grunts, and shouts) that herders use to speak with their animals. I argue that ecological precarity is rendered palpable and present in the moments of communicative failure when animals no longer listen to humans. This signals a breakdown in the socioenvironmental relationships that keep Andean worlds intact, and requires corrective action (moving animals to different pastures, administering medicinal remedies, or appealing to landscape beings).

In **Chapter Four, “Substance, Absence, Presence: Shifting Landscapes of People and Place in Andean Ontologies,”** I engage with the variety of strategies through which herders address (proactively and reactively) disordered states through daily and seasonal practice. I argue that, as the social landscape of Chillca shifts, many of the key practices through which herders have regulated their relations with others have fallen out of practice, due in part to the widespread evangelization of the Cordillera Vilcanota by the evangelical church, and the sudden appearance and intensification of certain substances, entities, and states (heat/cold, pests, pollution), and the disappearance of others (ice, snow, and spirits). These changes have altered the ontological particularities of life in Chillca, and index broader transformations between herders, their animals, and the sentient beings that inhabit the landscape, as well as neighboring communities, city-dwellers, development agencies, and the Peruvian state.

Chapters Five and Six pivot towards the implementation or imagination of future strategies in response to shifting socioecological conditions. **Chapter Five, “Moving the Herd: Adaptive Decision-Making in an Era of Uncertainty,”** revolves around the foremost strategy to address ecological change in herding communities of the high Andes: mobility. It describes in fine-grained detail the major seasonal migrations between herding sites in the nine sectors of Chillca, and the decisions that led to the recalibration of herding calendars. This chapter argues that normatively-reported migration patterns do not reflect observed practices of migration on the ground, and migration patterns are not solely determined by environmental conditions but reflect a multitude of social, political, and economic motivations. I hold that a detailed analysis of pastoralist migration patterns, in all their complexity, is fundamental to understanding the ways in which communities like Chillca reconfigure their spatial strategies in a rapidly shifting socioeconomic and ecological context.

In Chapter Six, “Mejoramiento as Aspirational Imaginary: Land Tenure Change and “Better” Futures,” I address recent community-wide discussions around subdividing the communal pasture into parcels in Chillca, which has operated under a de jure communal land tenure system since the disintegration of the three *haciendas* in the area in the 1970s and 1980s. These parcelization initiatives fit within a broader trend among pastoralist communities worldwide towards greater fragmentation, largely in response to increasing limitations imposed on commons systems due to population growth, environmental degradation, and land-use changes. However, I was struck by how these conversations around land tenure change continuously deviated from considerations regarding communal resources towards aspirational narratives about “improved” (*mejorado*) animals and children becoming *profesionales* (doctors, lawyers, or engineers). As broader state and market initiatives interpolate with herder’s aspirational imaginaries through notions of “better futures,” they produce privatization efforts that, while nominally internally-driven, are framed within predominating neoliberal models of modernization and self-improvement.

Throughout these five chapters, I return to common themes and central characters. At the core of this research is one woman in particular, Consuelo.²⁰ In my commitment to experience-near, person-centered ethnography, she has become the experiential anchor of the dissertation. In some ways, this organization mirrors the concentric nature of socioecological worlds in the Andes, with Consuelo at the center. Sociospatial relations in the Andes are nested— from the immediate outwards to regional and distant— and this is reflected in a myriad of ways in which individuals orient themselves towards other social beings in the world. Through ritual practices of sociality, individuals constantly reaffirm themselves as interconnected with other social beings in a particular spatial orientation that moves outwards from the individual. The concentric

²⁰ Pseudonyms are used throughout the dissertation.

organization of my dissertation also reflects the core tenet of my methodology in the field: while I utilized a range of methods, at the heart of the project was the attentive observation of the daily practices of pastoralism. I return often to Consuelo's daily experience as a herder: her interactions with her animals and the landscape that animate her social world; her life history as deeply rooted and entwined with the space in which she lives; and her concerns, anxieties, and aspirations for the future. Especially in Chapters Three and Four, I attend to the daily experience of herding by locating the narrative in the narrow spring-fed valleys of Consuelo's natal hamlet, to articulate the ways in which herding knowledge is cultivated through the practices of moving with and watching the herd day after day in the socioecological assemblage that is the herder's landscape. Moving outwards concentrically from Consuelo, I consider the lived experiences of the broader network of the family: in this case Consuelo's husband, three adult children, mother, siblings, multiple in-laws, and more distant relations that live throughout the nine sectors of Chillca and down the valley in the town of Pitumarca. In particular, I weave in the narratives of her close female kin, and elaborate on the ways in which they share their observations of the world as well as their concerns with one another, cultivating an extensive body of knowledge that forms the basis for many decisions made at the sector and community level. I also consider the forms of exchange that occur between family members in forms of inheritance and animal exchange, and how the exchange of animals (and their reproductive capacity) serves to form and cultivate the social relations necessary to one's status as a fully social person (Chapter Two).

At another concentric level outwards in the herder's social world are one's neighbors, who may or may not be distant kin but are nonetheless one step removed from the herder's closest family members. In the sector where Consuelo lives, Chillcantin,²¹ there are fourteen

²¹ The actual name of the sector is Chillca, but to avoid confusion with the broader community I will refer to it by the fictional name "Chillcantin" throughout.

herding families that coordinate seasonal rotations between two dry season hamlets (Antapata and Uqi Kancha), and two wet season hamlets (Chillca town and Suqlla). The intricate system of sociospatial mobility, *astay*, is managed at the level of the sector, and it involves close coordination among neighbors (Chapter Five). Finally, I consider the community of Chillca as a whole, both as an administrative entity through which people manage their land communally, and as a geographical space crosscut with kinship histories and relations of care and exchange between social beings of all kinds, human and non-human. In Chapter Six, I consider the concerns and conversations that emerge during community meetings, and how the strategies forged in response to various conflicts, stressors, and potential vulnerabilities are shaped by broader ideologies and geographies of race, gender, and class.

To begin, however, I'll reverse this concentric order to provide a general overview of the sociopolitical structure of the community of Chillca and its households, before returning to Consuelo's household as a way of articulating the emergent lives of people, places, and animals in the highlands of the Cordillera Vilcanota.

Chillca, *Por el Q'inqu Mayu*²²

At 7:30 in the morning on Saturday through Tuesday, a cattle truck leaves the town of Pitumarca, packed full with people, animals, and sacks of goods from the market. Women hunker down in their wide skirts in the corners and against the wood slatted sides of the truck, greeting each other with subtle nods of the head and handshakes. Men and children climb onto an elevated wood platform behind the cab of the truck, and teenaged boys— in their sneakers, hoodies, fitted caps, and with regional pop music blaring from their cellphones— perch

²² In homage to "*Por el Qomer Mayu*" (Flores Ochoa 1968, 5)

precariously on the metal support beams of the truck bed. Everyone squishes in as the final sheep and alpacas are squeezed into the truck and the driver latches the back door shut. “*Haku!* Let’s go!” we all call out from the stuffiness of the truck bed, and as the truck lurches into gear we relish the slight breeze that sneaks in between the slats.



Figure 6: The road to Chillca

The road to Chillca is in itself an impressive study in altitudinal zones. Although Chillca lies just over 35 km (20 miles) from Pitumarca, the hour-long truck ride climbs over 900 vertical meters (3000 ft), from an initial altitude of 3563 meters (11,689 ft) to 4496 meters (14,751 ft), before it winds past the community of Chillca to finally disappear, defeated, into a rocky hillside. The road begins in the warm humidity of the town of Pitumarca and its surrounding fields of wheat, corn, barley, quinoa, and broadbeans. The road is lined with thick groves of eucalyptus trees, which brush against the side of the truck and periodically knock the hats off dozing passengers. On one of the many journeys I took on this road, an older gentleman from Pitumarca informed me that the eucalyptus trees, native to Australia, were brought to the region in the 1940s by a Peruvian man and his *gringa* wife. Although they’re an invasive species, the trees are a welcome source of timber and fuel for the communities along the road’s edge.

As the cattle truck climbs steadily up the valley, it passes through the hamlets of Huito, Llaulliri, and Nueva Libertad, all part of the community of Pampachiri, and the eucalyptus trees give way to short, stout groves of *Polylepis* confined along the banks of the river. Cellphone signal quickly drops off, and by the time the cattle truck reaches Ocefina, at 13,179 feet, the air becomes dry and cold and the electric lines disappear. In the dry season, the cattle truck kicks up a light tan dust as it snakes around the hairpin turns towards the canyon. When the dust settles, the stunning vistas reveal themselves: sweeping, expansive views of a wide chasm that drops sharply to the Q'ingu River below. As the canyon widens above Ocefina, the road greedily consumes the land at its edges— at one point, the road coils between a small spray of stone homes, the dry-season hamlet of Phatanas. From here, one can begin to see the faint trail of the *ñawpa ñan*, the old road that Chillca residents used to take on foot with their horses and llamas down to town to buy and trade for sugar, flour, rice, noodles, cooking oil, and other essentials. The trip down took less than a day, while the trip back was a grueling two-day climb, which people used to divide with a visit to relatives along the way. Now people come by truck, and the old road lies buried beneath the blasted rubble of the new road.

The hamlet of Japura provides a brief respite from the staggering canyon's edge. Until around 2004, this was the end of the road, and a small statue of an alpaca marks the previous terminus and former site of a bustling meeting place, where the weekly market was the closest place Chillca people could walk to buy goods brought up on the truck. Now that the road reaches all the way to Chillca, the infrastructure of the market has slowly begun to melt back into the landscape— underneath the eucalyptus bones of the market's roof, the dirt floor has dissolved back into the grassy groundcover. Above Japura, the road emerges onto a wide, grassy plain, and the first blast of cold, glacial air strikes the faces of the truck occupants. The residential clusters

of Hanchipacha lay on both sides of the road, trickling out from the openings of surrounding valleys. Hanchipacha is the closest neighboring settlement to Chillca, and as such their histories and territories are deeply entwined. Due to decades of boundary disputes, the edges of Chillca and Hanchipacha (part of Pampachiri) blur together, until they are periodically marked by definitive efforts to separate them: a planting of trees here, a stubborn flock of sheep there.

Finally, just beyond Hanchipacha the road curves sharply before winding back on the other side of a hill with a direct view to the western flank of Ausangate mountain, beaming a stark white in the distance. Up, over, and around a final hill, the central town of Chillca comes into view. The bold vein of the Q'ingu Mayu snakes through the center of the valley: in the wet season, it slices wide in an otherworldly blue through the deep green of the plains, and in the dry season it slips by a modest, dull brown in a muted landscape.

Comunidad Campesina de Chillca



Figure 7: The *centro poblado* of Chillca

The *centro poblado* of Chillca hugs the road on both sides, yet despite this intimate embrace the majority of the town remains hidden. All the houses are built around a courtyard, with their main entrances facing inward, away from the road. To enter the family patio, you must walk between the houses along an alley that is often partially blocked by planks, pallets, buckets, and other household items to keep neighboring animals from entering and eating the food stuffs being prepared out in the open courtyard. The majority of the houses are made of adobe, which the men cut and prepare in the final months of the dry season (August through October). Most have corrugated tin roofs, as opposed to the traditional thatched (*paja*) roofing. There do remain a handful of stone homes with thatched roofs in the community, but adobe is now the norm— as I've been told, there simply aren't enough stones anymore.²³ Older homes have small doors made of salvaged materials, while the newer homes often have wooden or metal doors purchased from Pitumarca, Combapata, or farther afield.

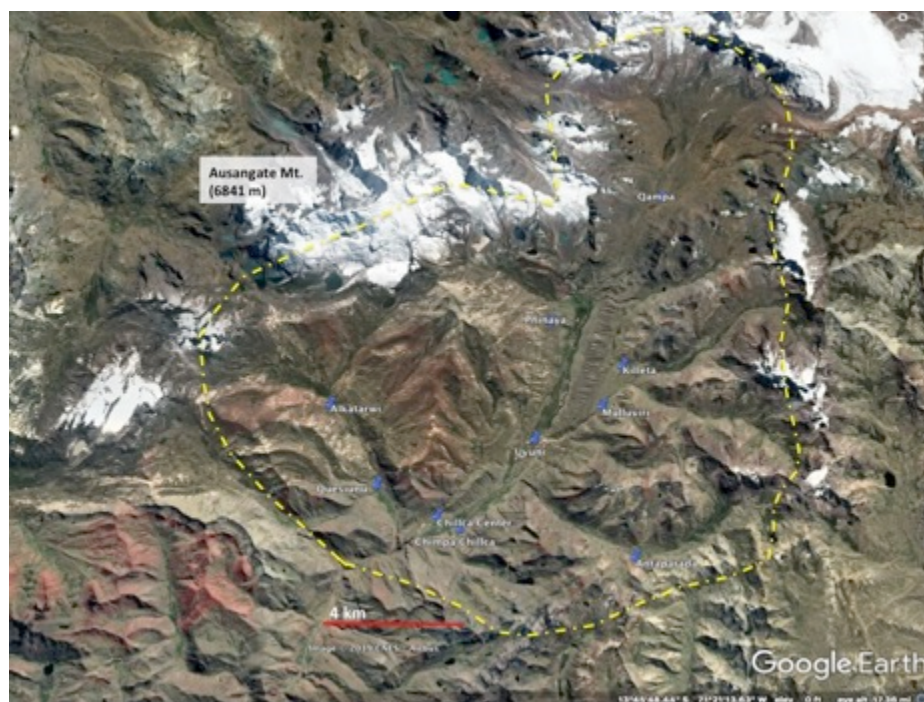


Figure 8: Map of Chillca, with approximate boundaries

²³ Construction is typically booming during the dry months. During the dry season of 2015, there were over twenty-three structures in various stages of active construction.

The majority of the structures in Chillca center are used for storage, which makes the town feel quite empty given its size. The approximate population of Chillca (including Mulluviri) during the year 2015 - 2016 was 385 individuals.²⁴ There are only three families that live year-round in the town center, and six more that reside there during the wet season. A health post worker and two elementary school teachers sleep in the school building during the week and return to their hometowns on the weekend. Each community member of Chillca is allotted a 200m² plot in the town center, but the majority of Chillca's residents live spread out throughout the 16,000 hectares of the community. The more far-flung residents of Chillca maintain only storehouses in the town center, to store their potatoes after the harvest or the wares that they've picked up from the market towns and have yet to transport the additional three to eight hours home.

Like many *comunidades campesinas* in this part of the high Peruvian Andes, Chillca has a lengthy, complicated history of sociopolitical organization.²⁵ Prior to the Peruvian agrarian reform of 1969, much of the land that comprises Chillca's current territory was occupied by three large haciendas and a smaller private landholding (*previo*). After the agrarian reform, the Peruvian state held title to those lands, while the rest of the area was incorporated into the neighboring peasant community of Pampachiri. In 1985, the community of Chillca separated from Pampachiri and became an independent *comunidad campesina*, initiating a lengthy process of land retitling, some of which continues into the present day. During the initial process of

²⁴ Pablo Sendón's archival work in the region reveals a long history of occupation by the same families living in Chillca today, evidenced by the appearance of maternal and paternal surnames in census materials from 1883 (with 83 tax-paying male individuals noted) and 1888 (84 individuals) (Sendón 2016, 152).

²⁵ While archival research on Chillca's community history is not included in the scope of this dissertation, according to Pablo Sendón's archival research with the *libros de matrículas de contribuyentes* from Canchis Province, Chillca was registered as a *caserío* of the *parcialidad* of Pampachiri in 1883 and was listed as a *parcialidad* of its own right in 1888 (Sendón 2016).

retitling, the community established sectoral boundaries that corresponded largely to historical family claims to particular lands, as well as previous hacienda areas.

Today, the community of Chillca is divided into nine sectors and one annex, the most populated of which is the sector of Chillcantin, which overlaps both spatially and administratively with the *centro poblado*. It is followed in relative population by the sectors of Chimpa Chillca, Phinaya, Killeta, Antaparara, Qesiunu, Uyuni, Alkatarwi, and Qampa. The one annex, Mulluviri, is considered somewhat separate from the rest of the community of Chillca—while administratively it falls within the *comunidad campesina*, their lands are privately owned by the families living there, and they do not share most community responsibilities and do not participate in the community assembly.²⁶ At the administrative level, the community has a mayor and a central governing committee (*junta directiva*), composed of a president, vice president, secretary, treasurer, and spokesman (*vocal*) elected by the community on a yearly basis. There are four additional elected committees, three of which are assigned to managing a communal resource (water, alpacas, and vicuña) and the fourth to delegating the community's security patrol (the *ronda campesina*). The water committee (*comité de agua*) monitors canal construction and maintenance throughout the community, as well as the central purification and filtration system of the town's water. The vicuña committee monitors the community's wild vicuña population and organizes the yearly *chaku*, in which the community gathers en masse to corral the vicuña in a central location for shearing, after which the wool is sold, and the proceeds contributed to the community's central fund. There is also a community member elected to manage the administration of labor related to the community's potato farms,²⁷ and finally a

²⁶ For those reasons, Mulluviri is excluded from consideration this dissertation.

²⁷ Chillca maintains a communal potato farm, which is rotated between various sites in the lowest area of the community along with the family potato farms, and to which each family is obligated to contribute labor during the seeding, harvest, and *chuñu*-processing seasons.

Porters Association (*asociación de portadores*) that integrates with a tourism operator in the area to provide labor for trekking and lodge maintenance along a luxury tourist route around Ausangate mountain.

The *comité de alpacas* manages the community's alpaca herd, called the *majada*. Chillca maintains a large communal herd of alpacas and sheep, which is comprised of about 2500 animals (approx. 2300 alpacas and 200 sheep) and divided into seven smaller herds by sex, age, and coat color. The sale of *majada* fiber provides significant yearly earnings for the community, which are used for a variety of community administrative costs including travel for the community leaders to Cusco and Lima, and to employ the help of lawyers and engineers with boundary management or water retention projects. Each year in November and May, the herding responsibilities of the *majada* herds are rotated between the families in each sector, with the head of household designated as the *majada* herder (*majada michiq*). The selected family herds the *majada* animals together with their own household herd, and the rest of the sector families are responsible for contributing to the herd's care through communal medicating events (*hampiq faina*). Participation in these events, in which the animals are corralled and treated with antiparasitics and given nutritional supplements, is mandatory for all families in the community.

The governing body of Chillca also has partial oversight over the use of pasture as well as management of family herds.²⁸ For both tasks, the community is administered in household units, by family (*familias*). According to a census conducted by the health post in coordination with community officials there are 98 *familias* in the community of Chillca.²⁹ This unit— which

²⁸ I discuss the system of land tenure in more detail in Chapter Six.

²⁹ This refers to both family units that reside in Chillca and those that belong to the community but reside elsewhere (such as Pitumarca, where families often live temporarily while their children are attending high school). In most cases, the administrative *familia* corresponds to a male head-of-household (*jefe de familia*) and his wife and dependents (children under their care and elderly relatives that live with them). Individuals who have been officially registered (*empadronado*) as an official resident and community member (*comuneros*) of the *comunidad campesina* of Chillca are likewise noted as an administrative *familia*, regardless of marital status. Single men of a certain age

roughly corresponds to the nuclear or immediate family in Western kinship terminology— is noted for attendance and participation in official community business, school attendance, and health post initiatives. For the purposes of the census, the *familia* is intended to correspond to a physical household. However, kinship dynamics in Chillca are, predictably, more complicated. The administrative *familia* does not correspond to how people would consider their own kin ties or organize their social world. It does not reflect how people in Chillca demarcate their own family, nor does it necessarily map onto physical residence, especially in the case of widows as well as young men who may continue to live in their family’s home for a number of years until they establish their own household. Most importantly for this study, while this administrative unit is used to conduct a census of herd sizes throughout the community, it does not reflect how herders actually organize their herds.³⁰ In order to reflect more accurately how people organize themselves and their herds, I’ve used the term “household” throughout this study, and intend for it to encompass a herd-centric social group.

The Herd-Household: Human and Animal Collectives

Humans and animals live together in Chillca in what I’ll refer to as a household, but would perhaps be better termed the “herd-household” as a way of articulating the co-production of domestic space as central to the cooperative work of herding. This basic analytic unit is animal-centric, beginning with the herd (a unified group of alpacas, sheep, llamas) and extending

(usually early ‘20s) are officially considered *empadronados* once they pass through a system of registration that includes at least a year of observation and then a community vote. After becoming *empadronados*, they are themselves able to speak and vote in community assemblies and are entitled to a plot of land in the town center. Widows, divorced women, and men who have moved to the community can also become *empadronados* after a community vote. In cases of death or divorce, the female head of household and her children are still noted an administrative *familia*, unless they move in with her parents or remarry, in which case they become a part of that administrative *familia*.

³⁰ This has led to tensions around herd reduction programs. Families protest that their herds have been counted incorrectly: a larger herd count might reflect what the herders themselves consider two or more separate herds.

to the humans that orient themselves around that herd. This isn't an arbitrary choice: in their day-to-day life, people in Chillca talk about people and their herds as a contiguous unit. Furthermore, the people who share a herd aren't always members of a nuclear family unit but can be, for example, (1) two adults, their children, and a widowed grandmother, (2) a single widow, (3) a widower, his children, and their maternal grandmother, or (4) a pair of siblings and their spouses and children. A single herd-household is not consistently bound to a particular space or dwelling, but the people and animals may occupy different houses or enclosures seasonally, or they may combine with other herd-households during one season and apart the next, merging their animals one season and separating them the next. Notably, the animals within a herd-household do not all share the same owner: most belong to the adult members of the herd-household, but as children grow up they are given herd animals and the offspring of those animals, such that one unified herd is actually internally differentiated between as many as eight to ten owners, some of whom might not even live in the community any longer. What holds the herd-household together is a mutual commitment to the shared labor of herding and caring for the same animals, as well as the ties of ownership and exchange of animals.



Figure 9: A cluster of herd-households in the sector of Chimpa Chillca

In terms of animals, a typical herd-household in Chillca is composed of roughly 100 alpaca, thirty llamas (ten female and twenty male), forty sheep, one to two horses, two dogs, occasionally a cat, a handful of guinea pigs, and in rare cases a couple of chickens.³¹ Alpaca are kept for their wool, which is shorn once a year in the month of November.³² They also provide meat for sale and for household consumption. Young, castrated alpacas are typically sold for meat, and older, non-reproductive animals are consumed at the household level. A typical herd is composed of one stud male (*qhayñachu* or *padrillo*) for every twenty to forty reproductive females. There are two breeds of alpaca: the *wakaya* alpacas are the most common, and have dense, fluffy coats while the *suri* alpaca have longer, shiny coats. *Suri* fiber fetches a higher price on the market, making *suri* an investment animal that is more expensive to purchase, but is also understood by herders in Chillca to be the less resilient of the two breeds and thus riskier. A typical herd in Chillca is composed of between 3-5% *suris*. Alpacas are herded daily and are given preferential pasture compared to llamas and sheep. In the dry season they are brought to glacial wetlands, which contains their preferred grass-types. Unlike sheep, they do not require constant vigilance but can be left alone to pasture and returned home in the afternoon.

³¹ By the official estimate of the alpaca committee, there are around 11,500 alpacas, 3500 sheep, 1200 llamas, and 150 horses total in the community of Chillca. Self-reported alpaca counts are always approximate, given that people in Chillca prefer not to provide exact counts of their animals, as it is seen as bad luck (cf. Allen 1988, Urton 1997). Sheep counts are more precise, especially given the community-wide sheep reduction effort initiated in August 2015, during which families with greater than 50 heads of sheep were advised to limit their herds to 50 or less within the following six months to avoid a fine. This reduction was in response to a community-wide concern over pasture degradation due to overcrowding.

³² A single alpaca will be shorn every other year to allow for fiber growth. An alpaca typically lives until ten to twelve years old, allowing each animal around four to six shearings.



Figure 10: A herd of alpacas in an enclosure, freshly marked with *taku* for easy identification

Llamas are kept largely as transport animals. Their use was much more extensive before the arrival of truck transport in Chillca, after which the herds were greatly reduced in size. There are two llama varieties in Chillca, one short-haired (*q'ara*) and one long-haired (*chashka*). The long-haired variety provides wool to make ropes and sacks, and both are used for agricultural transport, bringing dung from the pastures to the potato farms for fertilizing (in the months of August, September, and October), and potatoes from the farms to the storehouses (in May, June, July). They are also contracted by the local tourism operator to transport luggage on the Ausangate trek. Female llamas are herded with the alpacas, whereas the male llamas are left to roam the hilltops, unless they are needed for their labor.

Sheep are kept for their wool, which is considerably thicker and coarser than alpaca fiber but can be sold as a source of supplemental income along with their meat. There are two breeds of sheep present in Chillca: the common *kriullu* (creole) sheep, and the finer *mirinu* (merino). The central benefit of sheep is that they breed much faster than alpacas: sheep reach sexual maturity at eighteen months and have an average gestation length of 152 days, whereas female alpacas reach sexual maturity around ten to eighteen months but are not considered ready for

mating until they are about two years old. Male alpacas don't reach sexual maturity until they are about three years old. The gestation period for an alpaca is 355 days, and they rarely produce multiple offspring as often as sheep. For these reasons, despite the crude wool of the *kriullu* breed, sheep are a convenient and quick source of cash: one can think of sheep as the checking account to the alpaca's saving account. They can be quickly sold off—live or as meat—in a pinch without the concern of depleting the herd.³³ Sheep are herded along with the alpacas, yet as I'll explain further in Chapter Two, they require comparatively more vigilance than alpacas and are relegated to less preferential pasture.



Figure 11: Llamas carrying their cargo of *wanu* to take to the potato farms in Chillca

Although animal-centric, the analytical unit of the “herd-household” does not define a contiguous space occupied fluidly by both animals and humans. In fact, certain rigid boundaries mark a distinction between human and animal spaces. The spatial layout of a typical house unit is comprised of one or two roofed structures— a hut and sometimes a storage space— and

³³ Throughout the Andes, sheep are an essential risk-management strategy (Browman 1990) as having a mixed herd of alpaca, sheep, and llama allows herders to utilize a wide range of forage (Tichit and Genin 1997).

multiple enclosures: at least one pen for the sheep, one to two enclosures for gathering animals together for shearing, medicating, or other tasks, and one to two enclosures with resting pasture for vulnerable animals. The hut, centered around the hearth (*q'uncha*), is strictly occupied by humans, and the door is barricaded and defended from potential intruders, especially dogs, which steal food and bring bad luck. Sheep are kept in their own pen at night, while alpacas and female llamas spend the night on an open space (*puñuna*) in front of the hut that is shared by multiple herd-households. Male llamas are left in the hilltops. Animals that are vulnerable— sick, injured, newly born, nursing, or skinny— are kept in the resting enclosures (*tullu kancha*) during the daytime and with their respective species-specific herd at night. The only animals that consistently cross these boundaries are those that occupy the category of *ch'ita*— baby animals (usually orphaned alpacas or sheep) that have bonded with humans and are tolerated in typically animal-free areas, such as the inside of the home or church, or even at events such as weddings.

In the next section, I'll introduce the people and animals at the heart of this research: Consuelo and her family and herd.

Consuelo and her *Uywakuna*³⁴

I arrived during the dry season in 2015 to an empty town center, and I slept three cold nights in an empty storage room before Consuelo's son Matías fetched me to meet his mother up in the hamlet of Antapata. During the dry season, from approximately late April until mid-November, six herd-households from the sector of Chillcantin live in the hamlet of Antapata: a ring of stone huts and corrals centered around a central dip at the base of the three slender valleys of Hatun Wayku, Illachiy, and Unu Palqa. A small stream runs from Uqi Kancha, the herding

³⁴ *Uywakuna*: domestic animals. *Uyway* is the verb to raise or care for, and *-kuna* is a plural marker. This subtitle thus carries the double meaning of Consuelo and her animals, as well as Consuelo and all those that she cares for and raises.

hamlet above, down to Chillca where it merges with the Chillca River. For the remainder of the dry season, I lived with Consuelo in her hut, which was tucked alongside her corrals into a hillside cross-cut with worn herding paths heading up into Illachiy. Periodically I would spend nights up in the dry season hamlet of Uqi Kancha with Consuelo’s mother, Asunta, and son and daughter-in-law, Matías and Marisol, with whom I became especially close. At other times I would stay with her siblings in the sectors of Qampa and Chimpa Chillca.

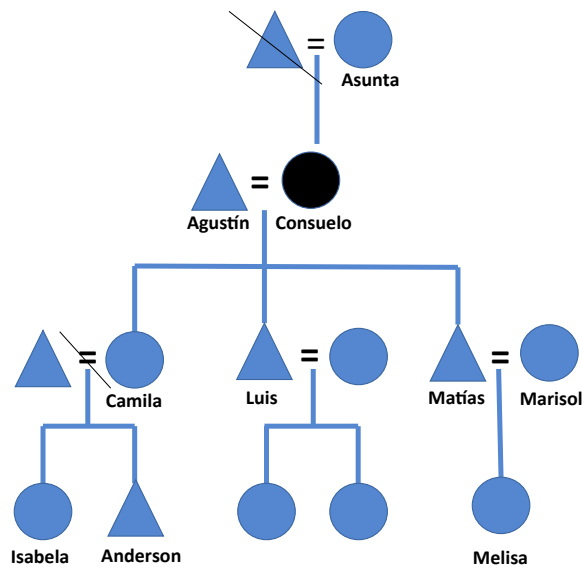


Figure 12: Consuelo’s family tree, with the names of those family members featured in the dissertation

While I visited other herders during the daytime, I was typically only invited to spend the night with members of Consuelo’s extended family: in a real sense, I was claimed as part of her herd-household, and my care thus fell upon those that regularly assumed the responsibility of housing its other constituent members (both human and animal). When the rainy season came and the herds moved to the low valley floors, I spent more nights in my storage room due to the

cramped confines of Consuelo's home in the town, but as soon as the sun rose I once again joined up with the family for the day's work.



Figure 13: Location of Naranjo *astanas* and pastures (approximate)

Like many men in the community, Consuelo's husband Agustín traveled often: he took shifts as a porter on the multi-day Ausangate trek, and he traveled to Sicuani or Cusco for administrative business as a member of the community's *junta directiva*. Consuelo, who hated to sleep alone in the high valley of Antapata, appreciated my company and we quickly fell into a familiar pattern of cohabitation. During the day, we would take her animals out to pasture and she would provide a humorous running commentary of her own and her neighbor's activities, concerned as she was with my education into the goings-on of Chillca. At night, in the darkness of the hut, we'd lean in close and she'd assume the role of researcher—commenting on my hair, hands, feet, contact lenses, clothing, and asking questions about me, my family, and my home.

She'd rummage through the bags that were stashed throughout the hut, finding little treasures to show me: a rock shaped like an ear of corn, a vicuña's foot, bits and pieces of sewing projects, and old bottles of medicine or alcohol that she'd sniff and pat onto my forehead to ward off *wayra*. And then she would talk out loud as we fall asleep, shuffling blankets and skins around to make our beds, making sure I wasn't touching the cold stone-wall while she huddled on the floor by the fire. She'd often wake up in the night and sew, weave, or cook, and I'd feel the soft glow of her lantern hit my face as she checked in on me.

At one point during the year I lived with her, Consuelo had a herd of just over 100 alpacas, eight female llamas and 22 male llamas, 57 sheep, three dogs, and a cat. As with any herd-household, these numbers constantly fluctuated as she bought, traded, sold animals. Among the smaller animals—the dogs Chincercomacha, Sultira, Chulu Banditu, and an unnamed and despised cat—Sultira had six puppies of which none survived, little Chulu Banditu met a tragic and mysterious end, and Consuelo may or may not have deliberately poisoned the family cat. As I will articulate throughout the dissertation, in a herd-household, human and animal histories are entwined from birth. The composition of a herd tells the story of the herder's life, reflecting their relationships and obligations to other humans, and their family histories of coming together and splitting apart. For example, the animals in Consuelo's herd-household didn't belong exclusively to her, but also to her oldest daughter, Camila, and her two grandchildren, Isabela and Anderson. As a young girl in Chillca, Camila had been given seven alpacas—four from her godfather (*padrinu*), and two from her godmother (*madrina*), and one from Consuelo—and by 2015 she had more than forty animals from that exchange, plus a few more that Consuelo had purchased or acquired via trading for her. The animals had never left Consuelo's herd. Eight years earlier, Camila left the animals in the family herd to live in Pitumarca with her partner, taking seasonal

work in the jungle region of Puerto Maldonado. Within a few years, her partner had abandoned her and their two children, and she remained in Pitumarca while her animals stayed in the family herd. She left their management to Agustín and Consuelo, who periodically (with Camila's permission) augmented the herd by selling and exchanging her animals, and made sure Camila received the cash from the sale of their wool. The animals will stay in Consuelo's herd until Camila decides to sell them, and as such Consuelo took great care with Camila's animals in order to keep her daughter in good social standing and maintain the prospects of her grandchildren.



Figure 14: Consuelo's dry-season *astana*

Until a few years ago, Consuelo's herd also included the animals of her two sons, but they had since split off to form their own herd-households, taking the animals with them. Her older son, Luis, moved to the sector of Chimpa Chillca with his wife's family, and her younger son, Matías, settled in Chillcanti sector with Marisol. The formation of a new herd-household occurs shortly after the partnering of two young adults, typically when the woman leaves her

natal community or sector and moves to the sector of her husband.³⁵ For the first couple of years, they continue to live in the household of his parents, herding their animals together. Usually within two years, or when the flock has grown enough to support the family on their own, they petition the community to form a new herd-household separate from the husband's parents but typically in the same sector. Once approved, they build new seasonal homes and enclosures, separate their animals from the parent's herd, and set up residence.

Matías and Marisol's history as a couple reflects a typical process of partnership in Chillca. Courtships in Chillca begin as many often do, with covert glances at parties and festivals followed by nervous attempts at flirtation. Growing up in the valley of Pitumarca, a young man or woman is usually aware of the available partners in the other communities down the valley: they've seen each other at events throughout their lives, perhaps shared a ride in the cattle truck up the valley, and usually know some of their extended family members. In Matías and Marisol's case, Marisol's older sister Alejandra was married to Matías's neighbor, Herbert, and they had seen each other periodically throughout their teen years. Marisol's family lived down the valley in a hamlet of Japura, but she had visited her sister in Chillca and knew the area well. In 2011, at a party in the regional city of Sicuani, Matías finally spoke to Marisol and shortly thereafter went to visit her parent's home in Japura. After a short courtship period, in which Matías made himself useful to her family, he brought her to Chillca to start their lives together. Marisol made her debut in front of the community assembly and began living in Chillca in 2012.³⁶ Matías and Marisol's cohabitation began in his parents' home, but within a year they had petitioned the community to build their home in his parents' sector. They built a dry season hut near Matías'

³⁵ The community of Chillca maintains a mandated norm of sectoral patrilocality. There have been instances in which the husband moves to his wife's sector or they both move to a separate sector due to overcrowding. In Consuelo's older son Luis' case, he was permitted to move to Chimpa Chillca given that his father had moved from Chimpa Chillca to live with Consuelo in Chillcanti before the norm of sectoral patrilocality was formalized.

³⁶ An event called *qhachun riqsichiy*, "introducing [lit. making-known] the daughter-in-law."

grandmother in Uqi Kancha, and a wet season hut in the hamlet of Soqha, near Marisol's sister. They also took on herding responsibilities for the *majada* that year. Soon after, they had their first daughter, Melisa.

When a young adult separates from their family, the family herd is also separated (*t'akay*). This usually happens in two steps for the young couple: first when the woman leaves her household, and then for the man when they both leave his parents' household. Along with their *chukcha* animals and their offspring, the young adult takes whatever animals they may have acquired through labor exchanges with other people (working as contract herders, for example) and the parents typically give them additional animals from the family herd. This group of animals, in total, accounts for the young adult's *irinsia* (from Spanish *herencia*, inheritance).³⁷ When Marisol and Matías established their own household in 2012, they brought with them about fifty alpacas. Since Marisol's family lived farther down the valley in a more temperate zone, they devoted more time to farming and had fewer animals. Marisol thus left Japura with very few animals: ten alpacas, ten sheep, and three cows, which she and Matías promptly sold off, since cows are not permitted in Chillca. Of those animals, five alpacas were from her haircutting ceremony³⁸ and from contract herding she'd done as a teenager, and her parents gave her five more upon her separation from the household. Matías, in contrast, had roughly a dozen sheep, two male llamas and a few female llamas, and forty alpacas— in addition to his haircutting animals and their offspring, Agustín and Consuelo gave him ten more alpacas when he went to live separately. Within the first few years of their cohabitation, Matías and Marisol

³⁷ Inheritance can also happen quite casually: in a mixed herd belonging to Consuelo's son Luis, his wife, their children, and the wife's widowed mother, the grandmother casually offered one of her animals to her granddaughter: she pointed out a baby brown alpaca, and asked, "who does that cute brown baby alpaca belong to? (*piqpa munaycha chumpi uña?*)" and her grandmother responded— "mine, I'll give it to you!" (*nuqaq, qusayki!*)

³⁸ *Chukcharutukuy* is the first rite of passage in a person's life in Chillca, when the child has their hair cut and is gifted animals and cash. I describe this ritual in detail in the following chapter.

managed to grow their herd quickly: Matías estimates that in the years they have been together, they had bought around twenty alpacas, as well as six fine merino sheep, and a horse. When I met them in 2015, they were hoping to grow their herd even more, in the hopes of amassing enough animals to being able to marry in a few years.³⁹

Having a robust combined herd when you separate from your parents' household is a vital first step in a secure future. Matías, as Agustín and Consuelo's youngest child, benefited from his parents being older and more established when he was born, and consequently he had a relatively large inheritance.⁴⁰ By the time he had left the household, Agustín and Consuelo had divided their herd twice before. In Luis' case, Consuelo expressed regret that she was unable to provide him with a larger herd when he left to marry. She insists that he has struggled ever since as a result, and has a hard time making ends meet with supplemental income from showing his llamas at regional fairs. Consuelo fears that he endures a lot of abuse from his wife and mother-in-law as a result. She is happier with the inheritance she was able to give Camila and Matías. Since they all live in the same sector, Consuelo, her mother Asunta, and Matías and Marisol often rely on one another to watch their animals while they complete other tasks or travel for work. They also rely on each other for shared usage of their dry-season enclosures in the central valley of Chillca (near the town center), where their herds sleep in the wet season and where they

³⁹ Getting married is major expense: it involves purchasing and sewing new garments for the woman and the man, as well as planning, cooking, and serving a meal for hundreds of people. Unless their parents are able to foot the bill, the young couple usually has to wait a number of years until they have grown their herd large enough to that they can sell off a significant number to pay for the materials that go into the wedding. At the wedding, they will themselves receive lavish gifts from attendees: clothes, food, furniture, and cash. The *padrinos* typically gift the newly married couple a few breeding animals (*cuy*, alpacas, alpacas, and very rarely llamas).

⁴⁰ Every experience of inheritance is different, depending on the family's resources, how many children they have, and a variety of other factors. Consuelo had a very different experience when she and Agustín began living together in the 1980s. It was shortly after the agrarian reform, and her family had few animals by virtue of having been former *hacienda* workers. Furthermore, at the time she and Agustín became a couple, young people didn't typically ask for their inheritance until they had been living together for a time or had been officially married. She and Agustín were together seven years by the time she received her small inheritance of ten alpacas from her parents, along with a single sheep. At her *chukcha rutuy* she was given four animals, most of which died, leaving her just one sheep. Agustín received twenty alpacas and six llamas as his inheritance.

put their most vulnerable animals during the month of August. Asunta and Consuelo often kept Matías and Marisol’s prized animals (especially their *suri* alpaca and *mirinu* sheep) in their dry-season enclosures, given that they had preferential pasture access by virtue of being older and more established in the community. Like all women in Chillca, Consuelo, Asunta, and Marisol also herded other people’s animals from time to time— a system of labor circulation that was vital to establishing one’s status as a fully social person in the community of Chillca. In the chapter that follows, I will detail this system of exchange and the ways in which it allowed women in Chillca to become competent herders (*michiq*) and women (*warmi*).

CHAPTER II

Entanglements of Expertise and Exchange: Becoming a Herder in Chillca

In recent decades, an increasing number of development initiatives in the highland Andes have rearticulated their project goals within the discourse of climate change. Increased market integration and the technical training of herders in animal breeding, veterinary medicine, pasture improvement, and wool production—once tied to the reduction of poverty in the high Andes (Valdivia Corrales 2013)—are now tethered to the broader project of diminishing pastoralist vulnerability to regionalized impacts of global climate change. In Chillca, these projects popped up every few years, heralded by the arrival of coverall-clad *ingenieros* and municipal representatives in their rugged, spotless trucks. As they gathered with the men of the community to discuss projects and circulate training materials around animal reproduction schedules, ideal wool textures, or preferential grass-types, it was readily apparent that women were largely absent in these encounters. Looking to the surrounding hillsides provided an explanation for their absence—they were with the animals, immersed in separate processes of evaluation, objectification, and assemblage through which they produced knowledge about animal wellbeing, grassland health, and indeed climatic changes.

Despite undertaking the majority of the tasks associated with pastoralism and animal husbandry, women's knowledge and skill have largely been overlooked by researchers, NGO workers, or regional governmental representatives involved in developmental projects related to animal husbandry and grassland management in Chillca. This follows a broader historical trend

in pastoralist studies and global development programs, which until recently have largely neglected to recognize women's labor as pastoralists. Women in Chillca are not often considered to *have* expertise in animal husbandry and pastoralism because they don't *enact* expertise in a way that is legible (made both visual and valued) in these types of contexts. In other words, they do not have access to the linguistic registers and social, political, and economic resources and repertoires that would enable them to perform pastoralist expertise in a ratified way. As a consequence, in the face of increasing developmental intervention in pastoralist communities in the Andes, women are often sidelined in critical decision-making processes to address transformative climatic changes.

This chapter asks the question: what is at stake in women's exclusion from pastoralist development initiatives, especially in an era of climate change? Rather than approaching women's exclusion as merely a matter of inequality or social injustice, I am interested here in how the iterations of pastoralist skill promoted through development initiatives reproduce incommensurable realms of expertise. Conventionalized enactments of pastoralist expertise foreclose the participation of those unable to "act the part," and thereby privilege a dominant form of knowledge rooted in a Western intellectual tradition—one that separates nature from culture, animal from human, and men from women in very particular ways. For Andean women, being a skilled herder involves different practices of objectification and methods of circulation, the most central of which is the ability to effectively cultivate and manage relationships between various social beings. Whereas conventional pastoralist expertise separates animals from humans, landscapes from animals, and practices of care from practices of intervention, Andean women's herding skill is contingent upon their fundamental, inextricable interdependence. Efforts to incorporate women in pastoralist development initiatives— by training them to adopt

certain expert practices— are thus insufficient in addressing this gap and further reify hierarchical knowledge structures.

In this chapter, I address this issue and explore how women’s pastoralist knowledge in Chillca is relational, embodied, emplaced and contingent upon shared histories of lived experience and exchange with people and animals. Furthermore, it is through these practices of pastoralism— practices which animate and sustain broader social networks that extend across humans, animals, and the landscape— that women come into being and relationally configure their identities *as women*. I therefore attend to the cultivation of pastoral skill and expertise, not as it has been conventionally understood in academic or development contexts, but as it is enacted among the women herders themselves: in other words, what it takes to be a good herder (*allin michiq*) according to the herders who are constantly evaluating themselves, their kinswomen, and their neighbors according to specific metrics of competence and skill. Following the work of Christina Grasseni (2009a, 2009b), I hold skill to be “a privileged locus of identity-construction, as a complex of aesthetic involvement and moral stances, of strategies of belonging and expert practices” (Grasseni 2009a, 1).⁴¹ I join Grasseni in drawing critical threads between the emplaced processes and practices of skill and the formation of identity: learning to herd is a training of visual, physical, and vocal practice as well as a cultivation of appropriate moral orientations and relational networks. Ultimately, being a competent herder is coterminous with being a competent Quechua woman in Chillca: both involve enacting the same practices of care and attention towards other social beings, both animal and human, within a broader socioecological landscape.

⁴¹ However, whereas Grasseni is particularly interested in vision and visual training as processes of enskillment, in this research I draw more from communicative practices like speaking, conversing, and other vocal practices such as whistling.

Michiqkuna: Women's Work in Chillca

Women undertake the majority of daily tasks associated with pastoralism in the community of Chillca— and I suspect, in many if not most herding communities in the southeastern Peruvian Andes. The 2008 *Perfil del Productor Agropecuario del INEI* noted that 71.6% of livestock producers in Peru identify as women (Infoalpacas n.d.). Women take the animals out every morning, they watch them throughout the day, and they bring them in at night. They are constantly co-present with their animals: scanning the herd for any signs of distress, diagnosing and treating illnesses, monitoring their reproduction, and designating animals for slaughter, sale, and exchange. They are also continuously monitoring the grasslands through an attention to both the physical and emotional cues their animals give them, and to the relative distribution and health of particular grass types and the availability and quality of water. And they do this work in the company of other women: the conversations that take place between women herders— when they encounter each other in the pasture and share food and observations of their animals— are fundamental to the ability of herders to live in the challenging alpine glacial landscape of the high Peruvian Andes. After exchanging animal-centric pleasantries (“Are those your animals over there?” “I can’t find my speckled-adolescent-female-alpaca,” “These sheep aren’t giving me a break today!”) Their daily narratives are peppered with remarks about the physical and emotional wellbeing of their animals, and the health of nearby grasslands and water sources. It is during these moments in the pasture that women identify potential stressors affecting the health of the grasslands and the animals, and tentatively calculate potential strategies and solutions. Central adaptive strategies such as modifying the herding calendar, or placing animals in reserve enclosures, find their roots in the daily, lived experiences of women herders.



Figure 15: Sisters in the pasture

In the later months of 2015, I found that many of these conversations coalesced around the delay in the onset of wet-season rains. For instance, on an October morning I was sharing a blanket with Consuelo's daughter-in-law, Marisol, and her two-year-old, Melisa, on the hillside above Chillca center, watching her alpacas and sheep grazing in their reserve enclosure on Chillca Pampa, when Marisol's older sister Alejandra appeared from over the hill behind us trailing her small herd of scattered sheep. She'd left her alpacas up in high pastures of Uqi Kancha, bringing her sheep down to the pampa while she ran errands in the town: dropping her older daughter off at school, buying noodles and rice from the town store, and picking up some dried potato (*ch'uñu*) from her storage house to bring to her dry-season hut. Alejandra sat her infant daughter down with Melisa on the blanket, and she and Marisol quickly fell into a recognizable conversation pattern: short greetings followed by observations of where their sheep were going and utterances of annoyance at their fickleness. Alejandra plunked down her heavy bundle, unwrapping it to reveal boiled potatoes and eggs, a rare treat that Melisa grasped fiercely in one small hand. We settled into conversation as we distractedly peeled the potatoes with our thumbnails.



Figure 16: *q'upi q'upi (Azorella biloba)*

Alejandra tilted her head sharply towards the Chillca pampa, “the *q'upi q'upi* is looks good, no? It’s plentiful,” (“*q'upi q'upi munaylla, riki? Sumaqta daliyamushan*”) she observed. The appearance of *q'upi q'upi (Azorella biloba)*—a star-shaped, mat-forming grass—is a welcome sign that the wet season is returning. The alpacas especially like this grass, which one can tell from the way the animals eat it with dedicated focus, twitching their ears in joy. Melisa nodded, but her eyes were following her animals, as she struggled to find a gray alpaca that had wandered off. She responded distractedly at first— “*ch'umpipayashan,*” the pasture is turning brown, much drier this year than it was last year. The rains that season had been scant in the evenings and early morning. Reorienting her gaze to the potatoes in her hand, she worried out loud about the lack of rainfall— “what will we do, the hail hasn’t come yet, last year it had come already, right? By a month ago, right?” (“*Imanasun, manaraq chikchi hamunraqchu pisista...qhayna wataqa dalinyalla riki? Killallanña riki?*”). Alejandra responded that it was only one month until *Santus*, All Saint’s Day, and the community would likely gather and shear the alpacas shortly thereafter. Calibrating to these calendar events, the two sisters noted that the

rains were precariously late. Indeed, in the weeks following this particular conversation, Melisa, Alejandra, and their extended families all stayed in their dry season pastures for a few extra weeks, waiting until the returning rains had replenished the delicate grasses on the valley floor below.

Nearly every decision made at the household, sector, and community level in Chillca relies upon the knowledge circulated by women in these conversations, rooted in the observations women make during their daily, lived experiences with animals in the pasture. It comes as a surprise, then, that there are few references to women as herders in the ethnographic literature of the southeastern Andes. Women in the Cordillera Vilcanota are regularly heralded for their skills and knowledge in spinning and weaving (Callañaupa Alvarez, Franquemont, and Coca 2013; Heckman 2003; Silverman 2008), but there remains little attention to the work that they are doing simultaneously— while weaving on backstrap looms staked into the hillside, the women’s eyes often drift upward, their attention always on their animals.

Gendered Histories of Pastoralism

As many others have argued, the role of women has been largely overlooked in pastoralist studies globally (Dahl 1987; Dyson-Hudson and Dyson-Hudson 1980; Flintan 2010; Fratkin 1997; Fratkin and Smith 1995; Furusa and Furusa 2014; Hodgson 2001, 2004; Talk 1987; Webley 1997). This is due, in part, to the historical stereotypes of the male shepherd in Western intellectual, literary, biblical, and anthropological traditions, which coincided with and potentially influenced the development of pastoralist studies among what were broadly construed as patriarchal pastoralist societies. Up until the mid-20th century, ethnographies of pastoralism were largely confined to the Eurasian steppe, the Middle East, and Saharo-Sahelian East Africa

(Khazanov 1994). As anthropologists Rada and Neville Dyson-Hudson have argued, these earlier studies were driven by a persistent romantic stereotype of nomadic pastoralists as “brave, independent, fierce men, freely moving with their herds,” often juxtaposed with critiques of the constraints of “civilized” living (Dyson-Hudson and Dyson-Hudson 1980, 15).⁴² It is likely, the Dyson-Hudsons argue, that this romanticism drew researchers to study certain types of pastoralists that fit this preconceived ideal, and researchers may have overemphasized the patriarchal structure of pastoralist groups, especially in East Africa (Hodgson 2001). Variations, anomalies, or other complexities were often discarded as being due to “contaminations” of the pure pastoral culture, by virtue of their contact with neighboring farmers, colonial administrations, or other “disruptive forces” (Dyson-Hudson and Dyson-Hudson 1980, 16). “Furthermore,” as the Dyson-Hudsons write, quoting Walter Goldschmidt, “because in western society, ‘pride, hauteur, a strong sense of individual worth, and a strong sense of the nobility of the pastoral calling’ are conceived of as male virtues, the role of women was grossly neglected” (1980, 16).⁴³

Andean pastoralist studies emerged relatively late in comparison to the broader canon of pastoralist literature (Dyson-Hudson and Dyson-Hudson 1980; Galaty and Johnson 1990;

⁴² The noble herder living his fiercely independent life in a bucolic countryside is, of course, the central figure of the broader pastoral genre of literature, art, and music. The noble herdsman of some early ethnographies are indeed strikingly reminiscent of the shepherd of English literary tradition.

⁴³ Arguably, the history of animal domestication seems to assume a male protagonist, excluding women as being active participants in shaping the human-animal relationship. Penny Dransart flags the preclusion of women from consideration in the history of animal domestication, noting the deliberate omission in Yi-Fu Tuan’s *Dominance and Affection: The Making of Pets*, in which the author writes in reference to “man’s role in changing the face of the earth” that “man is the correct word because men, not women, have brought about nearly all the major changes for good and ill” (Tuan 1984; Dransart 2003, 7). The stereotyped masculinity of the herdsman also aligns with a previously-held theory in anthropology that pastoralism is distinguished from other human-animal relational modes (such as hunting) by virtue of its central feature of protective domination. See Chapter Four for an overview of this argument, as made by Tim Ingold. Ingold’s emphasis on control and mastery as the principle features of the pastoralist mode of relation aligns with prevailing assumptions of pastoralism as masculinized labor.

Khazanov 1994; Salzman and Galaty 1990).⁴⁴ The pastoralist studies that emerged out of south-central Peru in the late 1960s and early 1970s provided invaluable complexity and nuance to combat the conventionalized ideal of the noble herdsman, a typification that was replicated in the stereotypes of Andean men in early traveler accounts as stoic, hardy, and wary of strangers (Browman 1974, 1987; Flannery, Marcus, and Reynolds 1989; Flores Ochoa 1977, 1968; Nachtigall 1965; Orlove 1977a; Félix Palacios Ríos 1977; Webster 1973). In most of the Andean pastoralist ethnography of the late 20th century, women were also widely acknowledged as undertaking many of the tasks involved with the animals' care. For example, in his 1968 study of the pastoralists of Paratía, Peru, Flores Ochoa acknowledged that "the care and management of alpacas requires the participation of almost the entire family, men as well as women; from children to adults, all know how to handle the animals" (1968, 114; my translation). Representations of women's involvement, however, ranged widely. There was the persistent assumption that their labor was merely the rote completion of tasks assigned to them by a male head-of-household, such as Steven Webster's suggestion that among the Q'ero herders of Peru, "the routine tasks of herd supervision are usually *assigned to* women or children," (Webster 1973, 119; emphasis added), whereas Charlene and Ralph Bolton acknowledge that "it should be noted that both males and females engage in herding, contrary to the general worldwide tendency for herding to be an occupation assigned solely or primarily to men and boys" (C. Bolton et al. 1976, 467). In *The Articulated Peasant*, Enrique Mayer noted that in the community of Tangor in 1969:

⁴⁴ Alpaca and llama herding in the Andes was often denied the status of "pure" or true pastoralism, due to the exchange systems that integrated pastoralist and agriculturalist communities in the Andes into a "vertical archipelago" (Murra 1972). As late as 1994, Anatoly Khazanov omitted Andean pastoralism from his sweeping global synthesis of pastoralist history and ethnography, *Nomads and the Outside World*, arguing that alpine pastoralism in the Andes "is nothing else, and apparently never was anything else, than a specialized branch of an agricultural economy" (1994, xxxviii). See also Rabey's chapter in Juliet Clutton-Brock's edited volume *The Walking Larder* (Rabey 1989), who argued that llamas were behaviorally unsuited for pastoralism.

Women... were responsible for the care of animals. The daily trek after breakfast to take the animals out to pasture was largely the task of women, unmarried girls, or young boys. Men sometimes tended the animals when the women were too busy, but it was clear that, in doing so, they were essentially performing a women's task.
(2002, 11)

In many cases, however, unless women's labor was explicitly acknowledged the gender of the herder was simply male *by default*, as evidenced by frequent references to the "herder and his wife/family." And in some extreme cases, the role of women as herders was discounted entirely.⁴⁵

Depictions of the gendered division of labor in highland Andean household have varied over time, reflecting shifting socioeconomic conditions as well as changing anthropological perspectives on kinship in the rural Andes that have complicated representations of the Andean household as a bounded, stable, autonomous unit of production constituted through heterosexual marriage (Weismantel and Wilhoit 2017). Historically, in the Andean household certain tasks were routinely performed by men (*qhari*) or women (*warmi*), with the understanding that these roles were complementary.⁴⁶ In the ethnography of the mid-to-late 20th century, this gendered

⁴⁵ At the height of the structuralist turn in Andean anthropology the argument was made that pastoralism is *symbolically* associated with men, regardless of who does the work of herding. For example, Félix Palacios Ríos argued in a 1982 article on the symbolism of the Aymara household that an analysis of food storage in an Andean household reflects a "primordial ecological distinction of space— that of agriculture and pastoralism," which likewise maps onto gender (Felix Palacios Ríos 1982; my translation). Animals are stored in the corral and meat is dried on the roof of the house (outside and above being the domains of men), whereas agricultural products are stored inside and on the floor (inside and below, the symbolic domains of women). This allows him to construct the symbolic association that women are to men as floor::roof, night::day, darkness::lack of darkness, lack of sun::sun, valley::puna, and finally agriculture::pastoralism. Additionally, Palacios Ríos writes, the men in his fieldsite often sought to marry women from lower ecological zones, often telling him that these women "craved meat" and thus desired husbands from pastoralist zones. We can conclude from this evidence, he writes, "pastoralism is associated with the masculine principle (*principio masculino*) while agriculture [is associated with] the feminine" (Felix Palacios Ríos 1982). This symbolic association likewise appears in other structuralist ethnographies from the Ayacucho region (Palomino Flores 1984).

⁴⁶ There is a long history of debate around the question of whether or not gendered inequality in the Andes reflects pre-colonial organizational systems or Spanish colonial influence (see Babb 2018 an overview of this debate). In particular, the work of Irene Silverblatt (1987) provided critical historical evidence to support the argument that pre-colonial gender in the Andes was based on oppositional complementarity, or as Olivia Harris writes, "gender parallelism" in which "women and men are seen as occupying parallel spheres, and where there seems to be a constant effort to balance and compare, rather than oppose" (O. Harris 2009, 292). Ultimately Babb agrees with the

division of labor was depicted as quite rigid, albeit variable depending on what kinds of animals were kept and what forms of agriculture were practiced. Typically, men performed the majority of the agricultural labor and handled the larger animals (llamas and horses), while women undertook the majority of tasks associated with the household, children, and smaller animals (sheep, alpaca, and *cuy*) (Deere 1983; Flores Ochoa 1968; Mayer 2002). It is likely that the gendered division of labor in the southeastern Peruvian Andes in the late 20th century was, at least in part, a product of the *hacienda* system: many Andean families worked in *haciendas* as contract herders for wealthy landowners, and men were the primary herders in these contexts while women performed household labor for the landowning families. These roles shifted after the Agrarian Reform, along with other sociopolitical transformations such as infrastructure expansion, urban migration, and state-sponsored childhood education initiatives. Before the sweeping road infrastructure projects of 1990s and 2000s (P. Harvey and Knox 2015) men from pastoralist communities were occupied multiple times a year in lengthy llama caravan journeys through which they traded high altitude products (dried llama meat, wool, hides, and *chuño*) with lower altitude crops and staples (maize, coca, liquor, wheat products). As llama caravans became less common, men's participation in seasonal wage labor in mines, coffee plantations, and tourism operations increased, placing more of the pastoralist labor on women and children (Valdivia, Gilles, and Turin 2013; Turin and Valdivia 2012). Likewise, women have increasingly taken on more of the herding tasks that were traditionally assigned to children in previous decades. In the 1960s, Flores Ochoa noted that the daily care of animals was primarily the work of young adults and children, because the women were engaged in weaving while the men were

argument of multiple Andeanist feminist scholars, such as Bolivian sociologist Silvia Rivera (2010) and Patricia Ruiz Bravo, that “colonialist re-envisioning and disparaging of what had been greater equilibrium between Andean men and women began to turn productive and reproductive activities into binary realms of unequal value,” and that “indigenous women may embrace the premise of gender complementarity without subordination to men” (Babb 2018, 203–4).

marketing wool and textiles (1968, 115). With the increase in education initiatives in the late 20th century, children in rural Andean communities began to attend school more often than before, and women assumed more of the daily labor of watching the herd. In the 1980s, for example, Catherine Allen noted that “children spend more time in school or go to Cuzco to work as household servants, and their mothers spend more time with the animals” (1988, 75). She notes that this was not a necessarily welcome change, and “seldom does a woman free herself entirely from herding responsibility” (1988, 75).⁴⁷

While researchers have acknowledged women’s participation in pastoralism and animal husbandry, however, there is still very little attention to their specialized knowledge in that domain. Catherine Allen reflected on her own omission of women’s pastoralist knowledge, marking it as an underemphasized area of study. In her classic Andean ethnography, *The Hold Life Has*, she laments the passing of her friend, Rufina, recalling how her own interests “did not strike a responsive chord” in Rufina. Rather, Allen recalls, “her interests and abilities were in animal husbandry. Too late I realized that on this subject she became open and expansive, and I could have learned much from her” (1988, 72). After Rufina’s death, the centrality of women’s knowledge and labor in sustaining the herd became apparent in the ways in which Rufina was mourned:

At night Luis [Rufina’s widowed husband] would sit with Rufina’s sister... talking brokenly about his herds. If he and the children tried to care for the animals they’d kill them all, he insisted. Already a couple of lambs had died. Now, a woman knows how to keep track of animals. She can doctor their illnesses. She knows which have conceived and how many months along they are. She knows the approximate hour to expect births and how to attend female animals in labor, for a woman understands pregnancy and birth. How can a man know about these things? ... When I returned to Sonqo two years later, there was a new wife in Luis’ house—tending the fire, feeding the family, clothing the children, doctoring their hurts, and keeping track of the animals. (1988, 73)

⁴⁷ She notes that “[g]rown women find herding a lonely and stultifying task, taking them far from the house in all kinds of weather” (Allen 1988, 75). In the case of the community of Sonqo, women often moved with the herds to high pastures in the dry season, while the husband and children stayed in the main house down below.

In the decades following Allen's work, there have been a number of important contributions to the literature on Andean pastoralism that foreground the specialized knowledge and skill of women in their work with animals: Denise Arnold's *River of Fleece, River of Song: Singing to the Animals, an Andean Poetics of Creation* (2001), based on her ethnographic research with female herders in the community of Qaqachaka in Bolivia, and Penelope Dransart's *Earth, Water, Fleece and Fabric: An Ethnography and Archaeology of Andean Camelid Herding* (2003) from her work in Isluga, Chile, are both notable contributions. More recently, Barbara Göbel's work on spatial patterns in Huancar, Argentina argues that women have "more detailed knowledge about pastoralism and the pastures [than men], particularly the pasturing area of the family and its dynamic throughout the year" (2002, 72). Women also have both daily control and the "central economic skill" (*la principal competencia económica*) over the management of their herds of llamas, sheep, and goats.⁴⁸ In the Bolivian altiplano, Corinne Valdivia, Cecilia Turin, Jere Gilles, and Deborah Caro have argued that Aymara women are the true "stewards of the rangelands," by virtue of their control of livestock management (Valdivia, Gilles, and Turin 2013, 77; Valdivia 2001; Turin and Valdivia 2012; Caro 1985).

The relative silence of women in the historical ethnographic record of the Andes extends beyond their exclusion from studies of stereotypically masculine forms of labor. In her introduction to the edited volume *Más Allá del Silencio: Las Fronteras de Género en los Andes* (1997), Denise Arnold argued that the perception of women as silent is a logical extension of the

⁴⁸ However, I did see a marked difference in the gendered assignment of space in Chillca in comparison to Göbel's account of Huancar women. She notes that the enclosures were often described as belonging to the woman (i.e., "that is Doña Julia's corral"), while houses were described as belonging to men. I found the opposite: while houses were described as belonging to either the male or female of the household, corrals were described as belonging to the men, while animals (with the exception of horses and llamas) were almost exclusively referred to as belonging to the women.

general stereotypes of the late 19th and early 20th century travel literature that described Andean peasants as preternaturally silent and submissive.⁴⁹ As late as the 1970s and 1980s, Arnold argues, depictions of Andean women continued to be eerily similar.⁵⁰ In particular, the stereotype of Andean women as silent and submissive seemed to emanate from an overemphasis on the community assembly as the archetype of public discourse, in which men were observed to wield formal, authoritative language in a way that women did not. Certainly, in many Andean communities, women “speak up” comparatively less than their male counterparts in assemblies— in Chillca, women attend assemblies less often than men, and although their attendance is registered as equal to that of a man (in the sense that they are considered to represent their household), many (men and women) believe that a woman’s attendance doesn’t count the same (“*no vale igual*”) and men will typically be reprimanded if only their wives attend assembly. Women are likewise considered less knowledgeable in community matters by virtue of being *qhachun* (daughters-in-law, married into the community), and thus having been born and raised in a different community.

This overemphasis on the community assembly as the archetype of public discourse has historically led to an assumption that Andean men hold more political power than women, due in part to their ability to speak in what was perceived by researchers as a “male style and idiom” (Bourque and Warren 1981, 271). Only when women adopt a more conventionally “masculine” pattern of speech and presentation, researchers suggest, are they able to represent their political viewpoints to a wider public. Denise Arnold and others have pushed back against the singular

⁴⁹ She references works such as David Forbes’ “On the Aymara Indians of Bolivia and Peru” (1870).

⁵⁰ Similarly, Marisol de la Cadena’s article “Las mujeres son más indias: etnicidad y genero en una comunidad del Cusco” (1991) argued that women were typically perceived as “more Indian,” in the sense that they were perceived to embody the stereotypes associated with Indianness, as noted above. In a later article “Alternative Indigenities: Conceptual Proposals,” (2008) however, she expressed that this has changed due to “decolonizing efforts “ by local and transnational indigenous movements such that being indigenous “does not denote wretched Indianness anymore” (2008, 347).

focus on the community assembly in studies of Andean political life, arguing that this emphasis on male political rhetoric appears to be a “western, masculine bias” that doesn’t reflect gendered interactional dynamics on the ground (Arnold 1997, 47). While the monthly assembly is indeed a fascinating arena of political theatre, an overemphasis on this one site overlooks the critical ways in which women wield power through other discursive means as well as in other gatherings in the community in which women take much more prominent, even vocal, roles. In Chillca, for example, women were especially active participants in gatherings at the sectoral level, in which close neighbors discuss the state of the pasturelands, the health of the animals, and decide when to migrate seasonally. Likewise, Denise Arnold, Olivia Harris, Linda Seligmann and others have elaborated on forms of expression dominated by women, particularly weaving, joking, singing, as well as the other sites in which women wield power through discursive means: the marketplace, the home, the street, and the field (Arnold and Yapita 2001; Arnold 1997; O. Harris 2000; Seligmann 2000, 1993). Furthermore, an overemphasis on verbal expression in the community assembly overlooks the ways in which women might also wield silence as a form of power (Babel 2016).



Figure 17: Herders debating at the community assembly

Enacting Pastoralist Expertise

While researchers may have abandoned a singular focus on the community assembly as the central site of public discourse, it remains a crucial part of how pastoral expertise is configured in the interactions between the herding communities and outside representatives of developmental initiatives related to animal husbandry and environmental management. Women continue to be overlooked as bearers of pastoralist knowledge and practice in the partnerships forged between rural communities and various development organizations and projects. Over the past fifteen years, the community of Chillca has partnered with regional, national, and international development organizations to initiate a range of development projects, particularly related to the areas of land tenure (especially acquiring appropriate titles for their land holdings), grassland management (improving pasture in the community, and providing supplemental pasture), animal breeding (improving the breeding stock by providing access to higher-quality studs), and technical training in the areas of veterinary medicine and wool preparation. Besides the Pitumarca municipal government and Cusco regional government, partnering organizations have included Heifer International, UNICEF, Oxfam International, Soluciones Prácticas, and most recently Pachamama Raymi, a Dutch-Peruvian non-profit based in Cusco. These organizations typically engage with the community, at least initially, through the monthly community assembly. When launching a new project, a team of representatives will attend the assembly, present their initiatives, and identify community-based leaders and experts based largely on the political structure of the assembly. Since the political structure of Chillca, like most high Andean communities, is centered around a male board of directors (the central *junta directiva* including the president, vice president, treasurer, secretary, and commissioner), development project representatives work almost exclusively with men. While women are

regularly recruited for initiatives aimed at, for example, improved cooking stoves; weaving, sorting, and spinning wool; breeding guinea pigs; and childhood development and health, they are rarely if ever identified as potential participants in training workshops related to pasture improvement, breeding, medicating, or shearing.⁵¹



Figure 18: The alpaca committee in Chillca medicating *majada* alpacas with vitamin injections

The exclusion of women from these developmental initiatives stems from many of the aforementioned assumptions about pastoralism and women's labor: in particular, many international development organizations appear to define animal husbandry and pastoralism as men's work, and other pursuits such as weaving, cooking, and childcare as women's work. However, I also argue that the exclusion of women from project aimed as pastoralists has to do with how expertise is enacted in the interactions between Chillca community members and outsiders. Women are not considered to have expertise in animal husbandry and pastoralism because they don't *enact* expertise in a way that is legible in these types of contexts (Carr 2010; Mol 2003). Social science approaches to expertise have articulated that expertise is social and

⁵¹ Women are also largely excluded from discussions around land tenure or property, although this seems to be a long-standing pattern in the community that reflects the system of sectoral patrilocality and patrilineal land inheritance in Chillca.

performative: it is *done* not *had* (performed rather than possessed) yet repeated performances of expertise contribute to the common assumption that expertise is something that certain people simply have, while others do not (Epstein 1996; Irwin 1995; R. Smith and Wynne 1989).

Expertise is produced and sustained in the interactions between people, objects, and forms of expression and recognition, and is rewarded or denied in social interactions and by broader institutional structures. In the interactions between herders in Chillca and development organizations, pastoral expertise is enacted through particular linguistic and material resources, which are distributed unevenly among the community members of Chillca. Men in particular are more likely to be socialized into the various practices and performances that convey expertise, they are thus more likely to amass the critical material, social, and political resources that allow them to sustain that expertise in repeated interactions.

Central to the performance of expertise is a demonstrated proficiency in Spanish and technical language. While Quechua is spoken almost exclusively in Chillca, in meetings with development organizations, Spanish is the dominant language. Men are more likely to be proficient in Spanish and socialized into speaking it, due to the fact that they typically attend school more often and for longer than young girls, and they also regularly travel to undertake wage labor in regional cities or mining areas. While the majority of women in Chillca (younger as well as older) could understand some Spanish, they were not comfortable speaking it: while they often learned Spanish in school, they were not socialized into speaking it themselves, and often became embarrassed, uncomfortable, or indeed silent when expected to speak it. Likewise, pastoral expertise is enacted through the mastery of technical vocabulary related to animal husbandry: not just Spanish-language vocabulary, but an expert register that relies on the focal vocabulary associated with the tasks of pasturing, breeding, medicating, and shearing the

animals. Regardless of one's technical mastery of the skills required of a certain task, one must also know the "correct" terms for things, as well as the proper way to take on the associated stances towards the objects and skills of the trade: they "must master a register— that is, a *recognizable*, if specialized, linguistic repertoire that can include technical terms or acronyms, specific prosodic practices, and non-verbal signs such as facial expressions or gestures" (Carr 2010, 20; Collins 2004). In developmental contexts that deal with animal health, for example, one must learn the Spanish-language and technical terms for illness, brands of medicines, treatments, and objects such as syringes— and how to confidently manipulate them.

This of course requires an access to, and proficiency with, a certain class of objects. This type of proficiency is gained during training workshops (*talleres* or *capacitación*) that are offered to the community by development groups, during which objects like syringes, medicines, documents, and other items are handed out and the herders are taught how to wield them in specific ways. During my fieldwork a number of such workshops were held, related to pasture improvement, mechanized shearing, breeding techniques, and veterinary medicine. These workshops were held in the town of Pitumarca, located two hours down the valley by motorcycle, or when available, a passing cattle truck. They were largely inaccessible to women due to this distance—while men in the community were expected to attend, women were expected to remain in Chillca to watch the animals. Attendance at these events came with additional material perks, such as the official hats, jackets, coveralls, notebooks, clipboards, documents and other emblems that afford their new owners continued access to the domains that affirm their expertise. In order to sustain the position of "expert," one's expertise needs to be continuously enacted through the repeated demonstration of one's access and proficiency with the associated material and linguistic resources— during medicating events in the community,

members of the elected Alpaca Committee (*comité de alpacas*) are easily identifiable by their attire (coveralls with medicine brand names on them, or hats with NGO logos) and the fact that they often wield clipboards and notebooks. These repeated performances of expertise thereby open up future and continued access to authoritative positions in the community, whether as elected officials or community-leaders in developmental projects.



Figure 19: Preparing syringes

In summary, enacting pastoral expertise in external-facing interactions requires access to— as well as a familiarity, socialization, and proficiency with— a range of linguistic, material, social, and political resources, many of which are structurally inaccessible to women. Furthermore, it requires adopting a particular stance to animals and grasslands. As evidenced by the emphasis on technical vocabulary and an “expert” register, this involves being socialized into the practice of abstracting one’s knowledge from social context. As Summerson Carr writes, “expertise requires the mastery of verbal performance, including—perhaps most importantly— the ability to use language to *index and therefore instantiate already existing inner states of*

knowledge” (2010, 19, emphasis added). This mastery requires, first of all, recruitment into the idea that one’s knowledge is internal (particular to one’s individual self) and can therefore be extricated from the broader social context of its production. This understanding of knowledge as divisible into detached, objective, and transportable units is a central tenet of Western science (Latour 1993) and one that is not shared by Andean herders. This claim to objectivity and detachment—that which gives scientific knowledge its pervasive, unobjectionable quality—has been destabilized by social scientists, particularly within analytical frameworks of Science and Technology Studies and Actor Network Theory (Callon 1986; Haraway 1988; Latour 1998; Latour and Woolgar 1986; Law and Lien 2013). Engagement with the practices through which scientific knowledge is produced, and critical reflection on the historical processes of epistemological purification that produced the bifurcation of nature and culture in Western scientific thought, has yielded a powerful intervention into the perceived objectivity of modern science (Latour 1993). However, in developmental contexts, there remains an assumption of the unobjectionable verifiability of Western scientific knowledge, and the superiority of the methods of its production—specifically the *acquisition* of scientific knowledge and expertise through exposure to the sanctioned tools and training modules through which it is disseminated.

For instance, as a researcher trained in Western scientific methods of knowledge acquisition myself, I was especially interested in knowing which types of grass were preferred for alpacas. In the beginning of my fieldwork I sought to “obtain” this knowledge in my conversations with herders as well as those deemed pastoralist “experts.” The appropriate technical response, which I often heard from Spanish-speaking men, was that a certain grass type is best for alpacas because it was nutritious, or more specifically “it has vitamins” (“*tiene vitaminas*”). This statement required at least some familiarity with the concept of “vitamins” as

essential micronutrients for the animal's metabolism. More importantly, however, this response required that one's knowledge about grasses be abstracted from social context—it has to become mobile, not bound by particular localities, times, or social relations. One can say that a grass type has certain vitamins that are good for animals, and this can be a verifiably “true” statement no matter where one goes. In contrast, the response I heard most often from Quechua-speaking women in the pasture was that a certain type of grass was best because “the alpacas like it” (*kay pastuta aswan munan paqucha*), and they would gesture to their animals and invite me to observe how happy (*kusi*) or content (*llaqhi*) they were. Rather than referencing a portable, scientific fact—objective and detached from context—this response alluded to the relational, distributed knowledge that is embedded within a network of recognition and care between humans, animals, and the landscape. The animals let the herder know which grasses are best for them, and the general health of the grasslands is often evaluated through animal's emotional states: if the animals express joy or contentment, the grass types they prefer are plentiful and the grasslands are healthy. If the animals are sad, distressed, or restless, it was time to move them somewhere else, provide supplemental grasses, or irrigate the available pasture in order to encourage particular grasses to grow.

This difference in orientation finds resonance in the aforementioned assumptions about pastoralism and animal husbandry as masculinized labor, which has been characterized by a relationship of domination in which humans hold dominion in both a physical and intellectual sense over their animals. In contrast, Andean herders often engage with their animals through a relational mode characterized by cooperation: animals let the herders know which grasses are best, by expressing their joy and appetite when those grasses are plentiful, or conversely their frustration and restlessness when those grasses are few. Knowing how to discern these cues is

part of what makes a good herder, as is knowing how to respond through responsive action in which the animals themselves are critical interlocutors and participants. As Penelope Harvey acknowledged in her research among cattle herders in Ocongate, for example, during moments of participatory action, "[a]nimals, humans, agricultural tools, hill spirits, and earth powers were all drawn together and activated in these exchanges in order to achieve a successful outcome to the task at hand" (P. Harvey 2007, 172).⁵² Whereas practitioners of Western scientific knowledge production might seek to hide the social contingency of scientific practice—less it diminish its unobjectionable quality—for Andean herders this relationality is constitutive of that knowledge itself and presented as its central evidence.



Figure 20: A woman herding alpacas

To return to the earlier vignette with Marisol and Alejandra, I've argued that the circulation of knowledge about the landscape and animals is crucial to the general health of the

⁵² Harvey cautions against the "simplistic opposition between local indigenous knowledges and generic modern knowledges," and the importance of acknowledging that all forms of knowledge are hybrid, multiple, flexible, and relational (P. Harvey and Knox 2015, 12, citing Gupta 1998).

community, especially in the face of transformative climatic changes. However, these conversations are critically important not because they generate an abstract knowledge that can be transported between herders, but because they enact and sustain social relations between people, animals, and landscapes. When women gather in the pasture to comment upon animal behavior, grass distribution, or water availability, the underlying assumption is that this knowledge is distributed among a range of social actors: the women's complaints about wandering sheep are just as informative as their remarks on returning grasses and herding calendars. Whereas developmental contexts ratify a form of expertise that replicates a stringent divide between nature and culture, for herders the inextricable interconnection of humans, animals, and landscapes is constitutive of and implicated in one's herding knowledge and practice. The crucial skill for the herder is not the attainment and reproduction of abstracted units of knowledge and the ability to wield the associated objects, but the ability to effectively manage relationships among a range of social actors, both human and non-human.

While this section of the chapter has centered around the ways in which women's knowledge and skill have been overlooked by researchers and development workers, in the next section of this chapter I consider the question of central importance: what is it that makes a Quechua woman an "expert" (or, rather "good herder" [*allin michiq*]) in the eyes of her kinswomen? In other words, how is skilled practice in animal husbandry and pastoralism enacted and recognized among the herders themselves? This question underlies many of the chapters that follow, as I discuss the various ways in which women herders interpret changes in the world around them and forge strategies in cooperation with one another. In the sections that follow, I discuss the development of herding skill throughout a herder's lifespan, beginning with her initial inheritance of herd animals during her youth. I describe a series of exchanges through

which herders establish, sustain, extend—and in some cases, sever—the ties that constitute their social lives. The labor of caring for the herd is likewise distributed among dense kin networks, and the practices through which one initiates reciprocal labor exchanges (*valikuy, ingaray*) are key skills in the work of herding. Coordinating a network of animal care is a predominating concern of the herder, and, along with other important forms of animal exchange it is one of the many ways in which animals configure the herder’s social relationships to one another. The stakes of enacting this social position are high and carry material implications, determining the access of a woman (and her family) to resources in the form of food, labor, and material goods (like yarn, cloth, medicines, etc.). Through inheritance at crucial life stages, like their first haircutting, as well as other forms of gifting, sale, and exchange, women configure their relationships to one another and undertake the practices necessary to establish themselves as good herders, good women, and fully social persons. In contrast to the neatly-encapsulated, seemingly mobile forms of knowledge that constitute expertise in developmental contexts, women’s enskillment (Ingold 2000) as herders is emergent over the course of their lives through their embeddedness in relational networks with human and non-human others.

Becoming *Michiq*: The Making of Herds and Humans

Melisa’s Haircutting, Centro Poblado de Chillca, April 2016

In the wavering light of our headlamps, Melisa’s face was waxy and still, her lips parted in a deep sleep. Wrapped in blankets in her mother’s arms, she didn’t awake, even as we approached her, one by one, and snipped off her little braids with a pair of dull scissors.



Figure 21: Melisa's Haircutting (*chukcha rutukuy*)

Earlier in the evening, we had gathered in the warm, dark interior of Matías and Marisol's house in downtown Chillca. As Melisa's godparents (*compadres*, or *padrino* and *madrina*), my husband Nik and I were served heaping plates of guinea pig and potatoes as the other attendees slowly arrived: in addition to Melisa and her parents Matías and Marisol, Matías's parents Agustín and Consuelo arrived with Melisa's six-year-old cousin Anderson. Matías's uncle Sebastián soon arrived, bringing with him a couple of young men who had just been passing through town but were now inescapably roped into the evening's festivities. One of them was the husband of Matías's cousin, but the other had no immediate family connection. They seemed uneasy at first, sheepishly settling down in the corner of the room. As soon as Agustín began playing a few chords on his *bandurria* the mood lightened and they joined in lively conversation. As the conversation reached a fervent crescendo, Consuelo stepped in: "*chaylla*, that's enough talking," adding with a giggle, "the American *padrinu* doesn't know what you're saying." Agustín put down the *bandurria*. "*Intindichiy*," explain to them, she instructed Sebastián, who held the position of the evening's secretary and was translating from Quechua to Spanish for the benefit of my husband (the American *padrino*). He began:

Our *costumbre* is like this, always, from our ancestors. When a boy or girl is born, from the body of their mother, we are all born naked, no? All we have are the hairs on our heads. In the past, this represented the only inheritance of the boy or girl, just their little hairs... Today we continue cultivating this [tradition]... [The haircutting] is an inheritance that the child will have in his or her life. When we cut the hair, the first person to cut is the *padrino* or the *madrina* of the girl, and after this one promises or contributes with whatever they feel in their heart—it isn't an obligation, one can put a large or small sum, because even if it is small it is the blessing of the lord (*la bendición del señor*).⁵³

It was readily acknowledged that in this case, Melisa's American godparents wouldn't be able to offer her the traditional gift of a reproductive animal, having none themselves. Instead, cash was acceptable, along with the promise to contribute to her studies later in life and the hope that some of our luck (*suerte*) as "professionals" would transfer to her, such that someday she herself might pursue an education and become a *profesional*.⁵⁴ Following a few opening words from the parents and godparents, Matías presented a bottle of beer and a glass to pass around, and Consuelo brought out a plastic bag of coca. She uttered a soft *phukuy*,⁵⁵ and Agustín again picked up the *bandurria*, playing a few chords to lead us back into conversation.

On the table in front of Melisa sat a small round cake from Pitumarca, decorated in a thick layer of fluffy neon-green icing and marking the occasion with the words, in Spanish, "Feliz Día Melisa." Beside it a woven cloth (*costal*) folded in fourths served as the *misa*, the designated base of the ritual on which the key items rested: a dried ear of corn, a shallow bowl holding a pair of scissors adorned with an orange ribbon, and a notebook in which Sebastián would annotate the gifts. To begin, my husband and I placed two soles in the shallow bowl as a

⁵³ "El costumbre de nosotros es así siempre, desde nuestros ancestros. Porque realmente que la niña o el niño que nace, de su cuerpo de su madre, nacimos así caladitos así, no? Solamente tenemos los pelos en la cabeza, entonces esto representaba que antiguamente solamente la herencia de los niños o de las niñas, sus cabellitos nada más... hoy en día seguimos cultivando todavía esto... Es una herencia que el niño o la niña va a tener en su vida. Cuando nosotros cortamos el pelaje, él que corta primero es el padrino o la madrina de la niña, después de esto también se le promete a la niña o se colabora con algo que es, como se sienten ellos en su corazón, no es una obligación, una pueda poner una cantidad de dinero hartó o poco, porque aunque pequeño es la bendición del señor."

⁵⁴ See Chapter Six for a detailed discussion of the aspirational futures embedded in the identity of *profesionales*.

⁵⁵ A ritual incantation involving coca leaves. I discuss the *phukuy* at length in the following chapter.

“seed” (a reproductive pair) to beckon further contributions. Then, one by one, each person in the room crouched alongside sleeping Melisa, extended a single small braid, and snipped it clean across the middle. When it was my turn, I placed the tiny braid in the shallow bowl on the table, along with a crisp folded bill. Melisa’s grandmother, grandfather, and uncle Sebastián plucked a kernel of corn from the husk on the table and placed it in the bowl along with the braid, with an announcement to the secretary, *hina papay alpachacha kanqa, chinachapaq*, so there will be an alpaca, a female. Six-year-old Anderson was allowed to join in, much to his delight, and offered a female sheep. Marisol made an offering to her daughter, depositing a braid and corn kernel along with a promise of a horse. Matías and his parents thanked her, in a moment confirming not just the inheritance of their daughter and granddaughter, but the continued ties between their two families. As the night sunk into a dark stillness, we made two more rounds around the circle, after each of which we rested to toast one another with another tall bottle of beer, make jokes, and listen to the steady rhythm of Agustín’s *bandurria*.

The haircutting ceremony (*chukcha rutukuy*) has a long history in the Andes.⁵⁶ Despite regional differences, the ritual marks a significant milestone in a child’s development as a social being. Whether performed when the child is two or six years old, it is their first step in their transition from a child to an adult. As Sebastián explained to us before the ceremony:

When we shear, or cut her hair, in the days that follow she will change back to her other self... sometimes this hair that she’s had since she was little, the hair is betraying her, and she’s being a little stubborn. We always said, or our ancestors always said: this child needs her hair cut, because the hair is spoiling her, that’s why she’s stubborn. So when we cut it, the child is going to behave like her other self— she’ll begin to act more grown up, she won’t be mischievous any longer. It’s this hair that is making her a child (*la está volviendo como niña*).⁵⁷

⁵⁶ In other regions also called *chukcha rutuchikuy* or *chukcha rutuchiy* (Bolin 2006, 50, 167–68; Flores Ochoa 1977, 61). In some regions it is preceded by a Catholic baptism and the *unuchakuy* baptism, though these are both becoming less common in Chillca.

⁵⁷ “Cuando se va a esquilarse o se va a cortarse su pelo, dentro de estos días se va a volver su otro tipo... a veces este pelo desde pequeño que tiene, eso la esta traicionando en su vida y es un poquito, la niña es un poco terca.

In marking her transformation from a child into a full social being, the haircutting ceremony enters the child into formal sets of relations with people, animals, objects, and increasingly, the cash economy, tethering the child to a series of reproductive and generative futures.⁵⁸ The parents' selection of godparents for the ceremony is key: they almost always choose from among comparatively wealthy members of the community or nearby towns or cities. The offerings made by the godparents have traditionally been reproductive animals: young, female or uncastrated male sheep, alpacas, llamas, cows, or horses. The gift is thus not merely the animal itself, but also the animal's reproductive future, given with the intent of helping the child grow their own herd over their lifetime. Flores Ochoa noted in 1977, the animals given to a child during their *chukcha rutuy* "will form part of the godchild's future herd... in this way, the child has animals that will multiply through the years and develop into a herd large enough so that he can support a wife and raise children" (1977, 61). Both men and women inherit and are gifted animals at their *chukcha rutuy*, and as they grow into young adults, their herds grow with them, such that by the time they separate from the household of their parents, they do so with a full social standing, as conferred through a herd of alpaca, sheep, and llamas.

At the end of the evening, Sebastián wrote out the contract for Melisa's haircutting ceremony:

Chillca, April 30th 2016

Document of Commitment: In the residence of Matías H. and wife Marisol T. in the Community of Chillca, of the District of Pitumarca, of the Province of Canchis, Region

Cuando se cortan, siempre hablábamos o nuestros ancestros hablaban: esta niñanita se necesita cortar su cabello, porque este pelo la está malorando, por eso está terca. Entonces lo cortamos y se va a comportar su otro tipo, más viejita se va a comportarse, ya no se va a ser así, mañosa. Este pelito la está volviendo como niña.

⁵⁸ As Inge Bolin writes, "It is one within a series of events where children are honored, kinship ties are established, and children's rights to property are confirmed" (2006, 51).

Cusco. Being 9:00 pm on the night of the 30th day of the month of April of the 2016, the family of Matías and Marisol gathered with the intention of the girl Melisa H. T.'s haircutting, in which the godfather and godmother of the girl Melisa are the *señorita* Allison and husband Nikolas from the USA, for which all those present were accompanying in the event of the girl's haircutting. Afterwards began Mr. Nikolas and wife Allison and the following:

1. Nikolas y Allison - cash
2. Agustín - one female alpaca
3. Consuelo - one female alpaca
4. Sebastián - one female sheep
5. Matías - one female alpaca
6. Marisol - one horse
7. Anderson - one female sheep



Figure 22: The table at the haircutting ceremony, with the contribution bowl, the written contract, and cake and beer for celebrating.

Although Melisa is too young now to understand much of what occurred that evening as she slept, when she becomes a little older she will be shown the animals she was given.

Everyone remembers the animals they received at their haircutting ceremony (called *chukchaq paquchan/ ukyan/ llaman*; literally “the hair’s alpaca/sheep/llama”) and by whom. The animals are either delivered to the family herd, or if they were gifted by a nearby relative with whom the child herds, they are kept in that herd until the child comes of age. Children watch their animals grow in the herds of their parents and nearest relatives— at six years old, Melisa’s cousin

Anderson has four sheep and two alpacas, the offspring of the single alpaca and sheep Consuelo gave him at his haircutting. When we are out herding he points them out excitedly, along with those of his big sister Isabel, who was given one alpaca and two sheep from Consuelo's sister and now (at eight years old) has two alpacas, one of which is pregnant, and five sheep, which are also kept in Consuelo's herd.⁵⁹ By the time the child is in their late teens and early twenties, their animals will have reproduced enough for them to have a respectable starter herd.⁶⁰



Figure 23: A young girl wrangling an uncooperative llama

As Melisa grows along with her herd, she will also gain the linguistic and material resources and hone the wide range of practices through which she'll establish herself as a skilled herder. She'll learn how to identify individual animals and evaluate herd health by sweeping her eyes over her herd from a distance; she'll learn to crack a whip and use her *wark'a* to fling a rock at an animal with alarming accuracy; she'll come to recognize and identify a range of grass

⁵⁹ Sometimes the animals will be marked by a distinct ear-tassel for easy identification, and they are only sold or killed off by the family in the event of dire economic need. The animals are shorn with the rest of the herd and the earnings from their wool are returned back into the entire household's earnings.

⁶⁰ For example, Matías was given ten alpacas from his *madrina* and four sheep from his *padrino* (both from the sector of Killeta), and now, twenty years later, he has nearly forty alpacas descended from his *chukchaq paquchan*. By the time he met Marisol, he was considered to be in good social standing.

types, often through playing games or telling riddles; and, as I will discuss in detail in the next chapter, she will hone a wide and varied repertoire of whistles and vocalizations with which she'll communicate with her animals.

Critically, she will learn how to talk with other women about herding. Speaking like a herder, in particular, constitutes a specific set of learned practices that are essential to a herder's success. Young children can often be heard practicing their herder-speak with their relatives and friends, exchanging play conversations in which they shout "let's go! Let's round them up!" ("Haku, qhatisun, hamuy hinalla risachun") and practice their roles as kinswomen, learning to ask for help with the herd and offering food in return: "Let's play here, I'll offer you bread" ("pukllakusun ankaypi, inwitasayki t'antata"). Two-year-old Melisa frequently practiced her herder-speak with her mother and grandmother, referring to fictional sheep in similar ways that she had heard other women do:

Melisa: Mama, I'm asking you a favor [*valikamushayki*]. Over there... my sheep...
Marisol: You can't, your sheep, you lost it?
Consuelo: My sheep...
Marisol: I don't see your sheep, ask your grandmother, let's see?
Consuelo: What is it, let's see?
Marisol: She says she lost her sheep.
Consuelo: Oh, what a bad sheep...

In just this short conversation, Melisa is practicing an important form of herder-speak: first, she engages in the collective animal-location that often initiates conversations between women in the pasture, making observations about where their animals are, what they are doing, and—perhaps most importantly—complaining about them. These discourses of animal-location and complaint are a fundamental component of Quechua herder conversation, as the phatic expressions with which herders create openings for social engagement when encountering other herders in the field. More broadly, talking about animals is a key discursive practice that enters a

young herder into crucial relationships with other women in her social world. Although men also talk about their animals (with other men and with women), animal-speak is largely considered the domain of women (*warmirimay*). I was once told by a group of women sitting on the outside of a conversation amongst men that women “don’t meddle” (*mitiy*) in men’s conversations or vice versa, clarifying that women talk about their families and animals (*wawanmanta*, *qharinmanta*, *uywanmanta*), while men talk about their travels or experiences (*purisqanmanta*, *vidanmanta*).⁶¹

In the conversation above between Melisa, her mother, and her grandmother, she also imitated the initiation of a reciprocal labor exchange, *valikamuy*, referencing a common form of reciprocal labor exchange in which women ask one another to watch their animals with the expectation that the favor will be returned at a later date. Melisa was beginning to understand the importance of exchange as a social practice, something I noted in other contexts as well: once, I had a solar lantern stolen from my yard, and Melisa told me, “don’t be sad, I’ll sell an alpaca and buy you another one” (“*ama llakikuychu, huqta rantipusayki, paquchata vindisay*”). Even before she had even reached her third birthday, she was already verbally indexing different forms of exchange through which animals, labor, goods, and cash are circulated, a key centrality of the herder’s social and economic life.

Becoming *Valikuq*: Exchanging Animal Labor

Central to being a good herder is the ability to enter into reciprocal labor exchanges in which you watch the herd animals of others and implore other women to do the same for you.

⁶¹ There is a general association of men with mobility, and women with networks of care. On more than one occasion, I heard women chastise their husbands for “just sitting there like a little woman” instead of going out to check on the llamas, or go to the town or potato farms.

Reciprocal labor exchanges are a central feature of classic Andean ethnography— in particular, the concept of *ayni* has been theorized as an overarching ethic of generalized reciprocity and cooperation that undergirds economic, social, and political life in Andean rural communities and thereby draws people into relation with one another (Allen 1988; Brush 1977; Mayer 2002; Alberti and Mayer 1974; Mannheim 1986; 2001; Van Vleet 2008; Leinaweaver 2009). Accounts of *ayni*-in-practice were initially rooted in the exchanges of agricultural labor and house-raising, the central labor of which is performed by men.⁶² Thus, accounts of Andean reciprocal exchanges largely focus on men’s work, such that Mayer has even typified *ayni* as “formal male reciprocity” (Mayer 2002, 131; Wilhoit 2017, 6). Women’s reciprocal labor was subsumed under the informal, kin-based reciprocal cooperation of the household (Brush 1977). However, there are many accounts of women also exchanging labor under the contract of *ayni* (Babb 2018; Leinaweaver 2005; Paerregaard 2012; Seligmann 1993; Van Vleet 2008a; Weismantel 1988; Wilhoit 2017).

Throughout the year, women herders participate in multiple, overlapping forms of labor exchange through which they distribute and circulate animal labor and care among a network of neighbors and kin. During the dry season, families in the neighboring hamlets of Antapata and Uqi Kancha are enmeshed in continuous chains of labor exchange. On a daily basis, women watch the animals of their mothers, sisters, mothers-in-law, sisters-in-law, and neighbors, freeing up time for them to run errands in the Chillca town center, go to the markets in the neighboring towns of Pitumarca and Combapata, or visit relatives in other sectors or communities. These labor exchanges are managed almost exclusively by women, although men do participate and are especially implicated in the reciprocal labor of monitoring llamas in the hilltops. There are two

⁶² Women do prepare food for the laborers and undertake some of the agricultural labor of potato farming, such as planting the seed potatoes as men break the soil with their foot-hoes (*chakitaklla*).

distinct forms of reciprocal labor exchange through which herders coordinate the care of their animals with one another, one of which is formal (in the sense that it is a contract made in advance) and the other informal. The more formal request is *valikuy* (to ask, petition, contract), and the less formal is *ingaray* (from the Spanish *encargar*, to entrust). The difference in formality is determined by the assumed temporality of the exchange, as I'll explain below. Both are be considered forms of *ayni*, unless the labor is exchanged for money or goods— in which case it is no longer *ayni* but *mink'a* (asymmetrical exchange involving payment for a service).

The practice of *valikuy*⁶³ constitutes a formal request for herding labor, which is always made in advance. It is standard practice to ask a neighbor or nearby relative at least one day ahead, if it's just for the day, or far in advance if the herder plans to be away multiple days. Alternatively, the herder can ask someone from a distant sector or community far in advance. When the request is made of family members or neighbors, the exchange constitutes a verbal contract in which the requester (herder) promises to watch the animals of the requestee (*valikuq*, i.e. contracted person) at a later date. If the contract is made with someone with whom the herder cannot reciprocate (i.e., a person without animals, or someone from a distant community) then payment in either cash or goods is acceptable: around ten soles (\$3 USD) a day for an adult and five soles for a child to watch sheep, or fifteen soles and ten soles to watch alpacas, or a payment of wool, potatoes, or dried dung. The *valikuq* is always fed: if the herder is just running an errand nearby, they will feed them in the morning and evenings, either bringing food to their house, or inviting them to eat at their own house. If the *valikuq* is a child or a person from a distant area, they usually stay the night in the house of the herder, and if the herder is not able to return in the

⁶³ This term is also used in other contexts, such as school cooking responsibilities, asking for help to perform animal husbandry tasks (such as castration), and borrowing animals such as horses. With agricultural work, *valikuy* refers specifically to requesting help (farm labor) in return for payment (typically twenty soles/day). Reciprocal agricultural labor is *ayni*.

evening, the *valikuq* is either brought food by relatives nearby, or given food to cook before the herder leaves. If the herder is just gone for the day, they often ask the *valikuq* to watch their sheep, and will check in on their alpacas in the morning and evening before and after they run errands. The transfer of food is always at the heart of these exchanges, as it is tacitly understood that the person making the request of their neighbor always does so with food— a bowl of soup, some roasted corn or broad beans, a few hot potatoes or chunks of meat. As I will describe further in Chapter Four, consubstantiality through the sharing of food is a central social principle in the Andes, and reciprocal feeding is one of the primary ways in which Andean people, animals, and place-persons enter into and sustain social contracts with one another (Mannheim and Salas Carreño 2014; Salas Carreño 2016, 2019; Weismantel 1988). Verbal strategy is also key to the initiation of labor requests: asking, imploring, and joking in just the right ways to be convincing and to avoid offense.⁶⁴

⁶⁴ Marisol and Consuelo were especially gifted in this regard. Early in my fieldwork, I watched in amusement as they employed their best efforts to convince an older widower from a neighboring hamlet to herd their animals for a few days while they attended a festival. Inviting him in from the cold to share a hot bowl of soup, they jokingly offered to help him find a new bride if he agreed to herd:

Hinallaaa, favor! – Please!

Yuyarisaykipuni – I’ll always remember you (return the favor)

T’inkata apamushayki – I’ve brought you a gift of alcohol to toast!

Payakunatapas qhawanayki – you’ve got to watch [admire] the old ladies too!

Eventually after much back and forth, they finally informed me he wasn’t interested in herding, just in chasing the old ladies. Even despite their best efforts he declined, and the search for another herder began anew.



Figure 24: Preparing food for the *valikuq*

Ingaray (from the Spanish *encargar*, to entrust) is a similar form of labor exchange that implies a reciprocal offer of herding at a later date, but unlike *valikuy* it is always a last-minute request, typically made in haste. The herder entrusts their animals to a neighbor for a few hours up to a day as they are rushing out to complete an errand, with the implicit or voiced promise that they will watch the person's animals another day (for example, “*kuidapusayki huq punchayta*” – I'll take care of you another day). This sort of exchange is only possible between two individuals with a long-term, close social relationship: mother and daughter, sisters, or neighbors who have lived alongside each other and participated in long-term labor exchanges for years. It can't involve a transfer of cash or goods—once when I asked Marisol whether she would pay her mother-in-law to watch her animals, she laughed uproariously. It would be unthinkable to pay your female relative to help you herd. *Ingaray* is effective only as an instantiation of *ayni*, with the assumption of reciprocal return.

Learning how to engage in these forms of reciprocal obligation are an essential herding skill, and a central component of a herder's social world. While these requests and exchanges of herding labor are an everyday occurrence, they are especially nerve-wracking for a young

woman new to a particular sector or community— as most women are, at a certain moment in time, given the mandated norm of sectoral patrilocality in the community.

Becoming *Warmi*: From Daughter-in-Law to Good Herder

I often asked Consuelo, in the evenings as she and her neighbors brought the animals in from the pasture, what makes a woman a “good herder” (*allin michiq*). In those moments, ducking through the darkened doorway, Consuelo would complain bitterly about one neighbor or another that wasn’t pulling her weight. She happily gossiped with me when I asked who was or was *not* a good herder: one young woman in particular was lazy (*qhilla*), in her opinion, and too forlorn. This woman was a recent *qhachun* (daughter-in-law) who had just moved to the sector of Chillca with her young husband. Eighteen years old and living away from home for the first time in her life, she was desperately homesick and would often run away to her mother’s home, leaving her animals with other neighbors and neglecting her herding responsibilities. The work of exchanging herding labor thereby fell to her husband and father-in-law, since they were the relatives of other people in the sector. In contrast, Marisol and Alejandra were both considered good herders by the older women in the sector. They were both noted to be *viva*, alert and active: they were watchful of their animals, making sure they never escaped into neighboring sectors or into the potato fields down below. Most importantly, they helped often with the animals of their neighbors and affines, regularly taking them out to pasture alongside their own herds. Although they were also daughters-in-law, they had been there longer than the other young woman and had therefore learned how to be good herders, and good kinswomen. Consuelo conceded that perhaps, over the years the young “lazy” herder would learn how to enter into these relationships like the other *qhachun* in the sector had before her.

As is noted throughout the literature on kinship in the Andes, being a daughter-in-law is an uncomfortable role to occupy. There is even a potato variety in the Peruvian Andes that references this tense social moment in a woman's life—called “that which makes the *qhachun* cry” (*qhachun waqachiy*), it is especially difficult to peel, causing the embarrassment of the *qhachun* desperate to impress her new kinswomen. In addition to being separated from her family, the *qhachun* is in an uncomfortably subordinate position to their female affines, which can erupt into conflict and even violence. While relationships between daughters-in-law and mothers-in-law are notoriously tense, newly married women also struggle to navigate relationships and obligations with their female neighbors. As Krista Van Vleet noted (2008b, 569) in Bolivia, the amount of labor this entails can be overwhelming: “At the same time that a young wife is working for her mother-in-law, she is also trying to establish more reciprocal labor exchange relationships with other women in the community.” This requires an initial imbalance, as the young woman struggles to prove to her female neighbors and affines that she can pull her weight. In Chillca, young women talked often about the difficulties inherent in occupying the category of *qhachun*: there is the constant scrutiny of being watched and evaluated by your kinswomen (particularly your mother-in-law) and women also describe being subjected to various forms of ridicule on the part of both men and women in the community. Men will tease them, and women will sometimes openly insult or slander them, or refuse to greet them or offer them food. A new daughter-in-law has to learn to initiate and sustain the various relational threads that comprise her social world—between other people, animals, and landscapes—before she can sustain the vital networks of care through which she establishes both material and social wellbeing in the community.

In recent decades, relational and performative theories of gender (Butler 1988; Strathern 1980) have replaced binary, oppositional representations of gender complementarity in Latin American scholarship. In the Andes, scholarship on contemporary gender pivots around the ways in which gendered identities are produced through relations of care, forms of exchange, and bodily practice. In keeping with Judith Butler, gender is not “a stable identity of locus of agency from which various acts proceed; rather it is an identity tenuously constituted in time— an identity instituted through a *stylized repetition of acts*” (Butler 1988, 519, emphasis original). As everywhere, Andean men and women formulate and reproduce their gendered identities through the navigation and articulation of social, economic, and spatial dynamics, and in ways that are fluid and contingent upon broader histories and geographies of differentiation. Much like race and class, gender is a mutable category in the Andes that is constituted not through biological difference, but through practices of approximation and processes of attunement that involve one’s physical traits (skin color, hair texture, musculature, etc.) as well as their dress, diet, language, comportment, and character.⁶⁵ Andeanist scholarship has attended to the ways in which women configure and negotiate their identities through labor and affective practices in the household (Babb 1998; Bourque and Warren 1981; Deere 1983; Silverblatt 1987) and in agricultural fields and hillsides (Isbell 1985; Maxwell 2011; Paulson 2003) and through routinized performances of socioeconomic exchange in the market (Bunster and Young 1988;

⁶⁵ Importantly, gender, race, and class are co-productive in these spaces, such that shifts in the markers of race and class in the Andes can also constitute a shift in one’s gendered identity (Seligmann 1993; de la Cadena 1991; Roberts 2012). For example, one can shift one’s status from *indígena* to *mestizo* by changing from rural to urban dress, switching from speaking Quechua to Spanish, and making similar changes in diet and comportment that signal *mestizo* identity. These changes also signal a shift in a woman’s gendered identity: as Susan Paulson writes, “when a woman is hoeing potatoes in her field she is a *campesina*, but when she goes to the city to sell her potatoes she is a *chola*” (2002: 140). The *chola*, as Linda Seligmann articulates, occupies a status “in between,” not just as a social and economic intermediary but also in terms of their race, class, geography, and indeed, gender” (1989; 1993). In other words, the very practices of mediation that place these women in the middle (circulating commodities and currency, negotiating between produce and consumer) also reconfigure their social category of betweenness. As Seligmann writes, “I was struck by the forceful, energetic, and at times bawdy market women known as *cholitas*. They stood out because they appeared fearless, astute, different, and unpredictable. I could not find a counterpart among Peruvian males” (694).

Babb 1998; Seligmann 1993; Weismantel 1988). In these settings, Andean women reproduce their gendered identities relationally with other social beings, by performing practices of care (as well as neglect) and exchanging (or refusing) substance with elder relatives, affines, and children (Leinaweaver 2005; Van Vleet 2008a; Wilhoit 2017; Weismantel 1995), animals and landscapes (de la Cadena 2015; Dransart 2003; Mannheim and Salas Carreño 2014; Salas Carreño 2016, 2019), and consumers of market goods (Babb 1998; Seligmann 2000; Weismantel 1988).⁶⁶ Much like cooking, weaving, feeding, clothing, selling and mediating, herding is an arena of practice in which women enact their identities through their relational engagement with other beings. Sharing food and substance, sharing labor, and sharing in the linguistic practices of herding bring women into relation with one another, and constitute them as persons in the process. Mary Weismantel summarizes the process of social reproduction in the Andes as follows:

Andean beliefs about illness, death, and healing reveal an underlying conception of the human body as material object built up over time through various substances and acts: ingesting food and drink, sharing emotional states with individuals or spirits, being in close proximity to people or objects. Bonds between people are created in the same ways—gradually... The two processes are interrelated: the bodies of individuals are linked through the shared substance to the bodies of family members.
(1995, 695)

While the sharing of substance would seem to privilege the physical form as the site of reproduction, Weismantel (1995, 695) clarified that this process is “also social, symbolic, and linguistic: the words people use to talk to and about one another are part of the accumulated history through which relationships are established.” As a young herder grows, she will not only consume the foods and substances that constitute her connectedness to other herders, but she will also talk like them, with them, and about them.

⁶⁶ It should be noted that similar work elaborates on the construction of masculinities, for example the work of Andrew Canessa in the Bolivian highlands (2012) and Jason Pribilsky (2007) on acts of care and exchange performed by Ecuadorian men seeking work in New York City.

It is this accumulated history and embeddedness in social relations that constitutes women's herding enskillment in Chillca, and that which makes it incongruous with the forms of pastoralist expertise imagined and enacted in development contexts. A keen attention to these practices through which women constitute their world—and their own gendered identities within it—yields insight into how these identities are constituted and reconfigured in shifting socioeconomic conditions, especially as different possibilities are afforded to men and women. As climate change yields unpredictability shifts in Andean pastures, developmental initiatives risk forging futures without Andean women. Initiatives seeking to promote adaptation to climate change through market integration and pasture improvement fail to attend to the ways in which women mitigate their own vulnerability—not through the linguistic, material, and social tools of intensified wool production and pasture seeding, but through relational networks.⁶⁷ Here, I stop short of prescriptive measures, although there is a robust conversation on the role of indigenous knowledge and experience in global climate change knowledge production and related policy implementation (Adger et al. 2013; Berkes 2009; Carey, James, and Fuller 2014; Castree et al. 2014; Ford et al. 2016; Jasanoff 2010; Leonard et al. 2013; Maldonado et al. 2013) However, rather than seeking to merely include women's voices in dominant knowledge frameworks, it is crucial to take seriously how these women draw connections between phenomena, pick up disturbances in the broader world, and enact different kinds of relationships across humans, animals, and landscape to address changes in the world. As the next chapters will elaborate, climatic changes are shifting socionatural relations between humans, animals, and landscapes in

⁶⁷ The importance of intergenerational “institutions of knowledge” in indigenous communities facing environmental change has been acknowledged by Berkes and colleagues working in Canadian arctic communities (Berkes 2009; Berkes and Jolly 2002; Peloquin and Berkes 2009; Davidson-Hunt and Berkes 2003). As Berkes (2009) argues, maintaining “web[s] of relationships” across generations is especially critical for making sense of and responding to climatic changes.

Chillca, and opening up new realms of possibility with novel substances, exchange partners, and regimes of value.

Conclusion: Making *Alpaqueras*

The specialized knowledge and skill of women has been underrepresented in the global pastoralist literature, and continues to be marginalized in development efforts in pastoralist communities such as Chillca. New discourses of technological expertise require participants to master specific vocabularies, practices, and orientations through which they align themselves with traditions of knowledge promoted by Western positivist science. While these registers and repertoires are made readily available to men in Chillca, they are largely inaccessible to women, thereby reproducing the persistent assumption that women do not possess herding expertise. Focus on women's knowledge in the realm of herding yields insight into the ways in which herding skill is constituted relationally, and constitutive of women's identities as *michiq* as well as *warmi*. In this chapter I have strived to engage with these practices in order to elaborate on how forms of exchange and circulation— of animals, food, children, and labor— allow a young herder to enter into the sets of relations that constitute and sustain her social world. The circulation of herd animals and labor creates, maintains, and reconfigures bonds of social relatedness between humans, herds, and landscapes in Chillca, and it is in and through these broader networks of obligation (and related practices of feeding and cohabitation) that individuals themselves come into full social and bodily being. It is through the gradual accumulation of reciprocal social relations— a concentric wrapping of social relatedness that tethers them to a particular network of pastures, herds, and humans— that women become skilled herders, and thereby mitigate their vulnerability.

However, to return to Melisa's haircutting ceremony, it is evident that for future generations, a young woman's wellbeing may not be inextricably tied to her success as a herder or to her accumulation of animals. Indeed, for Melisa and other young girls her age, her parents envision multiple potential futures: in Melisa's *chukcha rutukuy*, these potentialities were indexed by the disproportionate inclusion of cash in the ritual, and the fact that the central ritual participants—my husband and I as the *madrina* and *padrino*— were not livestock-rich individuals, but foreign researchers who might transfer some of our *suerte* as *profesionales*. While Matías and Marisol still considered the accumulation of animals important for their daughter's future, they also envisioned themselves selling many of those animals in exchange for her enrollment in formalized education in Sicuani or Cusco.

As for the women that continue to herd animals, they will likewise become integrated into novel forms of exchange and circulation with new partners and institutions. As women continue to assume more of the herding labor due to continued outmigration and shifts in livelihoods towards tourism and mining, it is possible that their omission from livestock initiatives will no longer be tenable. For example, the international NGO Soluciones Prácticas has launched programs specifically targeted at women pastoralists through the training of local "alpaca promoters." They cite their success through the testimony of an *alpaquera* from a report in 2006:

I trained as an *alpaca promoter*. . . first, I learned *sanidad* [health; hygiene] for my animals, and my *crías* no longer died, the adult no longer had mange, and I taught my neighbors too; then I asked for a good male *reproductor* for my best female alpacas, and I had *crías* with fine wool, and now my livestock is *blanquito*, there are no spots, so I was able to realize that I had good animals, and my neighbors were buying my male *crías* as their *padrillos*. . . But I wanted to continue learning more, and I signed up for training and to learn to know how to categorize and classify alpaca fiber because I realized that the intermediaries do not pay us what they should for our fiber.⁶⁸

⁶⁸ "Me capacité como promotora alpaquera [...] primero aprendí sanidad para mis animales y ya no morían mis crías de alpacas, los adultos no tenían sarna y enseñé a mis vecinos también; después solicité un buen reproductor macho

(Apaza 2006)

Within the realm of pastoralist expertise cultivated through their partnership with Soluciones Prácticas, this woman's success as a herder was evidenced by her incorporation into particular discourses and networks of knowledge acquisition. According to this new metric, she has successfully wielded the skills conferred through training modules to produce improved animals, and she has successfully entered into privileged networks of exchange between similarly savvy alpaca producers and fiber markets. I will return to these networks and practices of exchange in the final chapter, to reflect on the aspirational futures through which herders in Chillca reimagine themselves and their relationships to animals and land. But first, in the chapters that follow, I elaborate further on the methods through which women herders make— and make sense of— changing worlds through the practices of engagement with herds and landscapes.

para mis mejores hembras y tuve crías con lana fina y ahora mi ganado es blanquito no hay manchados, entonces pude darme cuenta que ya tenía buenos animales y mis vecinos me compraban mis crías machos para sus padrillos [...] pero yo querría seguir aprendiendo más y me inscribí para capacitarme y aprender a conocer a categorizar y clasificar fibra de alpaca porque me di cuenta que los intermediarios no nos pagan nuestra fibra como debe ser.”

CHAPTER III

Multispecies Modes of Evaluation: Climate Change and Human-Animal Communication

Antapata, September (Dry Season) 2015 - Early Morning

In the high Andes, a herder rises in the morning instantly attentive to her animals, often awakening from a dream in which she was watching the herd, or jolting into consciousness just as a frantic herding command leaves her lips. In the small hut I shared with Consuelo, I became accustomed to these whispered remnants of animal-directed utterances and whistles. Even in her sleep, her mouth formed itself around the acoustic signals that she used throughout the day, her tongue poised at the back of her teeth in anticipation. Her body carried other traces of her day's labor, and she was often kept awake by these lingering imprints of her daily work: her feet and knees hurt constantly, her waist was sore from the weight of her skirts, and her head ached from the frustration of chasing a restless herd. When she couldn't sleep at all, I would catch her awake at three or four in the morning, weaving or mending her clothing by the orange light of a miner's headlamp, the radio playing softly in the background as she kept her eyes trained on the animal bodies taking shape outside in the emerging light.

On a morning in mid-September of 2015, towards the bitter end of the dry season, the hamlet of Antapata⁶⁹ stirred around five in the morning. The first rays of light appeared just over the hilltops, illuminating the trails of smoke seeping out from thatch roofs. Rays of icy sunlight pierced the smoky interior of the hut as Consuelo wrenched the rusted metal door open, stepped

⁶⁹ One of two dry season settlements (*astana*) for Chillca sector. I translate *astana* throughout this study as *hamlet*.

over the stone threshold into the frigid morning, and shouted *Winus días siñurita!* (“Good morning, *Señorita!*”) into the morning air. Ducking back into the hut, she tightened her shawl around her shoulders and cursed the bitter morning cold. Earlier that morning she had coaxed the previous night’s embers into a strong flame, an art that seemed nothing less than magic in those frigid pre-sunrise hours. Crouching low by the fire, she stirred two large simmering pots, dropping slices of potato, carrot, onion, and chunks of meat and bone from the most recently deceased herd animal into one pot to make our soup for the day. In the other pot— older and tarnished black— she tossed the scraps, peels, bones, and gristle, for the dogs. She poured the dregs of last year’s *chuño* reserves onto the mortar and pestle and ground them into a fine powder, sweeping it into the dog’s pot along with a final glug of animal blood from a plastic gasoline jug.

As the pots softly simmered, Consuelo kept a watchful eye on the animals outside, springing up from her crouched position and darting to the door to shout— *ukya, yaw!*— at the sheep, a small herd of thirty, growing restless in their pen. Her herd of alpacas, near 100 animals mixed with half a dozen female and young llamas, stirred with soft keens and grunts, rising slowly, one by one, from their tucked positions on the frozen ground between the houses. Consuelo ladled two big bowls of soup for us and poured the thick, gray-brown sludge of dog-soup into overturned miners’ helmets tumbled on the front stoop for the dogs: two large black herding dogs, Sultira and Chinchirkumacha, and the little sausage-dog, Chulu Banditu. Chulu—who Agustín often smuggled in his jacket to sleep in the warmth of the hut at night— made a hopeful dash for the door. *Qatipuy!* Consuelo gingerly instructed me, shoo him out! With a kick to the rump he was back outside, and we sat for a moment to eat, a brief moment of calm in the morning’s rush.

Around seven in the morning, sunlight swept swiftly across the narrow valley and melted the night's frost that coated the grass and the backs of sleeping animals. The collective restlessness was palpable, even from inside the hut: the animals were beginning to wander, the space between the neighboring herds shrinking. Consuelo darted repeatedly to the door to whistle and shout at them, cursing under her breathe as her soup sloshed onto her skirts and the floor. The animals were always difficult to restrain in the mornings, especially when neighboring herders preemptively followed their herds up into the valleys, thereby setting all the animals in the *puñuna* into motion. I hurriedly finished eating as Consuelo packed her things for the day, periodically dashing out to the yard to stall the animals by hissing and whipping at stragglers on the herd's edge. She kept a keen eye on her neighbors across the valley, complaining that they were moving out to pasture too soon and prompting her animals to follow along. Shouting to her cousin next door, she asked where they were taking their animals for the day— "*Mayta rinkis?*" "To the valley of Illachiy," they yelled back. Tossing her *q'ipina* on her back and her radio over one shoulder, Consuelo made a quick calculation, anticipating where the three families across the valley would be going based on the previous day's herding. I was only halfway into my Bean Boots, my felt hat perched haphazardly on my sleep-worn braids, as we ducked out the door and sealed it hastily with a pile of rocks. Walking briskly towards the moving herd with whip-in-hand, Consuelo followed the animals down the valley towards Hatun Wayku. The day's herding had begun.



Figure 25: the well-worn paths of Antapata, traversed by humans and animals for generations

* * *

A herder's daily life in Chillca is organized—temporally, spatially, and socially—through a continuous attentive engagement with their animals. Especially in the dry season, when the rains are long gone and the wild winds of August have lifted away whatever strands of dry grass remain, the urgency of hunger grips the herd and the herder alike and the day's work accelerates, punctuated by the aberrant movement of increasingly restless animals. In this chapter I attend to the ways in which the work of herding—evaluating, identifying, and taking advantage of preferential pastures—is accomplished cooperatively by herders and herd animals alike in the daily work of herding. The narrative arc of this chapter is structured around a single day in the life of a herder—September 9th, 2015—following Consuelo through the high valleys of the dry season hamlet of Antapata as she pastured her alpacas, sheep, and llama with the aid of her two herding dogs. In focusing on the minutiae of the everyday, I attend to the quotidian practices of recognition, communication, and cooperative labor through which herders and their animals coproduce their lived world. In doing so, I lay the foundation for understanding how herders detect disruption in the world around them—particularly the impacts of seasonal

fluctuations in water and pasture availability— and how, ideally, humans and animals coproduce the mobile strategies that allow them to respond to seasonal shifts by rotating pastures.



Figure 26: Herding Route, Sept 15, 2015

I specifically engage daily communicative practice as a form of knowledge-making by evaluating the communicative interactions that occur between herders and herd animals through the day. The work of herding (*michiy*) is premised upon a cooperative mode of engagement between humans and animals: humans do not continuously control or dominate their herd animals, but often trust in the intuitive knowledge and initiative of the animals themselves to accomplish the work of herding. In particular, herders rely upon animal knowledge of the grasslands to detect ecological shifts, and then make inferences about pasture health by reading the cues their animals give them: ranging from contented ear-twitches to agitated stomps. They also work with animals to implement strategies in response to ecological change, recruiting and depending upon the initiative of lead alpacas, herding dogs, and the broader herd to accomplish the shared labor of moving to more promising pastures. The cooperative work of evaluating

grasslands and strategizing in response to changes is enabled through processes of mutual attunement between animals and humans that establish a shared interpretive frame, one predicated upon successful communicative exchange between animals and humans. I focus on acoustic signaling (in particular, the whistles and verbal commands of the herder and the behavioral responses of the animals) as key constitutive practices through which herders and their animals engage in the cooperative work of evaluating grasslands and strategizing in response to change.

Attention to quotidian forms of acoustic signaling yields insight into multispecies networks of ecological evaluation and strategic world-making in response to transformative climatic changes. In particular, the failure of acoustic signaling—when animals fail to respond to the herder’s whistles and commands—indicate moments of ecological and social disruption. As climatic shifts create disturbances in the grassland ecosystem of the high Andes, herders detect the emergence of disruption in the breakdown of communicative practices between animals and humans. As grasses become scant, herd animals adopt an increasingly agitated mobile state, which herders refer to as *k’ita*. I translate *k’ita* as “restlessness” in order to articulate the ways in which it indexes an entanglement of emotional and physical qualities: it is a state of agitation (anxiety, boredom, discontent) that coincides with unpredictable or aberrant movement (fidgeting, pacing, wandering, etc.). It carries a connotation of wildness, of operating outside expected conventions of reciprocal social engagement and communicative practice. Animals who are *k’ita* become increasingly fickle and unresponsive, refusing to heed the herder’s frustrated shouts and calls. The expectations of trust and intuition that undergird human-animal sociality break down into unpredictable states of madness and wandering. Within this shifting social field created by climatic distress, herders and animals struggle to coordinate the practices

of controlled movement that secure their ability to survive in a challenging and capricious socioecological context.

Human and Animal Interaction as Knowledge Production

In the high Andes, humans and animals are partners in world-making as well as world-sensing. This is not unique to the Andes, or to communities practicing what are generally considered animal-based livelihoods (hunting, fishing, herding, etc.). Rather, humans and animals (as well as other forms of non-human life) are involved in collective projects of world-making through a wide variety of relationships and modes of interaction. In the past few decades, the discipline of anthropology, alongside allied fields in the social sciences and humanities, has staked itself at previously held boundaries of human and non-human, where the permeability of contact zones between species and biotic communities reveal their ultimate interdependence and mutual emergence. Anthropologists have deliberately decentered *anthropos* as the focus of inquiry, and have expanded the field to consider broader networks of sociality and relatedness with other beings and things alike. In shifting the analytical focus on the multimodal “entanglements” of human communities with a multitude of organisms with which we share a history, scholars are bringing new insight into classic anthropological topics of kinship and relatedness, property and exchange, signification and meaning. This recent orientation to the non-human has been termed the interspecies, multispecies, or simply “species” or “animal” turn in anthropology (K. Anderson 1997; Kirksey and Helmreich 2010; Livingston and Puar 2011) and merges with the broader field of animal studies (Mullin 2002). Multispecies ethnography⁷⁰

⁷⁰ The term “multispecies ethnography” originates from a 2010 special issue of *Cultural Anthropology* spearheaded by Eben Kirksey and Stefan Helmreich, in which they define it as an emerging “genre of writing and mode of research,” that brings various entities formerly relegated to the margins of anthropological concern into the foreground (Kirksey and Helmreich 2010).

intersects with other theoretical frameworks, such as Hugh Raffles’ “analytics of entanglement” (2002) and Eduardo Kohn’s “anthropology of life,” which urges for an anthropology that “is not just confined to the human but is concerned with the effects of our entanglements with other kinds of living selves” (2007, 4).

Various articulations of multispecies ethnography have gained prominence as a particular genre in the past two decades. This may be due, in part, to the robust scholarship emanating from the Amazon, such as that by Hugh Raffles and Eduardo Kohn, as well as Eduardo Viveiros de Castro and Philippe Descola. This scholarship has afforded critical theoretical space to the ontological premises and modes of relation of Amazonian communities, as a means of challenging the analytical permanence of nature-culture dichotomies in Western schools of thought.⁷¹ Additionally, some argue that this recent attention to the non-human could also be considered a theoretical reckoning of the “anthropocene” (Crutzen and Stoermer 2000). Since the industrial revolution, human activity has irreversibly altered atmospheric, oceanic, and terrestrial ecosystems, while practices of biomedicine have recruited a myriad of non-human participants into processes of human life and death. Arguably, these developments have rendered our interdependence with non-human others more readily palpable, thereby presenting new opportunities for inquiry into the boundaries and particularities of human existence.⁷²

However, anthropological attention to non-humans has a long history, most notably in early studies of totemism that emerged initially out of accounts of Arctic human-animal

⁷¹ However, Descola and Viveiros de Castro envision much different outcomes from their respective frameworks—while Descola forges a relativist universality, Viveiros de Castro seeks a much more radical interrogation and distarticulation of dominant ontologies. The difference between their views of perspectivism has been described by Latour as that between perspectivism as “type” vs. perspectivism as “bomb” (Latour 2009).

⁷² Although it is worth noting that it is precisely these technologies and infrastructures which can also obscure our independence with non-human others, as Elizabeth Roberts has argued (Roberts 2013, 565). Our reliance on resources allow us to overdetermine our own autonomy by making our reliance on them more difficult to perceive (565). Furthermore, human projects that seek to articulate and reproduce a binary world (for example, health interventions based on pest eradication, warfare technologies etc.) are often themselves created through the very entanglements they seek to destroy (Mitchell 2002; Nading 2012, 2013; Lowe 2010).

relationships and the Anishinaabe concept of *ototeman* (D. G. Anderson 2017). Irving Hallowell was among the first anthropologists to explicitly consider the possibility of sociality and social personhood beyond the realm of the human, coining the term “other-than-human persons” during his work with the Ojibwa in the 1950s. Hallowell argued that social scientists needed to abandon their commitment to a notion of “personhood” restricted to human beings alone, if they ever hoped to learn about the dynamics of social worlds outside their own. Human-centric notions of sociality fail to adhere in contexts where personhood is not, in fact, “synonymous with human being but transcends it,” as was the case among the Ojibwa (Hallowell 1960). Although he was perhaps the first to consider non-human persons, Hallowell was not the only anthropologist to deem non-human others socially significant. Notably, Evans-Pritchard’s work among the Nuer and Roy Rappaport’s work with the Tsembaga Maring were both groundbreaking in their attention to the salience of human-animal relations and their central import to social life (Evans-Pritchard 1940; Rappaport 1968).⁷³ The foundational texts of Claude Lévi-Strauss, Alfred Radcliffe-Brown, James George Frazer, Edward B. Tylor, and Lewis Henry Morgan all likewise devoted significant attention to animals and other non-humans in crafting their theoretical approaches to human social and cultural existence. Gillian Feeley-Harnik’s research on Lewis Henry Morgan attends to the profound ways in which theorists were deeply inspired by the “matrix of relations with other living and non-living beings” that constituted their lives and animate their life’s work (1999, 217). The traces of non-human others were thus not only present in anthropological scholarship, but fundamental to its very formation. Notions of kinship, heredity, and descent arose out of the close and reflective engagement of researchers with non-humans—Morgan’s beavers as well as Charles Darwin’s finches and pigeons (and pigeon

⁷³ See also Douglas 1957; Geertz 1973; M. Harris 1966; Kuper 1982.

breeders) (Feeley-Harnik 2004). In sum, anthropologists have long known that “to be human... is to be with animals” (Porter and Gershon 2018, 1).

What is perhaps new about contemporary multispecies ethnography is not the attention to plants, animals, and other entities, but rather how this emphasis seeks the suspension of human exceptionalism (Boyd 2017; Haraway 2008). Instead of taking human social worlds (narrowly defined) as the basic starting point and implicating animals and plants only as objects of human concern, anthropologists are pursuing lines of evidence *through* biotic materials and processes, tracing relatedness across species bodies, and challenging the autonomy of *homo*. Contact zones include sites of domestication and production (Degnen 2009; Ellen and Platten 2011; Paxson 2008; Tsing 2012), health and disease (Haraway 1997; Lowe 2010; Nading 2012), science and discovery (Franklin 2007; Helmreich 2009; Rader 2004), and war and conflict (Kosek 2010; Mitchell 2002). In each of these zones, new and surprising entities enter into the analysis, and their material qualities have varying implications for the methods and theoretical framing of the analyst. While other species of animals are perhaps more readily recognizable as bounded, coherent entities, recent scholarship has also incorporated pathogens, parasites, and microbes, and even unseen forces and indistinguishable matter.

In this chapter I am concerned with the ways in which humans and non-human others produce shared knowledge about the world in the particular context of pastoralism in the high Andes, specifically through modes of human-animal communication. While there exist multiple mode of communication (including, in the context of Andean pastoralism, bodily movement and gesture as well as singing (Arnold and Yapita 2001), storytelling (Urton 1985), and dream-states, I am interested primarily in the vocal cues utilized in the work of herding, since this was the most prominently and widely-used medium of human-animal communication in Chillca, and one

which I contend has strong analytical import for understanding cooperative ecological knowledge production.

The coproduction of knowledge, as a process through a network of relationships between human and non-human actors reach a “discourse of clarity” (Callon 1986) is a significant and complex anthropological project, and it requires that I be transparent about how I am delimiting my analysis, in terms of the network of entities that are included in the analysis and why. In this fieldwork, I relied primarily on Andean herders as the analysts and this commitment is reflected in the boundaries I have chosen. I have eschewed a broad, all-encompassing, and a priori agentivity for all potential *actants* (Latour 1993) in the Andean world, but focus my attention on the specific practices and modes of identification and objectification through which herders bring non-human entities into significant being in particular contexts, and with what consequences. As such, I give less weight in this chapter to the specific methods and modes through which alpacas, llamas, and sheep *themselves* come to know the world. Rather, I am more concerned with how the herders engage with the animals under the assumption that the animals are indeed knowledgeable interlocutors, and the practices and actions that emerge out of that cooperative relationship. Furthermore, I do not treat non-human animals as non-human persons, because that is not how they are treated in Andean ontologies. It would be inappropriate, for example, to apply Amazonian perspectivalism (Viveiros de Castro 1998, 2004) to an Andean context, given that the relationships between humans and animals are crucially different. While non-human animals are social interlocutors and co-producers of ecological knowledge, they are not considered non-human *persons*, and there is indeed a strict hierarchy through which they are distinctly subordinate to humans (as humans are to *apus*, for example).⁷⁴ While what I describe is

⁷⁴ However, Eduardo Kohn (2013) acknowledges that in an Amazonian context there *are* status differences between humans and animals, which shape the ways that humans speak to animals (for example, preventing the animal from

a “relational epistemology” (Bird-David 1999) of world-making and world-sensing, it is not one shared between *a priori* social equals— in fact, critical ecological knowledge is produced in the encounters in which animals defy routinized social roles in which they are expected to heed the wishes of the herder. However, herders acknowledge that their animals are sentient and knowledgeable, with intentions and desires, and often acknowledge and heed those desires. As I will explain in detail in a later section of this chapter, humans and animals constantly recalibrate their roles as subordinate and dominant actors, and animals as well as humans are regarded as having different capacities depending on “what happens between them... which itself depends on the ‘affordances’ of events involving [them]” (Bird-David 1999, S75).

As will become apparent, my engagement with multispecies ethnography in this chapter extends only to the animals with which humans share the work of herding— alpacas, sheep, llamas, and dogs.⁷⁵ There are of course other animals that are relevant interlocutors, including predators such as foxes and condors, and animals that provide *señales* of potential weather patterns.⁷⁶ There are also the significant landscape beings of the pasturelands and surrounding mountains, which I will discuss in a later chapter. My omission of other potential *actants* from the conversation— such as grasses, wetlands, glaciers, rainfall, etc.— lends itself to the critique that this work is ultimately anthropocentric (Smart 2014). I am comfortable with that critique, given that I am indeed more interested in who and what the herders themselves consider to be

being able to speak back, lest the human slip from privileged human subjectivity to canine subjectivity). And in the Andean ontologies, camelids do inhabit parallel social worlds with humans, unlike other animals— in myth, their origins are similar to humans, in that both originated from lakes and springs (Steele and Allen 2004), and like humans, camelids go through ritual rites of passage (including marriage, sexual maturity, etc.) They are distinguished in this way from wild animals.

⁷⁵ My analysis of herding dogs in this chapter is sparse, which reflects the comparatively minor role of dogs as herders in this part of the Andes. Dogs are raised with the herds as guard animals, and are rarely if ever used to direct the movement of the herd beyond compelling them forward, as I will explain later.

⁷⁶ For example: small birds (*waychu pichinchu* and *chusllunku*) announce the future arrival of rain with a call (*kak’ay kak’ay kak’ay* for *waychu pichinchu* and “*shhhchuchuchuchu*” for *chusllunku*) or by gathering. Likewise, certain cloud patterns (forming small spheres [*k’umpachakuy*]) announce the arrival of drought.

critical interlocutors in ecological knowledge production. By grounding questions of non-human sociality in the ontological premises of one's informants, anthropological inquiries into multispecies assemblages can ask *when* and *why* certain non-human entities enter into significant being, rather than assuming that everything is necessarily significant. The question of when and why humans attribute agency to things and entities is critical, and is an important question worthy of being raised in the multispecies discussion.⁷⁷

Ultimately, this project is concerned with the experiences of the people living in the high Andes, rather than that of the omnipresent theorist operating at a broader scale of assemblages. On the whole, multispecies ethnographies yield a common recognition that the lines and boundaries that separate species are everywhere blurred, due to the mutual emergence of humans with disparate species and entities through shared histories. However, a crucial point also seems to be that boundaries are everywhere made, albeit through different practices and along varying lines. Focusing on the particular moments in which non-human entities are called into, drawn out of, and implicated in social worlds brings in critical questions of closeness and distance, agency and responsibility, legitimation and dismissal (Choy 2011; de la Cadena 2010).

The Day Begins: The Cooperative Work of “Driving” the Herd

Antapata, September (Dry Season) 2015 - Late Morning

⁷⁷ Alfred Gell's notion of agency is perhaps useful here, because it does not assume that agency *just is*, let alone that it *just is everywhere*, but that it is located and attributed through practice: “agency is attributable to those persons (and things) who/which are seen as initiating causal sequences” (1998, 16). In Gell's framework agency is fundamentally social and relational, and it is always and only recognized after the action has happened— art objects only acquire agency (of a second-order) when they are “enmeshed in a texture of social relationships” (16). Agency becomes “invested in things, or can emanate from things” only in and through practice (16). By returning to human practice, we get a sense of how and why certain non-human entities are agentive, animate, social, or enminded in particular moments or contexts.

Setting off from Antapata, the alpacas quickly took to the worn paths to Illachiy valley that cross-cut the hillside behind Consuelo's hut, the steady flock formation trained towards the base of the valley opening. Consuelo ran up the steep hillside and positioned herself above them, redirecting their movement down to the lower corridor to Hatun Wayku valley. Following behind for a number of paces until the animal's collective momentum was steady and directed, she then turned back and raced down the hillside to the corrals. The sheep were agitated in their pen, crowding the gate as Consuelo jumped over to fetch the newest lamb (*uña*), born the night before, to take it and its nursing mother to the reserve enclosure (*tullu cancha*, lit. "skinny corral"). Too many lambs have been lost already that season, their mothers unable to convert the scant grasses into sufficient milk—the body of another one lay just within the door of the hut, soon to be boiled for meat. The newest lamb was a delicate, tiny thing that Consuelo had named *hukucha*, "little mouse." Tucking him under one arm, she drew his mother out of the pen while kicking back the other animals. She placed them both in the reserve grasses surrounding her hut, where a spindly sprinkler had been irrigating the long grasses for the past few months. It was frozen solid that morning, but hints of green poked out from underneath the morning frost. Racing back to let the rest of the sheep out of their pen, she called back to me over her shoulder to tell me to lead a young llama from the resting enclosure further down the valley. The alpacas were already disappearing into the mouth of Hatun Wayku below as Consuelo released the sheep tumbling onto the hillside.



Figure 27: Herding with a *wark'a* (woven whip)

At fifty years old, Consuelo bounds behind her animals with an impressive speed and agility, launching rocks with her whip (*wark'a*) at the hind feet of straggling animals with startling accuracy. Consuelo's skills as a herder were especially apparent each time we took the animals through the challenging corridor into Hatun Wayku valley. The widest of the three valleys in Antapata, Hatun Wayku splits into two slender gulleys: the southern wing is longer and narrower, with a wetland called Lluquchu Q'uchu at the center, while the northern wing is shorter and wider. At the base of the ridge that divides the two sides is Uqhu Wayku, the largest wetland.



Figure 28: Map of Antapata and Hatun Wayku

Both Uqu Wayku and Llusquchu are ideal locations for alpacas, full of the nutritional wetland grasses that they prefer. Sheep—less preferential animals in general, and more destructive in terms of their impact on delicate grasslands—can be brought there to drink water momentarily, but the spot is largely reserved for alpacas. Entering into Hatun Wayku thus presents a challenge: ideally one must deposit the alpacas near the wetlands, but then usher their sheep on to the drier pastures of the valley walls. On a given day, two herders will take their animals to Hatun Wayku, and one herder will be in Llusquchu with their animals, while the other herder occupies Uqu Wayku and the short ascending gulley behind it. Simultaneously redirecting both alpaca and sheep movement towards two different locales— all the while keeping the neighboring herds from mixing— is a challenging task, requiring incredible stamina to run up and down slippery valley walls to contain the animals along the valley floor.⁷⁸

⁷⁸ There is a particular type of movement, called *p'itay* in Quechua, that becomes part of the bodily *habitus* (Bourdieu 1977) of the herder: short bursts of movement, accompanied by quick, staccato footwork, keep the herder light and nimble on the hillside and prevent her from slipping.

With the alpacas trained towards the wetland and moving in one cohesive group, Consuelo turned her focus to the sheep, which continued to scatter like marbles. She shouted bitter insults at them while chasing them up and down the hillside, sometimes backtracking, encircling and concentrating the herd into a tight group before resuming her position behind them, directing their movement towards the southern wing of the valley.

* * *

Trust, Domination, and Cooperative Herding

“Herding” is perhaps best understood as an umbrella term for a variety of distinguishable tasks that contribute to the movement, protection, and care of the herd. Herders in Chillca refer to the work of herding or pasturing as *michiy* (and the herder as *michiq*). However, this term isn’t used to describe the variety of tasks involved in that work. For example, if one asks a herder if she is herding (“*michishankichu?*”), the answer would be in the affirmative if the herder was, in general terms, out in the pasture with their animals.⁷⁹ However, if one asks a herder in the middle of a specific task if they were *michiy*, the answer would be no, and the herder would respond with the more specific task they were accomplishing (i.e., *qhatishani*, *mullumushani*, etc.).

The term used most often for the task of bringing animals to pasture is *qhatiy*, which describes the task of moving animals from one place to the next by urging them on. In the dictionary of the *Academia Mayor de la Lengua Quechua*, *qhatiy* is translated as “*arrear, apremiar, acosar a los animales y al hombre*” (to urge on/ spur on, hurry, or pursue animals or people), yet in Quechua it carries a stronger connotation of accompanying or even trailing behind, rather than moving by force: the verb *qhatikuy*, for example, means “to follow,”

⁷⁹ A common way of greeting someone in Chillca is to venture a guess at what they are doing, for example asking “*samashankichu?*” to someone who appears to be resting (*samay*).

implying that the direction of the movement is determined by that which is being followed, not that which is following. Thus, while this task is often translated into English as “droving” or driving the herd, the lexicon of herding in Quechua revolves around the premise that the herd’s movement is not controlled by the herder. The task of the herder, rather, is to guide the movement of the herd in the desired direction, while identifying and obstructing the places where they may spill over. The herder guides the animals in the same way that a canal guides water, and indeed, the verb *hark’ay* describes both the action of obstructing animals and redirecting water in a canal.

<i>Verb</i>	<i>Task</i>
Aysay	To lead on a leash
Chayachiy	To make arrive (e.g., bring llamas in from hills)
Chanqay	To move forcefully ("throw" or "launch")
Hark'ay	To obstruct movement
Huñuy	To concentrate together
Kutichiy	To make return
Michiy	To herd (general)
Mulluy	To round up
Qarquy	To take animals out from an enclosure
Qhatiy	To urge, spur on, hurry, or pursue
Saqiy	To leave (somewhere)
Siqachiy	To make ascend
Tiray	To chase, urge forward
Urmachiy	To make descend
Winsir	To overtake, dominate, overpower

Figure 29: Selected herding terms. Verbs are modified with the infixes *mu-* and *pu-* to indicate directionality. *Mu-* indicates a directional action *towards* the speaker/ speech act, or ongoing non-directional action in a location separate from the speaker/speech act (i.e., *mullumuy* to round up towards speaker, *michimuy* to pasture/herd in a location distant from current speaker/ speech act. *Pu-* indicates a directional action *away* from the speaker/speech act (*tirapuy*, to chase away from the speaker/speech act) (Kerke and Muysken 1990).

The inherent sociality of the animals themselves is at the heart of their partnership with humans. Alpacas and llamas share a long history of co-domestication with humans in the Andes, and herders selectively bred camelids over generations that were gregarious, intuitive, and

yielding to humans, but also crucially self-directed. Sheep, however, have different behavioral affordances and metabolic needs. Compared to llamas, sheep have greater energetic needs in relation to their metabolic weight, which produces higher grazing selectivity (San Martin and Bryant 1989; Tichit and Genin 1997, 177). They require a wider range of plant availability to meet their nutritional needs and are thus more easily prone to agitated wandering. Furthermore, the behavioral differences between these animals shape the work of herding in significant ways. In particular, the flocking tendencies of alpacas and llamas vary significantly from sheep. Herds of camelids have an internal dominance hierarchy through which a small number of adult males (sometimes called the herd “captains”) lead the herd. Once those individuals are trained in one direction, the rest of the herd will follow in a largely coherent group. Sheep, however, are allelomimetic, prone to imitating the actions of random herd members (Orlove 1977a, 208). Any number of changes in the herd can produce a ripple effect through which the animals will start to shift direction, run, or scatter as if by random. Whereas with alpacas and llamas, the herder can direct the movement of the herd by engaging with a few key individuals and lightly urging on straggling animals, the work of keeping a herd of sheep together is constant and exhausting. Herders explain that while it is easier to get the sheep moving initially, it is difficult to control the precise direction or speed of that movement, and especially difficult to contain them in one place for an extended period of time. While the herder can leave their alpacas in a high valley on their own, sheep require constant attention. Only with their sheep do herders consistently describe the work of herding in terms of domination, and the task is often defined as overtaking or overpowering: *winsiy* (from Spanish *vencer*: to overpower, dominate, conquer). One has to position themselves in front of the moving sheep and forcibly turn them back with aggressive, large movements, typically accompanied by a slew of sheep-based insults. “*Ukya ñakayta*

winsini, duminani” Consuelo would repeatedly tell me, breathless, as she finally got them into a momentary formation: the work of conquering (*winsiy, duminay*) is accomplished, but only through much suffering (*ñakay*). If not adequately controlled, sheep can also dominate humans (as reflected in the warning, *winsirasunman*, “they’ll overpower us”).

In his 1994 article “From trust to domination: an alternative history of human-animal relations,” Tim Ingold argues that hunting and herding are based upon contrasting principles that govern the ways in which humans and animals encounter one another (Ingold 1994). Based on analyses of Australian and North American hunter-gatherers such as the Cree of northeastern Canada, Ingold argues that the relationship between human hunters and the animals they hunt are based on social contracts of balanced, reciprocal exchange that hold animals and humans as equals. In these particular human-animal ontologies, a hunt can only be successful if the animals give themselves to be hunted— therefore, hunting is based on principles of trust and reciprocity, and the relationship between humans and animals is one of kinship and mutual cooperation. Pastoralists likewise depend on animals, Ingold argues, but unlike hunters, herders establish an asymmetrical position over their animals. The relational mode between human and animals thus shifts from one of trust to one of domination. Ingold is careful to point out that this does not map on to a shift from engagement to disengagement, or a distinct ontological split between human society and animal nature— rather, it is a “change in the terms of engagement” between two communities (Ingold 2000, 74). While both hunters and herders acknowledge that animals are capable of sentience and autonomous action, hunters respect this autonomy while herders seek to “overcome [it] through superior force” (2000, 74). Through practices of domestication, breeding, feeding, exchanging, protecting, and killing animals, pastoralism thus operates on the principles of mastery, control, force, manipulation, and ownership.

Given the behavior affordances of sheep, the work *does* indeed require the herder to continuously overpower and control the animals. However, the mode of relation is crucially different with alpacas and llamas, and Ingold's argument has been met with resistance by researchers in the Andes and elsewhere who have found that the relationship between herders and animals seems more akin to what Ingold would consider "trust" (Dransart 2003, 7; Stépanoff et al. 2017). The essence of trust, according to Ingold, "is a peculiar combination of autonomy and dependency" (Ingold 2000, 70). The human does not impose or force the animal to bend to their will; rather they trust and expect that the desired action will emerge through the intuitive volition of the animal. In a comparative study of North Asian herders, researchers noted that herders engaged with their animals not through a relationship of dominance and control, but cooperation (Stépanoff et al. 2017), and likewise Penny Dransart found the relationship between herders and their alpacas and llamas in Isluga, Chile constituted a cooperative partnership between human and animal volition (Dransart 2003, 7).⁸⁰

I would argue that there isn't a definitive opposition, or even a continuum, between trust and domination in herding. They aren't necessary contrastive modes of engagement, but shifts in stance in the interactional encounters of herding, and the work of herding necessarily requires both— sometimes simultaneously. As previously noted, during the daily work of herding in Chillca, herders regularly encouraged and took advantage of the animal's environmental skill, social organization, and gregarious disposition in producing action that was equally desirable for the herder as well as the animal. There are, however, critical moments when the herder *does* undertake more forceful action: when relocating a herd from their desired location, separating

⁸⁰ Other models of domestication, from David Anderson's (2017) review of herding in the circumpolar north, reference "gradations of relationships" including: "creating concentric circles of habituation[...], selecting special topographies to naturally funnel animal movements [...], or invoking a sense of equality in relationships through 'symbiotic domesticity.'" (2017, 141)

individual animals from the larger herd, or when containing them in an enclosure for shearing, medicating, slaughter, or sale. In these instances, a variety of physical and acoustic cues signal to the animals that the quality of the relationship has shifted.

Human-Animal Communication: Whistling, Vocalizations, and Theory of Mind

A shared understanding of shifting roles in an interactional framework requires a mutual construction and acknowledgment of meaning. As I've argued earlier, the work of herding in general requires mutual recognition between herd animals and humans: a process of intersubjectivity established through various forms of mutual attunement (Haraway 2008; Smuts 1999). Humans and animals alike communicate shifts in orientation and stance within an interactional framework through both physical and acoustic modes. For example, humans communicate crucial information through physical movement: the running herder with her shuffling skirts signals the boundary of the herd's movement, the exaggerated up-and-down shooing movement of the herder's arms urges the herd into an enclosure, or the wide arc of a whip hints of a launching pebble. Shifts in animal movement likewise communicate vital information to the herder: a sudden ripple of agitated movement through the herd might let the herder know that the animals have been startled by a predator (or a gust of wind and a flying plastic bag, as is more often the case).

Acoustic signaling, on the part of both animals and humans, communicates interactional shifts that can likewise be analyzed within the sociolinguistic frame of stance and stancetaking that evaluates the speaker's self-positioning in an interactional context (DuBois 2007; Jaffe 2009).⁸¹ I focus specifically on the acoustic signals used by herders to articulate a shift in stance,

⁸¹ As Jack Du Bois articulates, stancetaking is social action that is rooted dialogically: its interpretation relies on the successful interpretation of previous stances ("as stances build on each other dialogically, the analogy implied by

from one of cooperative to dominant action, for example. The central skill of herding is the mastery of an extensive and rich lexicon of vocalizations— whistles, hisses, grunts, and shouts— each of which corresponds to both the specific species of animal to which it is directed and a desired action.⁸² Each household develops a distinct repertoire of whistles, such that the quality, sound, and range of whistles can vary between herders. However, these acoustic signals are also partly conventionalized, in that there is a consistent correspondence between particular whistles and a common set of desired actions: move forward (away from herder), move along (with herder/ herd), come back (towards herder), and stop, each of which has distinct whistles as well as vocal commands. Short, quick whistles and vocalizations signal an urgent action (such as removing animals from an enclosure) while longer, sustained whistles and shouts usually signal the continuation of an on-going action (to urge animals to continue walking or to keep following the herd).⁸³ Importantly, these whistles are not taught through any formalized training, but become part of the shared repertoire of herding over the course of the shared lives of the herder and animals.

their structural parallelism triggers a series of interpretative and interactional consequences, which... carry significant implications for the interaction at hand” (2007, 140). This is predicated upon the intersubjectivity of those involved in the interaction, and shared sociocultural frames that “mediate the consequences of their actions,”: “the act of taking a stance necessarily invokes an evaluation at one level or another, whether by assertion or inference. This in turn implicates those dimensions of sociocultural value which are references by the evaluative act. Sociocultural value is mobilized and deployed through stance processes” (DuBois 2007, 141).

⁸² The centrality of vocal commands to the work of herding reflects the prominence of sound and vocality in Andean social life. Sound is vital to experience, as evidenced by the deeply onomatopoeic Quechua language. Pain, pleasure, discomfort, joy, and fear are audible, and become vocalized through storytelling. For example, headache is described as “*raqqq nispa*” (“my head was saying ‘*raqqq*’”) while eye pain [*suru*] was described as “*qhuqh hh, nispa*”. The use of “*nispa*” (said, saying) indicates that the pain is not only audible, but also spoken. These sounds are often integral to the identity of the phenomena itself: water sources carry the name of the sound they make (i.e. *liqliq pukyu*, i.e., the bubbling spring that makes the sound “*liq liq*”), and different types of wind are distinguished by their sound (*qaqa wayra*, for example, makes the sound “*q’uqh hh q’uqh hh*”).

⁸³ The conventionalization of herding whistles is common throughout the world: in communicative practice between sheep herders and border collies in the United States, for example, there is a consistent, strong correlation between acoustic structures of whistles and desired action. Short, rapidly repeated notes with a tendency to rise in frequency, serve as “stimulation signals.” Prolonged, descending single notes are “inhibiting signals” (McConnell and Baylis 1985).

However, the acoustic signals tend to differ significantly according to the species to which they are directed. A particular whistle signals to llamas that the herder wants them to move forward (a short, ascending whistle followed by harsh *kshhkk*) and a shout is used to urge both llamas and alpacas to stop (*halay, halay!*). Neither of these vocalizations is used to communicate similar demands to sheep, and the llama-whistle is never used with alpacas. The extensive lexicon of whistles— ascending, descending, short, long, punctuated, trailing, etc.— may sound virtually indistinguishable to an untrained ear, but to the herder and the animal they are immediately identifiable. It is possible, for example, for a herder to distill a herd of sheep from within a large mixed herd spread out across a vast hillside through whistles and verbal utterances alone.

According to herders, due to their capricious nature the sheep require more urging, and are thus subject to a very distinct repertoire of vocalizations. The word “sheep” (*ukya*) lends itself well to an urgent repetition *ukya-ukya-ukya* as well as a strained, frustrated shout: *uuuuukyaw!* shouted periodically from a distance when the herder can see the animals wandering away from the centralized herd. While *ukya-ukya-ukya* is often used to compel sheep forward, it can also be used to alert the sheep to return to the centralized herd. A series of harsh *kshhh kshhh kshhh* sounds will prompt the sheep to change direction, although not necessarily in any particular direction. Conversely, *ch'ita*, the word for a juvenile pet animal, is used to beckon sheep towards the speaker, and is repeated in a soft high-pitched tone (*ch'ita-ch'ita-ch'ita*). When the sheep are being particularly difficult, the usual commands devolve into a string of obscenities yelled in rapid order: *hawalla saqra!* (Stop already, you devil!), *mayta rinkis millaypuni!* (where are you going, bad ones!) *kutiy carajo!* (get back here, bastard!), *kukuchi ukya!* (evil sheep!).

<i>Vocalization</i>	<i>Animal</i>	<i>Desired Action</i>
<i>Kanchakanchakancha</i>	Alpaca, llama, sheep	Enter enclosure; herd up tightly
<i>Yaw!</i>	Alpaca, llama, sheep	(Emphatic)
<i>Hawa(lla)</i>	Alpaca, llama, sheep	Advance
<i>Kshh-kshh-kshhh</i>	Alpaca, llama, sheep	Change direction
<i>Eeehn - Eeehn</i>	Alpaca, llama	Return to herd (mimics bleating <i>cria</i>)
<i>Eeench - Eeench</i>	Alpaca, llama	Move towards or with speaker
<i>Halay</i>	Alpaca, llama	Stop
<i>Sayay</i>	Llama	Stop
<i>Ukya - ukya - ukya</i>	Sheep	Stop
<i>Ch'ita-ch'ita-ch'ita</i>	Sheep	Come toward speaker
<i>Kutiy</i>	Sheep	Return to speaker OR the herd
<i>Baaaa</i>	Sheep	Return to herd
<i>Wuqsh-wuqsh-wuqsh</i>	Dogs (alpaca, sheep, llama)	[Dog] Chase, pursue; [other] Advance
<i>Ukshh-uksh-uksh</i>	Dogs (alpaca, sheep, llama)	same
<i>Pasay (yaw)</i>	Dog	Retreat, go away
<i>Tiray</i>	Dog	Chase, pursue, (literally "push")
<i>Muquramuy</i>	Dog	Attack
<i>Gundur-gundur-gundur</i>	Dog	Look for condor, encircle herd.
<i>[Palatal slurp]</i>	Dog, child, sheep	Stop, retreat

Figure 30: Selected non-whistle vocalizations, corresponding animal, and desire action.

Some of the vocalizations engage or index other animals outside of the interaction, either through verbal recruitment or mimicry. One of the most common standard commands, *wuqchi*,⁸⁴ is used to urge dogs to bark or chase, but it is also be used in the absence of a dog to signal to the herd animals that a dog may begin to chase them.⁸⁵ As such, it is particularly effective in urging the animals (alpacas, llamas, and sheep) forward, away from the speaker. Herders also mimic the bleat of a baby animal to prompt straying alpacas and llamas to return to the herd. The high-pitched whine (*eehn eehn*) mimics the sound of an *uña* in need of its mother, thereby compelling

⁸⁴ Represented in the dictionary of the Academia Mayor de la Lengua Quechua as “*uksi, uksi! – interj. fam. Voz con el que se azuza a los perros a ladrar y investir [sic],*” voice with which dogs are incited to bark and pursue.

⁸⁵ Dogs are central members of the herd-household and recruited into the work of herding as well as household protection. Beyond *wuqchi*, their commands include *tiray!* (push/ propel the herd), and in the event of a predator, *muquramuy* (attack, bite). In the wet season, when condors pose a threat to newly born *uñas*, herders will signal to the dogs the presence of a condor with a low-pitch call *gundur-gundur-gundur*, prompting the dogs to look to the sky, locate the condor, and encircle the herd.

the animal to return to the herd in search of her young. Herders make a “*baaa*” sound to prompt a similar response from sheep.

Through vocal commands, herders establish a relative positionality between animals and humans, one that allows for shifting levels of relative control, dominance, and subordination. While certain calls express the dominance of humans in the interaction, other calls are meant to engage the intuitive skills of lead animals, dogs, and the broader herd. Crucially, herders do not consider human-animal communicative exchanges to be merely reliant on trained stimulus response sequences— rather, herding calls and whistles are meant to engage the animals as sentient, social beings. Both in the accomplishment of cooperative tasks, as well as in the frustration when that work falls apart, herders acknowledge their animals as social beings with intuition, motivation, emotion, and desire. Herders often represent the emotional states, desires, and needs of their animals, for example playfully venturing an underlying motive to the animal’s behavior: “they don’t want me to get any weaving done today,” (“*saqrapuni haqay ukya, mana awanayta munashan!*”) or more often through direct quotation: watching a herd of sheep eating peacefully in Llusquchu, Consuelo voiced their contentment: “Why would I leave, I’ll sleep here!” (“*imayna risaq nuqa, nispa, kaypi puñuyman*”). They also the voice the animals talking to one another: “let’s go this way” (“*kayman risunchis nispa*”).⁸⁶ These utterances reflect assumptions about the intentional capacities of animals. For example, in the United States, sheep behavior is often attributed to their lack of intelligence, dependence on humans, and inability to act or think independently (Robin Queen 2018, pers. comm.). In Andean Peru, however, sheep

⁸⁶ Interpreted through Goffman’s participation framework, these interactions suggest that herders routinely embed one set of participation roles within another, such that animals are the principals of the discourse and humans are the animators (Goffman 1981, 1983). Wild animals are also voiced: vicuñas say “*itikiw itikiw itikiw, runaqa runaqa runaqa*.” *Itikiw* is an expression communicating fear, and *runaqa* (person) signals their recognition of people approaching. Also used with objects: once, Consuelo was looking for a stone that she had saved to give to me, but she couldn’t find it: “It’s hiding [*pakakushan*]”, she said before voicing the stone: “Where are we going? I don’t want to go!” [*mayta risunchis, mana riyta munashanichu*].

behavior is attributed to their mischievousness, presupposing the capacity for comprehension, intentionality, and desire to be playful or malicious.

However, like all social beings (including humans), animals are not enminded by default. In other words, the ontological status of mindedness (possessing intents, desires, and emotions) does not exist *a priori*, but is enacted through practice in interaction. As Bruce Mannheim and Guillermo Salas Carreño have argued, in Southern Quechua ontologies, objects, places, and animals do not have agency in an abstract sense, but come into being in and through linguistic, material, and social practice (Mannheim and Salas Carreño 2014). Theory of mind—the ability to attribute knowledge and mental states to others—is partially developed in humans through language socialization, which in Andean herding communities includes as a central component the development and training of animal-directed speech (Premack and Woodruff 1978; B. Smith 2012). Animals come into being as agentive beings in and through the daily practices of human-animal communication. However, as is the case with all social beings, the animal’s agency is scaled relative to other beings in the interactional framework. This is similar to Janis Nuckolls’ analysis of scalar animacy among Pastaza Quichuas and Descola’s framing of a ‘ladder of animacy’ among the neighboring Chichams (Descola 1994, 2013a; Nuckolls 1996, 2010).⁸⁷ Through practices of human-animal communication, humans attribute mindedness to animals along a relative scale, such that it is not a switch that turns on, but a constant recalibration and ranking of relative mindedness: one being—an adult human, for example—might be understood to have more awareness, skill, or intuition in a particular interaction than a child, animal, or object. However, in other interactions, it might switch, such that an object, landscape feature,

⁸⁷ Janice Nuckolls’ analysis of Quichua ideophones reveals how certain linguistic features (the diversity, canonical length, and type of sound segments) reflect and confer relative modes of animacy and subjectivity. Rather than distinct and static levels of animacy between humans, animals, plants, and objects, there is a flexibility that Nuckolls describes as a “scalar view” of animacy.

animal, or child, might be the dominant participant, depending on the situation and the other participants involved.



Figure 31: Whistling to alpacas

Benjamin Smith made a similar argument in his work with Aymara herders in his article, “Language and the frontiers of the human: Aymara animal-oriented interjections and the mediation of mind” (B. Smith 2012). Smith undertakes a semiotic interrogation of animal-oriented interjections, particularly the “*shhk*” sound that is used towards a roaming alpaca, careless child, or wayward object. The use of *shhk*⁸⁸ constitutes an attempt to reign in the wayward animal/child/object, to make them act “according to fields of meaning that they do not acknowledge or fully understand” (B. Smith 2012, 319). By looking at the particular moments and participatory frameworks in which this interjection occurs, Smith argues that *shhk* establishes the addressee as a “quasi-agent,” evoking broader ideologies about the capacities of nonhuman actors. Its use by adults as well as children towards lesser social beings/entities

⁸⁸ In Chillca, a palatal slurp (inward airy sucking sound; similar to the inhale used when blowing on coals) is used in a similar way, particularly inside the household towards a dog or child.

implies a ranking of mindedness, revealing and mediating “a scale of enminded beings” (2012, 314). Instead of hard-and-fast ontological “types,” Smith’s examples demonstrate varying attributions of mindedness and intentionality to nonhumans and humans alike, enacted in social practice through the positioning of the participants in an interactional framework.

Much of this training in human-animal communication happens during childhood, since young children are always imitating their parent’s vocalizations. Consuelo’s 6-year-old grandson once made a *tsk-tsk-tsk* sound— a vocalization that expresses affection towards a human baby, as well as a juvenile animal such as a puppy, lamb, or *uña*— towards an adult dog and was quickly admonished by his great-grandmother. Puppies and other baby animals occupy a particular position vis-a-vis humans— they are allowed to approach people, receive cuddles and affection, and enter into spaces usually reserved for humans (houses, churches, town halls, etc.), because they are considered innocent, needing/deserving of extra attention, and frankly, cute. Adult dogs, however, are considered dirty, thieves, and bad luck. Using an affectionate *tsk-tsk-tsk* towards them establishes an inappropriate balance of domination and subordination between human and adult dog.⁸⁹ Conversely, it was considered quite adorable when Consuelo’s two-year-old granddaughter angrily cried “*pasay suwaq*” (a dog-oriented command, equivalent to “scram, thief!”) at adults who attempted to take something away from her. This mix-up was tolerated given that the child was herself considered a quasi-agent operating within a field of meaning she didn’t quite understand. As she gets older she will most certainly be corrected.

Alpacas, llamas, sheep, dogs, and other animals, objects, and social beings (including humans) are not agentive or minded beings *by default*, but their relative agentive positionality is

⁸⁹ When Melisa once made the *tsk tsk tsk* sounds with me, her mother explained that she was expressing affection towards me, as one would towards a child (“*ayna wawata munakuyku*”). As it turns out, bumbling anthropologist is also a child-like category of social being.

enacted through interaction.⁹⁰ This is significant because there are expectations of engagement and action inherent in the interactional frameworks between humans and animals: herders expect that when they use a particular whistle towards one animal, it will prompt the desired response, based on a history of interaction in which entities have established their relative positionality vis-à-vis others.⁹¹ For example, when a herder makes a particular whistle to urge a lead alpaca forward, or to compel a sheep to stop, or to keep llamas in formation, there is the expectation that those whistles will be heeded. Animals are regularly chastised for being disobedient (*mana qasukuqchu*)— a critique frequently leveled at people who neglect their social duties— further suggesting that herders expect their animals to act according to predetermined rules of engagement in certain situations. As I will discuss further in the next section, when these communicative signals fail, and entities act outside the conventions of their established interactional role (i.e., sheep ignore herder whistles, or young children make the incorrect sound to a dog), a predictable balance in the social order is damaged and needs to be repaired: through control, domination, and other forms of re-ordering.

Tracing Disruption and Reading Animals

Antapata, September (Dry Season) 2015 – Midday

The steep valley walls of the two wings of Hatun Wayku swoop around to the back of the valley, where they meet and extend down in a wide and tabled ridge, Chawpi Sinqa (Middle Nose). Halfway up the ridge is a small stone windblock (*kancha tiyana*), built by Consuelo's

⁹⁰ Similarly, in Hallowell's work among the Ojibwa, he puzzled over whether or not all objects marked linguistically as animate were indeed truly held to be "alive" (Hallowell 1960). He asked an informant whether stones, which are grammatically animate, were alive, and his informant answered, after a pause, "*some* are." Rocks had the potential to be animate, but that potential may or may not be actualized— an object was alive only when it was enlivened through practice.

⁹¹ These interactions reflect and reproduce broader ethos of fractal hierarchies in the Andes. See Descola's (2013a) explanation of Nathan Wachtal's theory of dual organization and quadripartitions of the Andean social world, which organizes society and the cosmos as a consistent, fractal hierarchy.

grandfather, where Consuelo and I would sit in the earlier hours of the herding day as the alpaca grazed below on Uqhu Wayku and the sheep continued their ascent into the southern wing of Hatun Wayku. Here, Consuelo set out the small battery-powered radio that was her constant companion, and rolled out the weaving project she had been working on, a narrow scarf for a regional weaving competition. When the animals are calm, the day's work can slip into a quiet tedium: the radio plays the daily news and *waynus*, announcing the time every half hour. Without the radio, the day could feel timeless, the hours stretching in the bright, stark silence of a dry ridge under a hot sun. The dogs lay out to sleep, and I'd write in my notebook and watch the rhythm of Consuelo's hands plucking strings of spun alpaca wool and rearranging them with the dry scrape of an alpaca-bone needle.



Figure 32: Consuelo on the high ridge above Hatun Wayku, with Ausangate in the distance

On an ideal day, the herder brings the animals to a particular spot where she can keep them more or less concentrated and watch them from an elevated position. The high and narrow valleys of Antapata, like *Hatun Wayku*, are ideal, as the steep valley walls provide natural boundaries for the herd as well as high perches for the herder from which she can mark the day's

boundaries, creating a sort of map of the catchment area. Ridges, walls, fences, hillsides, farming areas, blindspots, and the outline of another herd are hard boundaries, and as soon as the herd animals begin to meander in that direction must be called back. There are also soft boundaries, or buffer zones in the space before the hard boundaries, that are acceptable for the animals but require more dedicated attention from the herder and are thus not always desirable. When multiple herders are pasturing their animals in the same valley, they often coordinate their respective maps and herding efforts through elongated shouts from opposing ridges—
“*sayllamantalla qhatimunki, nuqalla kaymantaauuu*” (“just tend/obstruct/guide [the animals] from the rock cairn [towards me], I’ll [do the same] from heere!”).

Even from our elevated perch on Condor Sinqa, our eyes trained on the dispersed animals as they grazed the southern wing of Hatun Wayku, Consuelo and I could sense the nervous energy of the herd below. It was *q’ara timpu* (lit. “bare time”) the very end of the dry season, and the animals were starting to slip into chronic hunger. The water in Uqhu Wayku was drying up, and the grasses were brittle and yellow. The animals ignored the high, persistent pleading of Consuelo’s calls: *yawww kuti kuti kuti!* Some of them were wandering precariously toward the high ridges of the valley, the hard boundary between Antapata and the sector of Alkatarwi. If they crossed over, they were likely to get lost or captured by herders in the neighboring sector, which would lead to a tense discussion at the community assembly and potentially a hefty fine. In the distance we could see another Antapata herder, Serafina, racing down the valley wall of Ch’uma Punta, struggling to contain her sheep and those of her neighbor.

Consuelo sighed in frustration. She often contemplated selling off the sheep entirely. But sheep are quick money—they reproduce twice as fast as alpacas or llamas and the price of their wool and meat stays relatively stable—and half of them belonged to her daughter Camila. She

set her weaving aside, loosened the back-strap from her loom, and packed her *q'ipina* once again. We climbed Chawpi Sinqa to the valley ridge above to walk the border of Antapata and Alkatarwi and try to contain the sheep. The wind whipped viciously at us as we struggled to reach the animals that had wandered close to the boundary of the ridge. Some of them turned lazily toward us, while others ignored us entirely, turning the other way and then running off as we approached. Through the wind, I could hear Consuelo's voice reaching a feverish pitch as she ran a wide arc around the animals to drive them back. Under the piercing sun, we were tired and thirsty, but we couldn't stop. Again and again we scaled the sandy hillside to contain the herd's borders, yet every time we left an opening the animals would escape to the ridge yet again. I soon joined Consuelo in shouting spiteful streams of obscenities, the two of us waving our arms, kicking at the dirt, and launching pebbles at the animal's hindquarters. The animals likewise bleated their frustration. It took more than an hour in this ambulatory stand-off before we returned the herd down from the valley ridges and were able to rest, exhausted and somewhat defeated, on the hillside. Both of us would later come down with terrible headaches— while I attributed this to dehydration, Consuelo informed me that it was always like this during this time of year. When the animals become *k'ita*, it can make you sick and drive you nearly mad.

* * *

The Process of *Sut'i*: Scanning the Herd

When sweeping her gaze softly over the animals and the landscape in one, the distribution of individual animals and their distinctive features help the herder determine the precise location, dispersion, and direction of movement of the herd. Even with multiple herds in a single valley, herders easily pick out their own animals from a distance. Alpacas and sheep are

marked for quick identification with red clay markings (*taku*) and colored ear-tassels (*q'aytu*). Herders also tie colorful plastic bags (*pullu*) into the wool of newly purchased or acquired animals, since they often escape. Even without the use of clay markings and ear-tassels, herders easily identify and recognize individual animals in their own herd, and are similarly able to identify other people's herds from a distance by the distribution of certain distinctive individuals within the larger group. As the shape of the herd shifts over the hours, the herder's soft attention to certain key individuals—the young brown-coated male (*chumpi tuwi*) or the spotted adolescent female (*murru malta*)—gives her a sense of the boundaries, density, and directionality of the herd's movement. This daily practice of scanning the herd always struck me (having grown up in a fishing village) as remarkably similar to the soft gaze that fishermen use when scanning the sea surface: the softly unfocused eye can evaluate the general state of the ocean, judging its energy and movement in the subtle differences of color and texture undulating on the surface, and honing in on any anomalies, disturbances, or inconsistencies: the slick head of a seal breaking the surface; a smooth patch hinting at the presence of a diving animal; bubbles emerging from the hidden, dark depths. Similarly, when the herder softly sweeps her eyes over the herd, the shifting bodies of the animals give her a sense of the wellbeing of the herd—perhaps calm and content, or forlorn and sullen, or agitated and restless. With this vantage point, slightly detached from the herd, the herder can pick out the subtlest changes in herd dynamics and make inferences about the physical and emotional states of the individual animals.



Figure 33: Scanning the herd from a distance

I return here to the Quechua concept of *sut'i*, which I described in the introduction as a physical trace that indexes a previous event or action, tells of an underlying condition, or hints at an event or action to come. It emerges in Quechua speech as an adjective, usually in the phrase “*sut'i kashan*,” (“it is *sut'i*”). The contexts in which it was used— for former agricultural sites, approaching trucks, looming rainclouds, pregnant animals, and human emotional states— indicated that it refers to *visible* markers in particular, which was confirmed by the way it was translated for me by a Spanish-speaking man in Chillca as *al aire*, literally “in the air.” Although “*al aire*” could conceivably refer to traces that are left in the air as smells, or travel as sounds, its usage refers almost exclusively to the visibility of phenomena. Ben Orlove similarly noted that herders in the neighboring community of Phinaya expressed the visible markers of glacial melt as being *sut'i*, which he translated as *a la vista*, literally “in plain sight.” These visible markers, he continued, were contrasted with “other processes and features that might require specialized knowledge or apparatuses to detect” (2009, 141). When something is *sut'i*, it is obvious, clear,

and true—it can be easily confirmed through observation by those who have the ability to see, which includes sighted humans as well as animals and landscape features.⁹²

Visual observation is a key skill for a herder.⁹³ Herd animals are almost never given names in Chillca, but as I suggested above, they are referred to according to their dominant features, such that an individual alpaca might carry the name “mixed-coat fine-wooled one” (*phinu alqa*) or “stunted-eared baby alpaca” (*mut’u cria*).⁹⁴ There is an extensive, hierarchical lexicon of animal features that herders employ to verbally identify herd animals when looking for a missing animal or identifying an animal for shearing, treatment, sale, slaughter, or other transactions. The most prominent identifying features, after species and breed, are the animal’s sex and age. A female animal is *china*, and a male is *urqu* (castrated males are simply referred to as *urqu*, while breeding studs are *qhayñachu* or *padrillu*), and animals are often marked according to sex in order to make sorting them easier and more efficient.⁹⁵ From birth until it reaches two years of age, a llama or alpaca is called a *cria*, and when the animal reaches about two years of age it becomes a *tuwi*, or *tiq’i*. Female alpaca of a reproductive age are also referred to as *malta*.⁹⁶

⁹² This also seems to suggest that in order to be visible, the phenomena must be illuminated by a light source.

⁹³ See Cristina Grasseni’s work on visual enskillment among herders in the Alps (2009a, 2009b).

⁹⁴ It is possible, given the evidence in the literature from herding communities elsewhere in Peru (Flores Ochoa 1968) that in previous decades animals were baptized and received Catholic names corresponding to feasts or saint’s days, much like children. This is no longer the case, and hasn’t been for quite some time given the increasing presence of evangelicalism in Chillca over the past two decades.

⁹⁵ In some cases, the tassel placement is sex-specific: males are always the left ear, females the right. The community herds (*majada*) are differentiated in this way, since they often have to be sorted quickly and efficiently when being sheared or separated (for example, in the *tuwi taqi* in which young males are separated from the herd) although most household herds are not. In household herds it is much more common to see sex differentiation marked through particular coat modifications. Herders will leave longer tufts of fiber (*puchu*) on certain parts of the animal’s body: female animals have tufts on their chests (*unqusana*; *chinaq unqusanin*) or sides at the mid-abdomen (*chinaq ch’illan*), and male animals have tufts on their tails or rumps (*paqu urqu*; *urquq achan*). These tufts can be quite long, especially in the case of *suris* (long-fiber alpacas; *illa suri*), where it can hang all the way to the ground.

⁹⁶ Age classification is especially important to herd management tasks, such as separating the herd for shearing, castration, medication, or slaughter. Age is not determined by precise time units such as months or years, but by the animal’s size, reproductive history, dental development, health, and the number of times it has been sheared.

As has been documented elsewhere (cf. Flores Ochoa 1986, Bolton 2006) coat texture, color, and pattern is the major descriptive category through which animals are identified and classified, especially alpacas. Beyond the key differences in wool texture and length between the *wakaya* and *suri* breeds of alpaca, there are further grades of distinction among the *wakaya*. *Chashka*, or simply *willma sapa* (wooly), refers to an alpaca or llama with an abundant coat, while *phinu* (from the Spanish *fino*, fine) designates an alpaca as having high quality fiber. *Q'upa* describes an alpaca or llama with curly or wiry fiber, and *q'ara* describes an alpaca or llama with very little wool.⁹⁷ Unlike llama and alpaca, sheep are not usually classified in terms of the texture of their wool, beyond the differences in the *criullu* and *mirinu* breeds (*criullu* being the common sheep, and *mirinu* the more fine, wooly sheep). However, there is one particular variety of sheep that is prone to losing its wool entirely, leaving it bald on its back— this is called either *q'ara wasa* (“bald-back”) or *tambur siki* (“drum-butt”).

The color and patterning of alpaca and llama coats also display a great variety, which comes with an extensive lexicon. In his work in southeastern Peru in the 1960s, Flores Ochoa (1986) documented three primary hues: white (*yuraq*), saturated color (*kulur*), and black (*yana*), with a total of nineteen tones falling within the overall range. In Chillca I found there to be a similar distribution, with the most common colors described as white (*yuraq*, *blanku*); camel or yellow (*parinu* [a name potentially derived from the Andean flamingo], *ilifi*, *amarillu*, or *q'illu*), gray (*uqi*); brown (*chumpi*); and black (*yana*), with gradations among them. Among the community herd, the animals are identified as one of three general options: white (*blanku*), color (*kulur*), or camel/ yellow (*elefe*). In a family herd, the animals are called out in greater detail, either as a particular shade (for example, *puka chumpi* or *winu* to describe a reddish brown,

⁹⁷ The descriptors *chharqa* (coarse, heavy) and *llamphu* (soft, light) also describe fiber texture, but they are only used to describe the wool, not the animal.

khurus for a grayish-brown, or *wik'uña* for a vicuña-colored animal), or with reference to the pattern of their coat.

Of the mixed-coat animals, coat patterns can range from solid to spotted, with any number of variations between.⁹⁸ *Alqa* is the dominant descriptor for an alpaca with a coat of two colors, and the corresponding term for *alqa* among llamas is *paru* or *anti*. Alpacas and llamas with different colors on the top and bottom halves of their body are *siwara*, with the top color sometimes noted (*yuraq siwara* describes an animal with a white top half). Distinctive coat patterns, such as differently colored feet, snouts, faces, tails, etc., also have their own terms, as do markings that resemble those of other animals. *Makitu* describes an animal with differently colored legs and/or feet, and the dominant color of the body is sometimes noted (i.e., *yuraq makitu* describes a white alpaca with different color legs and feet).⁹⁹ An alpaca with a different color snout is *simillu*, with the color of the snout noted (*yana simillu* for a black snout). A llama or alpaca with a white face is *qiqara*, with the body color noted (*yana qiqara* is a black alpaca with a white face). If the color extends past the ears to the nape of the neck, the animal is *ch'añu*.¹⁰⁰ If the color extends down to the mid-neck, the animal becomes *qhillwa* or *mayu suthu*. A spotted animal is *murru* or *chikchi*. An animal with a patch on the side of its body is *ananta*, with the dominating color noted (*yuraq ananta* is a white alpaca with a black spot). Markings on the hindquarters are *kasla* (possibly from the Spanish word *calza* [Flores Ochoa 1968:144])

Distinctive patterns that resemble the markings of another animal, most often a bird, earn the

⁹⁸ Due to state-sponsored breeding programs over the year, solid white animals are becoming the norm, and herders note that there are fewer color or mixed-coat animals than in previous decades. This has led the specificity and range of the former lexicon of mixed-coat alpacas to diminish, which is apparent in the discrepancy in wool color descriptions when comparing the contemporary terminology in Chillca with that gathered by Flores Ochoa (1968) in the 1960s. For example, Flores Ochoa notes that the term *alqa* referred only to animals with a predominantly light coat, but I found that any animal with a mixed two-color coat was *alqa*. Further discrepancies are noted below.

⁹⁹ This is opposite to the terminology noted by Flores Ochoa, in which the color of the legs or feet determines the name [1968; 144]).

¹⁰⁰ According to Flores Ochoa, *ch'añu* markings did not extend to the snout, but in Chillca they can include or not include the snout.

alpaca the name of that animal (Arnold & Yapita 2001). An alpaca with a differently colored rump or tail is called *wayllata* after the Andean goose (*Neochen melanoptera*), while a stripe around the neck makes the alpaca *kuntur* (*Vultur gryphus*). A white alpaca with a dark saddle-like marking on its back earn the name of *chullumpi*, after the pied-billed or white-tufted grebe (*Podilymbus podiceps*; *Rollandia rolland*). A white alpaca with a black head extending down to the mid-throat is *qhillwa* after the Andean duck (*Oxyura ferruginea*), and an animal with large spots is called *usqhullu*, after the Andean cat (*Leopardus jacobita*).

Finally, a variety of genetic variations render certain individuals in the alpaca herd especially visible. A small percentage of the herd population will have phenotypic abnormalities in eye color, ear size, jaw shape, tail size, or foot bone morphology. One of the more common variations is lighter eye pigmentation, making the eyes appear blue or light gray. These alpacas are called either *qusi* or *misti ñawi* (*misti - mestizo*; landowner; light-skinned person; *ñawi - eye*). Instead of the usual upright, triangular ears, alpacas can also be born with floppy ears (*laphi* or *lakaku*), small folded ears (*chuno*) or no external ears at all (*mut'u*). Alpacas with short, stunted noses are called *thuta*, while alpacas and llamas with protruding lower jaws and prognostic teeth are *q'achu*. A stunted tail carries the name *withu*. Polydactylism occurs in approximately 1% of the population, and these animals are called *p'arqa*.



Figure 34: Alpaca phenotypic variations. A *mut'u* alpaca with stunted ears (left), and a *q'usi* alpaca with blue eyes (right).

The above variations in coat color, texture, and pattern as well as phenotypic anomalies such as stunted tails or ears, extra toes or blue eyes, allow a herder to immediately recognize and differentiate animals in their own herd and identify them verbally to others. As Jorge Flores Ochoa has noted, the terms of reference are not necessarily hierarchical, rather “they are used flexibly, depending on the precision with which the animal must be defined... when dealing with two very similar animals, terms are added in whatever measure is needed to distinguish them” (1986: 146). When identifying an animal verbally, therefore, the most prominent feature determines the foremost descriptor: phenotypic variation (i.e., *mut'u*, *q'usi*, *p'arqa*) is noted before coat color (i.e., *yana*, *yuraq makitu*, *murú*) and coat color before age (*tuwi*, *malta*), for example. If there are two similar white male alpacas, they will be distinguished by the quality of their fiber (*phino* or *chashka*), or their age.¹⁰¹

¹⁰¹ While many of the phenotypic variations mentioned above might be considered undesirable defects by professional breeders (Bolton 2006), herders in Chillca are more ambivalent. Herders remarked that blue-eyed alpacas (*q'usi*; *misti ñawi*) are not ideal because they don't pasture well: they wander off, or lose their young, which herders attributed to their poor vision. The same is sometimes said of earless alpacas (*mut'u*), which are understood to have worse hearing. While a herder would not actively seek to purchase an alpaca with these features at the market, they are not sought out for culling and are often a cherished part of the herd, viewed with affection and amusement. I will speak more to the selective purchase and breeding of alpacas in Chapter Six.

When scanning her eyes over the herd, the herder thus observes her animals as individuals as well as a collective. By comparing the animals to one another, as well as noting changes in the appearance of individuals over time, it becomes easy to read the traces of nutritional distress in the animals' bodies during drought conditions. As grasses become scant, hungry animals become more susceptible to mange, pests, and illnesses like enterotoxaemia. The animal's ribs stick out from its weakened frame, the sheen of its wool becomes dull, mucus accumulates around the nose and eyes, the crevices of skin around the haunches become cracked white with mange, and the tiny crawling bodies of fleas, ticks, and other pests burrow into the fibers. In animals with enterotoxaemia (*wiksa punkiy*), the belly begins to inflate over the course of a few days until finally the animal lies down to die. The traces of emotional distress also become visible. In extreme cases of hunger the animals become lethargic and "sad" (*llaki*)¹⁰² dropping their heads towards the ground and seemingly drifting into sleep or semi-consciousness. With diarrhea and enterotoxaemia—both associated with excessive heat in the dry season—the animals will kick at their abdomen and cry out. Even before they are skinny or distressed enough to be struck by illness or parasites, however, the animals communicate their hunger in their restless pursuit of grasses. They become unruly, wild, agitated and asocial—they become *k'ita*.

Animals that are *k'ita* cease to respond to human vocal cues,¹⁰³ they ignore and flaunt their reciprocal obligations to humans, and in some cases, overpower and dominate them

¹⁰² Animal sadness (*llaki*) is widely considered an important signal, even in myth, and is routinely associated with loss of appetite. An example recounted in *The Handbook of Inca Mythology*: "In Ancasmarca near Cuzco, the 'sheep' were sad and not eating their food in the daytime while watching closely the stars at night. The shepherd asked them what was wrong, and they replied that the conjunction of the stars meant that the world would be destroyed by water" (Steele and Allen 2004, 116).

¹⁰³ Reciprocity is inextricable from human verbal communication in the Andes. As Bruce Mannheim has described it, "[r]eciprocity saturates the organization of the Quechua lexicon and grammar... the axioms of reciprocity do not exist in an abstract nether-world; rather they are latent in every act of speaking" (Mannheim 1991, 90–91). I argue this is true of both human speech and human-animal communication.

(*winsiy*). I translate *k'ita* as restlessness in order to articulate the ways in which it expresses an entanglement of emotional and physical qualities: it is a state of agitation (anxiety, boredom, uneasiness) that coincides with unpredictable or aberrant movement (fidgeting, tenseness, pacing, etc.). *K'ita* describes animals that stray and deviate from their expected trajectory, and it also describes intoxicated people that stagger and swerve without direction (*k'ita purin*).

Wandering, in particular, is asocial behavior— undirected, aimless movement indicates that the being is operating outside of social conventions and is either emotionally disturbed (angry, frustrated [*renegasqa*], or sad [*llaki, khuyay, tristi*]), or in an altered state brought on by intoxication, madness, or bewitchment. Individuals seen walking alone in the hillside (such as myself, traveling between distant sectors to visit people) are viewed with suspicion and assumed to be distressed or sad.

K'ita is thus used to describe beings operating outside of social norms of conduct. *K'ita* also describe the wild counterparts of domestic animals: alpaca's wild equivalent is the vicuña (*paquchaq k'itan*), the domestic cat's is the wildcat (*michiq k'itan*) and humans even have a wild equivalent in the monkey (*runaq k'itan*). There is thus an established association between *k'ita* and *wildness*, as well as *ferality*: an animal (or person) that is typically tame but has escaped to the wild and become feral can be referred to as *k'ita*. In sum, an animal or person in a state of *k'ita* is operating outside of conventions of sociality that they are expected to follow, signaling a breakdown in the social practices that keep beings in predictable and stable modes of relation with one another.

K'ita behavior in herd animals manifests most strongly in the interactional context of the herding task *hark'ay*, which is when the herder attempts to obstruct or redirect undesired movement. As previously noted, this verb (Spanish *atajar*) is used to describe both the

obstruction of animal movement as well as the redirection of water in a canal, thereby presupposing the independent (and intentional) movement of herd animals as well as water. When animals become restless, they are notoriously difficult to *hark'ay*. For herders, this is often the first sign that the animals are not getting the nutritional resources they need from their current pastures, and need to be moved to a new location. As I describe in detail in a later chapter, there is a complex, negotiated system of daily and seasonal mobility in Chillca. While monitoring grass types and rainfall patterns are significant methods through which herders adjust their migration schedules, the foremost indicator is the emotional state of the animals themselves. As herders often told me, the animals signal to humans when it is time to move pastures through the bodily and behavioral manifestation of their restlessness and boredom. For example, Consuelo's son Matías explained to me in July of 2015 that if the animals are calm (*tranquilo, llaqhi*), you stay. If the animals are restless— specifically, they refuse to be contained (*no se deja atajar; mana hark'ayta atiykuchu*)— then you must move. He explained the daily system of pasture rotation in Antapata in the following terms:

You must rotate. So the first day you've got to go to Uqhu Wayku, and the second day you absolutely have to go to Illachiy, and the other day you have to go to Lima Q'ucha. After, back again to Uqhu Wayku or Illachiy, but you can't go to the same place twice in the same day, no? **The animal gets tired, gets bored, no?** You can't go. [For example] our [animals] are only going to one place right now... they are already getting bored, they already want to go somewhere else.¹⁰⁴

The larger seasonal migrations between *astanas* are likewise dependent on animal cues, particular the refusal to be contained. In response to my question about his decision to migrate to their dry-season *astanas* early, for example, Matías responded that the decision was made “from

¹⁰⁴ “Debes hacer rotativo. Entonces, el primer día tienes que ir a Uqhu Wayku, y segundo día sí o sí tienes que ir a Illachiy, el otro día tienes que ir a Lima Qucha.... Después de vuelta a Uqhu Wayku o Illachiy, pero no tienes que ir al mismo día dos veces, no, el animal se cansa, ¿se aburre no? No puede ir. Pero de nosotros ahora está yendo a aun solo sitio no más ya... ya está aburriéndose ya, quiere irse a este lado.”

the animals. The animals were constantly going up [towards Uqi Kancha], they couldn't be held off any longer, so we got together all of us and decided" (*"de los animales pe. Los animales estaban subiendo, ya no se podia atajarse, así que nos reunimos y nos decidimos"*).

When the animals' demands for new pastures can't be met, due to diminished grasses, drought, or other constraints on pasture availability, *k'ita* can become an especially disruptive phenomenon, the impacts of which ripple through human social worlds. This restlessness can in turn make humans sick or drive them mad: headaches, stomach aches, or feelings of unease are often attributed to being *phiña*, *renegasqa*, to being annoyed and agitated because of wandering animals. Furthermore, herders cite the inability to confine one's animals to their designated pastures as a moral failure on the part of the herder, who is accused of being lazy (*qhilla*), selfish (*mich'a*) or disobedient (*mana qasukuqchu*). Complaints of a herder's inability to *hark'ay* their animals are often at the heart of the bitter conflicts between neighbors that erupt during sectoral and community meetings.

The failure inherent in *k'ita* also has ontological consequences, when considered within the broader moral universe of social interaction in the Andes. Catherine Allen (1998) describes the trouble of unordered sociality in her article "When Utensils Revolt: Mind, Matter, and Modes of Being in the Pre-Columbian Andes." In a number of pre-Columbian texts (the Huarochirí manuscript, a 16th century collection of Andean myths; Moche ceramics, etc.) apocalyptic periods are depicted in which the sun disappears, utensils (mortars and pestles) eat men, and animals herd people. Andean ontology (*kay-* being, or *pacha-* cosmos), she argues, "is a specific configuration of matter, activity and moral relationship" (Allen 1998, 22). This ordering can experience changes "in scale or internal configuration," the result of which is disorder: a reordering or disintegration of relationships and an overall instability of matter (1998, 23). The

reciprocal bonds that hold being together in a social configuration rupture, and predictable relationships become flipped: domestic becomes feral, prey become predator, objects wield people, and people become herd animals.

The threat is not merely the breakdown of relationships, but the very fabric of one's selfhood: Both community and person are ... entities held together by balanced relations of domination, subservience, and interdependence. In the case of the individual person, selfhood is defined in terms of a 'web of socioritual connections' (to paraphrase Salomon 1998) that includes not only kinsmen and affines, but superior entities like Sacred Places and subservient derivative beings like domestic animals and household utensils. The being (*kasqa*) of the person is constituted by this balancing act, the continuous sustaining of oneself as the node of a complex intersection of relationships.
(Allen 1998, 23)

Andean myth holds that the first signal of the end of the world will be the departure of herd animals back to their origins in the lakes and springs of the high Andes. As Flores Ochoa articulates, retelling the account of a man from the Cordillera de Canchis:

The origin of the alpaca isn't well-known, but they say in the *may timpu* [the origins of humanity], they came out of the springs and the places where there is water, near the mountain tops, and in the future, when the signs come and the time comes, they will also leave through those same springs. These signals haven't been seen yet, but they have to come. The oldest folk know well how all of this will happen.
(Flores Ochoa 1974, 251; my translation)

The continuation of life in the Andes is predicated upon the herder's diligent care of the animals—which includes providing them with ample pasture—or they risk angering *apus* and other place persons that may hasten the departure of the animals:

The alpacas and the llamas have been given to mankind on loan only, and their possession depends, to a large extent, on the ways in which mankind behaves with their herds, and the treatment they provide them. Good treatment not only involves providing them with good pastures and protect them from illness and predators, driving them to places with [ample] pasture, but also performing ceremonies... and thus not provoking the anger of the deities and exposing themselves to the danger of losing their herds before the time of their departure arrives.
(Flores Ochoa 1974, 255; my translation)

The failure of the communicative exchanges between humans and animals thus reveals the expectations of what constitutes successful interaction, and the underlying terms of the obligations between humans, animals, and landscapes. Attending to one's responsibilities as a herder—being able to sustain the needs of the animals such that they don't wander, or to successfully obstruct their movement when they ultimately do— is part of a broader universe of obligation through which humans are bound to one another, and to the places in/with which they live. When the practices of herding fail, it indicates an instability and strain in the relationships between humans, herds, and landscapes more widely. While supplemental food and water— reserve grasses, potato peels, *chuño* dregs, salted water, and herbal tonics—help treat the animal's chronic hunger during the dry season, the remedies for *k'ita* attempt to treat the impulse towards agitation and restlessness. Towards the end of September, Consuelo routinely prepared the same medicinal remedy for the *k'ita* sheep: she filled the lower half of a battered cooking pot with smoldering alpaca dung coals, on top of which she placed two key items— a handful of pumpkin seeds, and a thick knot of human hair. She placed the pot in the sheep's pen and let it release smoke into the herd (*q'apachiy*). By releasing the essence of these substances and directing it towards the animals, this medicinal intervention prompted the animals to re-align their social orientation towards humans, by transferring the qualities of groundedness and saneness from humans and earth-dwelling gourds and tubers. In the following chapter, I elaborate on these processes of re-alignment between humans, herds, and landscapes as a crucial strategy in the face of ecological shifts.

Conclusion: *K'ita* as Ecological Knowledge

We could think about these restless sheep and agitated herders in two ways: on the one hand we could consider the issue within a cascading chain of causality that starts from the top down. Global climate change has altered hydrological profiles and patterns of seasonal rainfall in the Andes, leading to lower levels of moisture in grasslands and thus less edible biomass for the animals. Less grass then leads to hungry sheep, which leads to wandering sheep, which leads to frustrated and exhausted herders. Or, taking as our starting point Andean modes of relation that posit inherent connections between landscapes, herds, and animals, we can reconfigure the analytical perspective to dwell in these interstitial spaces in which similar processes and distress erupt across ecological connectivities. Left entangled, these connectivities allow us to ponder how restlessness, agitation, and distress are “co-disorders” (Moran-Thomas 2016), emerging within the same historical processes of socioenvironment disruption. A disorienting shift occurs across humans, animals, and the landscape at once: a drying-out, hunger, and exhaustion that pervades landscapes and bodies as they undergo transformations within a broader planetary shift.

As drought conditions increase in the southern Peruvian Andes, human-animal communication thus is a form of knowledge production, in which the failure of interspecies communicative practices indexes precarious and potentially chaotic futures. Recent research has shown that the Vilcanota mountain range, which is home to the community of Chillca as well as Ausangate mountain and the Quelccaya ice cap, will experience some of the driest conditions in Peru in the coming decades. In Chillca, where humans and animals are partners in world-making as well as world-sensing, the changing qualities of vocal communication between humans and non-human others make legible the material transformation of their landscapes, and bring the tensions of drought and decay into everyday practice and interaction.

Post-Script: Bringing the Animals Home

Antapata, September (Dry Season) 2015 – Late Afternoon

The harsh brightness of the midday melts into the golden hours of the late afternoon. A chorus of distant whistles emanating from the three valleys of Antapata signal that the herds are moving home. The animals amble downhill along well-worn paths as we collect the stragglers from the ridge. By the time the herders and their herds all make it back to the central dip of Antapata, the valley has slipped into the inky, liquid heaviness of early evening as the sun melts into the horizon as an orange algal bloom. With the animals in their pens and the *puñuna*, the herders rush into their huts and light the evening's fire. This hour, *phiru ura*, is full of trickery and danger—in the darkness, shapes begin to morph and dissolve, and *kundinadus* and *kukuchi* roam the hills. The air begins to feel thick and heavy, the landscape almost oceanic in quality. Xavier Ricard Lanata, a French-Peruvian anthropologist working in the neighboring community of Phinaya, wrote of the marine qualities of the high Andes as they slipped into evening, drawing comparison to his childhood summers on the Peruvian coast:

Beneath a sky both material and liquid, the mountaintops, crowned in snowy peaks, appeared as rocky submarines, full of niches from which some monster of the deep, an unseen and sly sentry, could emerge at any moment. And while I was drowning in the immensity of this imaginary waterscape—lifted up by some titanesque wave to over 5000 meters above sea-level—I seemed to find the echo of the marine memories of my childhood, as if the massif of Ausangate and the Peruvian coastal desert had maintained, always, a secret and mysterious correspondence.
(Ricard Lanata 2007, 385; my translation)

Inside the hut, Consuelo crouched next to the fire, and Agustín (recently returned from his work as a porter on the Ausangate trek) settled into a corner, plucking his *bandurria*. Consuelo lit a candle—“*winas nuchis, siñurita*”—and set a kettle of tea to boil. Recounting the day's work, she rubbed at her temples. The sheep are giving birth in vain (*pur gustu, yanqapaq*) she told

Agustín. If she brought the newborns to the Combapata market this Sunday she could sell them for ten soles each. Agustín was reluctant, but Consuelo persisted. The frustration of chasing the herd had left her with a headache, and she was exhausted. “I’m no good for walking,” (“*mana puriyta valinichu*”) she often told me—between her age and the increasingly restless animals, she couldn’t keep up as well as she used to. She was seeing a healer in Pitumarca who gave her oils and supplements to treat her fatigue, but it wasn’t helping. She worried constantly that she’d fall ill— who would take care of the animals then?



Figure 35: Evening in Chillca

She ate four large bowls of soup that night, each time tipping the empty bowl towards me to show me, amused at the depth of her own hunger. Agustín played a few chords of an old song Consuelo had written, and in the quiet of the late evening she sang a few lines that harkened back to when she was a young single woman, and restlessness had almost caused her to wander, before she married Agustín, had children, and become entrenched in the social world of Chillca:

Yachayurankitaq sabiyurankitaq

Perhaps you knew, perhaps you were aware

*Yachayurankitaq sabiyurankitaq
Agustu wayrachahina luku kasqaytaqa
Fibriru killachahina waq'a kasqaytaqa*

*Taytayman mamayman willayapuwanki
Mamayman taytayman willayapuwanki
Warmi wawaykiqa ripushanmi, nispa
Warmi wawaykiqa pasashanmi, nispa*

*Hinaya ripuchun, nispa niwaqtinga
Hinaya pasachun, nispa niwaqtinga
Wichaypas uraypas ripukapunaypaq
Uraypas wichaypas pasakapunaypaq...*

Perhaps you knew, perhaps you were aware
That I was crazy like August wind
That I was mad like the month of February

To my dad and mom, you'd tell us
To my mom and dad, you'd tell us
Saying, "your daughter is leaving"
Saying, "your daughter is going"

Let her leave, they'd say
Let her go, they'd say
So that I'd leave (up and down)
So that I'd go (down and up)...

The hut settled into quiet, and the animals were silent on the *puñuna*. The day's herding would begin again in the morning.

* * *

CHAPTER IV

Substance, Absence, Presence: Shifting Landscapes of People and Place in Andean Ontologies

Antapata, August 2015

<i>Ucha</i>	Alpaca dung (coals)
<i>Zapallu ruru</i>	Dried pumpkin seed
<i>Runaq chukchan</i>	Human hair
<i>Ch'ilpi</i>	Tuber peels or grain husks
<i>Hankay</i>	Toasted corn

Line the base of a metal pan with alpaca dung coals from the hearth. Sprinkle a handful of pumpkin seeds on top (mixed with tuber peels, grain husks, or toasted corn, if available). Add a tightly-wound ball of your own hair. Let burn lightly until the mixture releases smoke. Fan lightly to extinguish the flames, and place in the threshold of the sheep's pen. Leave overnight until the contents are fully consumed.



Figure 36: A remedy for restlessness

In the morning, long after the smell of burning hair had dissipated in the night's chill, Consuelo and I made fry-bread next to the fire, scraping the sticky dough from our fingers with a knife. In a pot on the stovetop, the remains of an aborted lamb boiled softly beneath a gray foam. As I dropped flattened circles of dough into the sizzling alpaca fat, I asked Consuelo about the medicinal pot burning in the sheep's pen. The pumpkin seeds, she explained, are so the sheep will eat peacefully (*"llaqhi mikunanpaq"*). She reached out and swept her hand across a dried pile of potato skins, "these too, all of this, *ch'ilpikuna, hankaykuna*"— she patted it softly for emphasis— "this stored food, it all stays low, it doesn't take to the hillsides, but stays below" (*"ch'ilpikuna, hankaykuna, llapan, ankay albirgas urallamanpi tirukun, mana qhataman siqanchu, urayllaman"*). The pumpkin seeds and dried corn she had brought up last month from a town down the valley, and the potatoes came from her own farms on the valley floor. She rested the tip of her finger on a pumpkin seed— "the pumpkin, it just sits there on the ground, peacefully, it doesn't go anywhere, it's just there," and with a nod, "that's why I will burn [it]" (*"Zapallu llaqhi kaqllapi, kay urayyuq, kaqllapi zapallu, maymanpas mana tirukunchu, riki. Anchaypa ankaywan kanasaq"*). Just as a gourd or a tuber is grounded, the sheep too will become grounded: they'll stay to the valley floors instead of running up to the hilltops, where they feed on the grass-types that are preferable for alpacas and llamas. "And the hair?" I asked. The hair was harder to explain. It's medicine, she said, *hampiy*, for craziness (*mullu unquypaq*). I had been told many times by women in the community to collect and burn the hairs that escaped from my braids, or else the wind would carry them off and I'd lose my mind. It seemed that burning one's hair could also protect one's own animals from suffering the same. When malevolent winds (*tuta wayra*) blow through the *kancha* in the night, the smell of burning hair holds them off, preventing them from making the animals crazy and restless.

* * *

The transference of qualities or essences between different entities is a long-held restorative practice in the Andes. The qualities and essences of one entity are made consumable through a variety of processes: burning (*kanay*, *q'apachiy*), dissolving/steeping in a tonic or tea, burying, blowing/carrying on the breath (*phukuy*), or allowing to rot (*ismupuy*). These practices are essential to the wellbeing of the socioecological whole, the shared “matrix of animated substance” of Andean life (Allen 1997, 75), by regulating and sustaining hierarchical relations between animals, humans, places, and other forms of sentient life. In the Andes, sociality between sentient beings is undergirded by principles of reciprocal obligation, which is articulated and reaffirmed through practices of active cohabitation and consubstantiation (Allen 1988; Bray 2015; de la Cadena 2015; Mannheim and Salas Carreño 2014; Salas Carreño 2016, 2019). Feeding and consuming, through quotidian as well as ritual commensality, lies at the heart of Andean sociality and forms the generative substrate through which social beings are created and bound to one another. In many cases, medicinal remedies are simply distinct forms of commensality, in which disordered essence is reordered: restless animals are made calm, humans are made well, and places are placated. In each instance, vital substances are circulated between humans, animals, and places, facilitating the transfer of qualities (groundedness, wetness, saneness, lightness) between distinct entities in order to settle that which is in flux.

In the previous chapter, I was concerned with forms of communication between humans and herd animals, and the ways in which the breakdown in these practices of communication index broader socioecological disruption. In this chapter, I extend my analysis of communicative practice to humans and the sentient landscape. Ritual commensality between humans and the land is itself a form of communication that crosses various modes, including voice but also

breath and other materials, substances, and essences that produce social bodies: food, smoke, alcohol, coca, etc. My starting point in this chapter is a body of strategies through which herders address disordered states in Chillca through daily practice, both proactively and reactively. Rather than reproduce distinctions between subsistence practices on one hand (providing supplemental pastures, irrigating wetlands, and medicating animals) and ritual practices (*phukuy*, *dispachu*, *q'apachiy*) on the other, I hold that these practices all operate within the same logic of commensality and contribute towards the same goal: the continuation of life in the high Andes. Given the entanglement of humans, herd animals, and sentient landscape features in a vast network of social obligation animated by practices of feeding and care, “environmental management” in the Andes does not entail human management of inert resources, but rather a complex management of relations that run through mutually sustaining biotic communities (Boillat et al. 2012).

However, as the social landscape of Chillca shifts, many of the key practices through which herders have historically regulated their relationships with others have fallen out of practice. The disappearance of these practices emerges from two significant shifts: (1) recent and widespread evangelization efforts in the Cordillera Vilcanota by the Maranata church, and (2) the sudden appearance and intensification of certain substances, entities, and states (glacial lakes, pollution, pests, heat/cold, hail) and the disappearance of others (ice, snow, and the spirits they house). Both sets of phenomena have altered the particularities of life in Chillca. According to the herders in Chillca, humans and place-persons no longer communicate: they don't speak to each other, and humans no longer feed place-persons. Furthermore, humans can no longer sense phenomena in the same ways, and the world itself has become less *sensible*: unpredictable, unstable, more intense (*fwirti*), and less legible. In these spaces of uncertainty, new entities and

relationships emerge to take the place of those that have fallen away, leading towards greater integration of the community of Chillca into broader markets, institutions, and governing structures of the Peruvian state.

To begin, it is necessary to establish the contours of human engagement with landscape in Chillca and place it within the literature of human-landscape relationships in the Andes more broadly. The narrative section that follows constitutes a form of “landscape ethnography,” an approach to writing articulated by Laura Ogden in her book *Swamplife* as a form of ethnographic engagement that is “attentive to the ways in which our *relations with non-humans produce what it means to be human*” (Ogden 2011, 28). Becoming human (and becoming alligator or mangrove in her work, or alpaca or *pukara* in mine) are “contingent processes” that are beholden to “particular temporalities, power relations, and geographies (material and imaginary)” (2011, 28). At the crux of these processes are asymmetrical relations: the formation and devolution of various forms of alliance and collaboration between and across species. Landscapes, therefore, “are asymmetrical assemblages of collective species, the products of collective desires and the asymmetrical relationships among humans and nonhumans,” and landscape ethnography is thus “a practice of reintroducing and transcribing the human back into the multispecies collective while at the same time being attuned to the politics of asymmetrical relations” (Ogden 2011, 29). During my time in Chillca, I often recorded my conversations with herders as we walked through landscapes, allowing narrative histories to emerge *in situ* as we passed through spaces laden with memory, history, and relationships. Below, I reproduce the narrative that emerged whilst walking through the territory of Chillcantin sector with Consuelo, to initiate an explanation of the social entities present in the herder’s world in Chillca and the relationships between them.

Quechua Ontologies: People and Place as Mutually Emergent

Transect Walk, July 15th 2015, Antapata

There are places in Antapata that evoke strong memories for Consuelo: the rock that she used to ride like a horse when she was small; the windblock her grandfather built above Hatun Wayku; the tufted knoll where she collected duck eggs; the shallow caves where her brothers used to trap condors by luring them in with chunks of meat. We're herding her mother's animals up into the deep gulley of Uqi Kancha Q'uchu, and I record Consuelo as she describes our surroundings. Walking along the river from Antapata to the high pastures of Uqi Kancha, Consuelo narrates her own history as intertwined with the landscape unfolding before us: "It's ours, all of it, the Naranjo family" (*"Nuqaykuq llapapaq, Naranjo"*). Each sector of Chillca is associated with a particular family, and the Naranjos are rooted in Chillcantin, with the herding hamlets of Antapata, Uqi Kancha, and Suqlla. Consuelo carries the surname Naranjo from both her mother's and father's side— Consuelo Naranjo Naranjo — and she roots herself very firmly and definitively in this place.



Figure 37: Consuelo walking through the high valley of Uqi Kancha

The alpacas amble along ahead of us, following the well-worn paths that crisscross the hillsides, deep tracings of the comings-and-goings of people and animals for generations. Interspersed with her narrative, Consuelo calls out to her animals, or pauses to pluck a medicinal herb from under a rock, tucking it into the folds of her *q'ipina*: *maycha llucha* for kindling, *sutuma* for headaches and memory loss, *tiqllay warmi* for the kidneys, and thick clumps of *ch'uku* for wounds. As she goes along, she also makes subtle alterations to the path beneath us, removing scattered rocks that could injure them or scare the animals, making them susceptible to winds that would cause them to become sick or abort. In some places I notice that little steps have been carved out of the hillside in some of the steeper places: too small for humans, they have been carved by people for their alpacas.

Descending slightly into the long, narrow gully of Uqi Kancha Q'uchu, Apu Ausangate looms ahead, piercing and strikingly white against the blue sky. Each smaller peak, ridge, knoll, hillock, flat place, lake and hillside also has a name: Qaqa Punku (Stone Door), Iskay Qucha Pata (Two Lake Plateau), Qhillwa Pata (Duck Plateau), Inti Pukllana Punta (Sun-Play Peak), Vilachiy Punta (Candlelight Peak). Consuelo feels a special affinity for a few places in particular: Palumani, a wide, ochre-red hillock on the southern ridge of the valley, and Warmi Saya, a knoll shaped like a standing woman. In the *waynus* she performs in regional festivals, these places are prominent orienting figures (see Appendix):

<i>Palumani urqutaqa</i>	On Palumani Mountain
<i>Warmi saya q'asataqa</i>	On Warmi Saya Pasa
<i>Yana phuyu wasayamun</i>	Dark clouds pass over
<i>Aqarapi chakichayuq</i>	[I'm] walking in the frozen dew
<i>Iphu para chakichayuq</i>	[I'm] walking in the mist
<i>Chay phuyuq chawpichallanpi</i>	In the midst of those clouds
<i>Chay rit'iq k'anchallapi</i>	In the brightness of that snow
<i>Maris, maris waqayunay</i>	Why, oh why must I cry

The valleys of Antapata and Uqi Kancha have everything one needs, she explains, pointing out the springs that erupt from the hillsides, each of which also has a name: Chawpi Chullunkuyuq, K'ayllu Chullunkuyuq. It is peaceful herding in these high glacial valleys, Consuelo remarks, where the wide swaths of wetland provide nourishing cushion plants for the alpacas. However, the abundance of glacial water can also be dangerous: she points out the watery holes in the pampa and *senijas* of floating grass, which trick the animals into stepping onto unsteady ground and falling in the pools to drown. She has to be vigilant and watch the young animals especially closely up here, and check the pools at night before she returns home. Closer to the glacier, the pools gradually expand into deep, eerily green lakes. Her paternal grandfather used to tell her stories about the giant serpent, Liun Amaru, who lives in one of the deepest lakes, Q'umir Qucha. When she was a child, she and her little sister and their friends would play around the edges of Q'umir Qucha, scaring themselves by calling out to the serpent, “*Amaruuu, Amaruuuu!*” She once saw the lake swallow up an entire horse. They take humans too— maybe not immediately, but eventually, if you fall in a lake and manage to escape, you’ll die. As Consuelo told me, she is the only one of that group of friends that played around the lake to survive to advanced adulthood— “*Llapan pukllamasi wañun, sapa, unitu, sulu kashani,*” she says, “All of my playmates died, I’m all alone, just me.” One time when they were playing, her little sister Nikolasa slipped and fell into the lake, and although they were able to pull her out at the time, the lake claimed her years later when she and her children were struck by lightning.



Figure 38: Consuelo spinning wool in the high valleys of Antapata

Thus while Palumani and Warmi Saya are familiar and comforting sights, there are other places in the topography of Antapata, like Q'umir Qucha, with which Consuelo has a more ambivalent relationship. She averts her eyes from the ridge of Tuqlla Pata across the valley, where splintered spalls of rock mark the site of repeated lightning strikes. The ridge of Tuqlla Pata looms in Consuelo's narrative transect of Antapata as a reminder of the unstable nature of relations between humans and the other social beings that inhabit and animate this place. It was there, a decade earlier, that Consuelo's sister Nikolasa and her infant daughter were caught in a late-afternoon lightning storm with a female neighbor and her two small children. When the two women didn't come home in the evening, neighbors found the only survivor, a six-year-old boy, trembling in a storage house. He led them to the spot on Tuqlla Pata ridge where a single lightning strike had made contact with the earth, instantly killing the women, their children, and a large number of their herd animals. "*Icha ñañachayta mikhupunpascha chay qucha, chaypische wañuran aswanta*"— Consuelo tells me— maybe, even decades later, the lake did eat her sister after all.



Figure 39: A high Andean lake

* * *

Much has been written about the Quechua concept of *ayllu*, whose clumsy translation as either “family” or “territory” reveals a fundamental ambiguity that hampers attempts to separate people and place. As Marisol de la Cadena articulates, *ayllu* is best conceptualized as a set of relations: place(s) and person(s) both “emerge within *ayllu* as relationship, and from this condition they, literally, take-place” (de la Cadena 2015, 102). An *ayllu* exists, Catherine Allen writes, “through the personal and intimate relationships that bonds the people and the place into a single unit” (Allen 1988, 106). For Quechua people, like Consuelo, a particular locality is not merely a stage on which human lives unfold, but the lands themselves are an inextricable part of social life, as participants in and makers of human and non-human life.¹⁰⁵

¹⁰⁵ Anthropologists and geographers have contested the notion of space as a monolithic, isotropic, and neutral stage upon which human history simply unfolds, rather human experience is emergent within and productive of certain kinds of spaces. Notably, theoretical and analytical work on the concept of “place” has emerged as a way of working through the co-constitutive nature of human life and material surroundings (Casey 2013; Feld and Basso 1996; Low and Lawrence-Zúñiga 2003). The continuing debate over the difference between “space” versus “place” demonstrates the vast multiplicity of meanings inherent in these concepts, which causes the debate to appear, at times, as merely an issue of semantics. For example, while de Certeau (at least in translation) deems place (*lieu*) as the static, immediate, configuration of space (akin to Merleau-Ponty’s *geometrical space*) for him space (*espace*) is

For Consuelo, her own history and that of her family is inextricably embedded and emergent within the particular locality of Antapata and Uqi Kancha— her grandfather’s struggle with the hacienda; her childhood, adolescence and adulthood; her marriage with Agustín and the births of their children; the death of her sister— all are moments that have emerged from a shared history with the places and beings of this locality. Their histories are an entanglement of human, animal, and landscape: her sister’s death, for instance, was rooted in the fatal interaction of humans with places (Q’umir Qucha), spirits (Liun Amaru), and animals (wild vicuña). Particular places of significance, like Warmi Saya, Palumani, Q’umir Qucha and Tuqlla Pata are crucial nexuses of the “lived topography” (Basso 1996) in which Consuelo locates herself and her family— by recounting stories and songs about these landscape features, she places them within a network of topographical relationships that are at once social and spatial. When Consuelo asserts, “It’s ours, all of it, the Naranjo family,” her claim is at once legal and ontological: the land belongs to the Naranjo family (a legal history that she often cites: her grandfather traveled all the way to Lima to get the required documentation to make it theirs), but it also *is* the Naranjo family.

However, the topography of Antapata is not merely lived, but *living*, in the sense that in Andean ontologies particular places— like Warmi Saylla, Palomani, Q’umir Qucha, and Tuqlla Pata— are themselves social beings in many of the same ways that human persons are social beings. They have names, are gendered, and often carry complex social histories that define their material qualities as well as the relationships between them. As sentient beings, they experience

animated, actualized, and brought to life by the human movements (Certeau 1984, 177). It is *practiced place* (akin to Merleau-Ponty’s *anthropological space*). In contrast, *place* or *places* are the nodes of human engagement in other theoretical configurations, such as those of Tim Ingold, Edward Casey, and Keith Basso. This scholarship works against the pervading notion of places as mere parcels of broader space, or as bounded segments characterized by their locality and isolated particularity. In contrast, places are the primary sites of human engagement with the broader material and social world. People and places are mutually generative processes, each involved inextricably in the (re)production of the other.

joy and pain, feel anger and exact revenge, and get hungry and demand to be fed. Places enter into relationships with each other and with all other beings in their immediate surroundings, including humans and animals. Within each particular region, the most powerful social being takes its physical form as the largest, most prominent mountain (*apu*), followed in rank by the smaller, less potent topographic features. Like humans, *apus* care for animals: the vicuña, (an undomesticated cousin to the llama and alpaca) are their herd animals, and the *wisk'acha* (*vizcacha*, small rabbit-like rodents) are their horses. They also care for humans and the human's herd animals: when they are pleased, they protect humans and animals from misfortune, bad luck, and malevolent spirits and essences (*wayra*, *kukuchi*, *kundinadu*). When they are perturbed, they deploy their weapons: hail, thunder, and lightning, to cause death and destruction.

The very conditions of life and the circumstances of death are enabled in the relationships that people have with the places in their midst. As Guillermo Salas Carreño (2016) and Marisol de la Cadena (2015) have both argued, this creates a much different form of “inter-animation” or “dwelling” than that espoused by Keith Basso, Martin Heidegger, and Tim Ingold: rather than a set of relationships between preexisting subjects and objects, the relationship is co-constitutive, a mutual emergence of humans and places— as substance and subjects— through their social engagement with one another. In the literature on Andean ontologies, these places are represented as earthbeings or *tirakuna* (de la Cadena 2015); place persons (*lugares parientes*) (Salas Carreño 2016, 2019), and Places (Allen 1988).¹⁰⁶ In Chillca, the term used most often to describe the spatially located social entities with which humans shared their lives was *pukara*,¹⁰⁷

¹⁰⁶ I have chosen to refer to these beings throughout this work as place persons, recognizing that there is no word in the Quechua language for the category that includes *pukara*, *apu*, *awki*, and other beings.

¹⁰⁷ As Marisol de la Cadena argues in *Earth Beings*, much is lost in the translation of terms like *apu* or *pukara*. While dictionaries translate *pukara* as a “fortress,” or a “hole to burn offerings,” or a “mountain deity,” its usage is much more complicated. When de la Cadena asked her central interlocutor to explain *pukara* to her, he responded with frustration: “*Pukara is pukara*. He added that whatever I wrote on my paper, it was not going to be *pukara*, it was going to be something else.” (2015, 29–30). As I likewise discovered in my fieldwork, it was necessary to

which overlaps conceptually with the term *apu*: the main difference being one of scale (*apu* are the larger, more powerful social beings than *pukara*). One late evening at Matías and Marisol’s hut in Uqi Kancha, they tried to explain the difference between *apu* and *pukara* to me:

Allison: Who are the *pukaras*?

Matías (in Spanish): It’s the earth [*tierra*]. *Pukara*, for example, the *pukara K’illu*...

Marisol [interrupting, in Quechua]: **We’d serve them like this [holds out a bowl of food]**, like that, the mountains, right? The mountains, we’d serve them nicely. That’s *pukara*.

Matías: it’s said Ausangate is *pukara*.

Marisol: Yes.

Allison: So it’s like an *apu*?

Matías: In Quechua they say *pukara*, like the *apus*.

Marisol: They serve them. How could they not, right? They have to be respected, right, so they serve them [holds out the bowl again].

Allison: Are all *pukaras* like *apus*? Or are they different?

Marisol: They’re the same, *apus*, *pukaras*, the same.

Allison: So other places [*lugares*] can be *apus* too?

Marisol: Always. They [people] serve the mountains. Like how we would serve Ch’uma [nearby mountain], like that.

Allison: Is Llusquchu [nearby wetland] a *pukara*?

Marisol: *Pukara*.

Allison: And Illachiy? [a herding place]

Matías and Marisol: Illachiy too.

Matías: **They have names, right?**¹⁰⁸

pursue “communication without commensurability,” and thus my translation of *pukara* will always fall short of capturing what this social being is and does.

¹⁰⁸ Allison: ¿Quiénes son los pukaras?

Matías: Es la tierra. Pukara, por ejemplo, el pukara k’illu...

Marisol: Ankachatakuna sirvisunman [holds out a bowl] anchayna, kay urqu kanman riki, urqu, chayta sumaq sirvisunman. Pukara.

Mt: se dice como Ausangate...

M. Ari.

A: Apuhina?

Mt: en quechua se dice pukara, como los apus.

M: Chayman sirvikunku. Imakunatas manapas riki? Chaynaqa, rispitanan kashan, riki, sirvikun.

A: Llapa pukara apuhinachu? ¿Todos los pukaras son apus?

M: Igual, pukaras, apus, igual.

Places, like all other social beings in the Andes are defined not by their form, but by the practices that sustain them and through which they come into being. That which defines *pukara* is not its status as a particular type of entity— whether it is a mountain, wetland, or herding place— rather, a *pukara* is defined by the social relations through which it is called into being. *Pukaras* have names, Matías reminded me, which is at once indicative of their status as social beings, and a condition for their existence as such: as Guillermo Salas writes, “their names index their agency and personhood, allowing humans to address them and offer them food” (2016, 822). As Marisol repeatedly demonstrated, holding out a bowl of food in front of me, people do not serve *pukara* because they are *pukara*, rather *pukara* are *pukara* because people serve them— endowing them with substance through the circulation of food. And *pukara*, in return, offer the conditions of life for humans and animals— providing vital substance in the form of water and grasses, offering protection from misfortune, and enabling the reproduction of herd animals.

A: ¿Otros lugares pueden ser apus también?

M: Kanpuni. Urqkunapaq sirvinku. Nuqanchis kay ch’umata sirkusunman anchaynata.

A: Chay na, por ejemplo, Llusquchu, chay Pukara?

M: Pukara.

A: Illachipis, pukara?

Mt: Illachipis.

M: Illachipis.

Mt: También. Tienen nombres, ¿no?

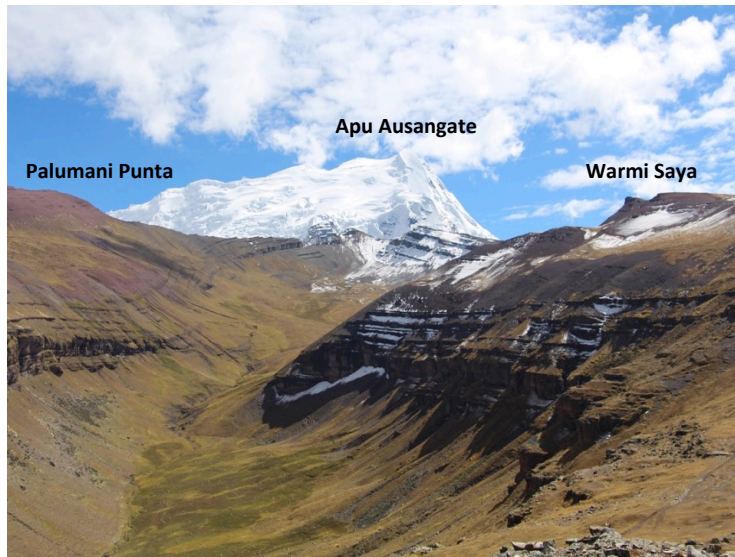


Figure 40: Palumani Punta, Ausangate, and Warmi Saya, seen from Uqi Kancha

These practices of naming and feeding are what draw social beings into relation with one another and create the conditions for existence in Andean worlds. As Salas continues, “Quechua worlds emerge through the presuppositions reproduced and enacted by Quechua practices” (2016, 822). In the anthropological literature on the Andes, much has been written about the principle of *reciprocity* as the predominant organizing ethic of relationality, through which social beings are drawn into bonds of obligation with one another (Alberti and Mayer 1974; Bolin 1998; Mayer 2002). This ethic lies at the heart of Andean ontologies, particularly the constitution of beings. The exchanges of food and substance between humans, animals, places and other beings *bring them into being* both materially and socially by constituting the substance of their bodies as well as articulating and concretizing the social relations between them. Marisol de la Cadena, drawing on Barad’s conceptualization of intra-action, writes: “As intra-action, reciprocity is not a relationship between entities as usually understood in the Andean ethnographic record; it is a relationship from where entities emerge” (2015, 103). Like all other beings in the Andes, including humans and animals, *pukaras* thus emerge in material, bodily

form only in and through their social relations with other social beings: as places, they are bundles of relationships, as “particular moments in ... intersections of social relations,” or, as “particular articulations of those relations at a particular time” (Massey 1994: 120, 5).¹⁰⁹

As Matías explained further, *pukara* are not intrinsically bad or good, but they can do good or bad things depending on the quality of their relationships with the people in their sphere, which begins with the birth of a child:

Matías: When a baby is born, for example, let’s say this is Ausangate [*apu*], this is Ch’uma [*pukara*], this is K’illu [*pukara*], when a child is born the *pukaras* wait, and then one of them traps [the baby] like this, *poom*, and takes it. They say this is why, when a baby is sick or has *malviento*, the healers look at him, read this, and say “*chay chaymi hapisqasunki, chay gastilluyki*,” your *gastillu* has caught you.¹¹⁰

Allison: And all of them are bad, or not?

Matías: **Some of them continue to be bad.**

Allison: But, are some *pukara* good?

Marisol: **Not good, they’re the same.** But people serve them, right, serving the *apus*, maybe doing a *phukuy* like *phuuu* [mimes blowing on coca leaves], **then they might be good.**¹¹¹

Avoiding disruption and disorder in the social relationships between people, place, and animals, and preventing misfortune and bad luck (*mala swirti*) for people and their animals, requires

¹⁰⁹ The aspect of temporality is important here, in that bodies and landscapes are not only spatial, but *spatiotemporal*. See for example, Franz Kraus’ work on the “inherent rhythmicity of the land-water nexus” in wetland environments, in which he suggests that “a rhythms approach can also decenter the (often illusive) quest for *what* the water-land nexus is, and instead focus on *how* this nexus continually comes into being and is negotiated by both its inhabitants and other people” (2017, 1).

¹¹⁰ *Gastillu* is sometimes described as a protector, a *pukara* that has a particular strong affinity for and relationship with a particular person.

¹¹¹ Matías: Cuando se nace un bebe, dice que, por ejemplo, digamos esto, eso es Ausangate, este es Ch’uma, este es K’illu, cuando se nace un hijo dice que esperan los pukaras, y una se atrapa así, *pum*, y so lo lleva. Dice por eso, cuando un bebe está mal, cuando estaría mal de viento, los brujos le miran, leen eso, dice pe ‘chay chaymi hapisqasunki, chay gastilluyki.’

Allison: Gastillu?

Mt: Gastillu es este pukara que te estás agarrando, ese cerro es tu gastillu.

A: ¿Y todos son malos o no?

Mt: Hasta ahora siguen malos algunos.

A: Ichaqa, wakin pukara munaychu?

Marisol: Mana munaychu, igual kanman. Piru haywakunku chayqa riki, pukaraman haywarikusqa *phhhuuu* nispa phukurikushankucha, munaycha paykunapascha piru riki.

proactive and reactive action in the form of certain key practices. Particular forms of communicative and material practice—naming and feeding— are strategies through which herders address, proactively and reactively, disordered states in Chillca.

Practices of Commensality and Communication: *Dispachu*, *Phukuy*, *Q'apachiy*

On the first of August, when the earth is open and relationships between place-persons and humans are at their closest— and most tense and fragile— point, Consuelo and her husband Agustín prepare an offering (*dispachu*) to the earth. Late in the evening of July 31st 2015, Agustín, Consuelo, and I gathered in their hut to prepare the year's *dispachu*. In the dark, Agustín laid out a shawl (*lliklla*) on the floor of the hut, placing a smaller carrying cloth (*unkhuña*) in the center, covered with a piece of rectangular white paper and a soft, white layer of synthetic wool. Consuelo rummaged through one of the many plastic bags stored between the rocks of the hut wall and handed Agustín small paper envelopes, the contents of which he evaluated and then poured delicately onto the open paper: beads of a various colors (laid out neatly around the edges of the paper), broad-beans and garbanzo beans (neatly placed in the four corners), small silver-plastic replicas of animals (sorting through them to find the right ones— condor, llama, alpaca), and then ash (*llift'a*), yellow confetti, rice, and incense, all poured into a mound at the center. Meanwhile, Consuelo carefully sorted her coca in the folds of her skirt to find the best leaves, handing them to Agustín as he formed them into neat groups of three (*k'intu*), organized gently between the fingers of his left hand and held together with a small bead of vicuña fat.

With each *k'intu*, he identified a place-person within their immediate sociospatial sphere, performed a short *phukuy* in which he recited the name of the place, blew softly on the *k'intu*,

and gently placed the coca in the center of the *dispachu*. On this particular night, Agustín offered the *k'intus* in the order shown in **Figure 41**. Ausangate, the regional *apu*, was always first, followed by the places in which the Naranjo family resides (Antapata Machula and Uqi Kancha) and the places where they herd. The practice of naming places in the correct order is a collaborative effort, and as the *k'intus* dwindled Consuelo reminded him of which places he must name next: the surrounding rivers, waterfalls, the valley floors where their *kanchas* and potato farms are located, and other significant landscape features, including, of course, Palumani and Warmi Saylla. With the *k'intus* resting in the center of the bundle, we passed around the *hallpuna*, small envelopes of coca made from whole lambskins, from which we chewed coca together (*hallpanakuy*), thereby performing a crucial form of ritual commensality that binds humans together.

<i>Placename</i>	<i>Landscape Feature</i>	<i>Description</i>
Ausangate	Mountain	Largest regional mountain; <i>Apu</i>
Antapata machula	Residence	Dry-season residence of Naranjo family
Uqi Kancha	Residence	Dry-season residence of Naranjo family
Illachiy	Valley	Herding location
Hatun Wayku	Valley	Herding location
T'ika Pallana	Hillside	Herding location
Ch'uma Punta	Ridge	Herding location
Llusquchu Quchu	Wetland	Herding location
Tuqllumayu	River	River that runs through Uqi Kancha and Antapata down to Chillca
Puka Q'asa	Hilltop	Herding location
Saksaywaman	Hill	Herding location
Chillca Pampa	Valley floor	Herding location; wet-season residence
Naviu Mayu	River	River in Uqi Kancha
Phawsiy	Waterfall	Waterfall between Antapata and Chillca, home to <i>sirenas</i>
Tuturapampa	Valley floor	Location of reserve grass enclosures
Waqlla Wirk'ay	Hillside	Location of potato farms
Palumani	Knoll overlooking Illachiy	Meaningful place to Consuelo
Warmi Saya	Knoll overlooking Illachiy	Meaningful place to Consuelo
Waqlla Wirk'ay Uqhu	Wetland	Wetland near potato farms; herding place

Figure 41: Dispachu placenames, August 1st 2015.

As midnight approached, we bundled ourselves in blankets and emerged from the smoky hut into the piercing clear cold, making our way to the enclosure next to the house where the sheep slept in tight clusters. In the corner, Agustín had prepared a small, enclosed fire, the embers of which now glowed softly. He placed the folded paper *dispachu* onto the embers, packing the walls of the small fire pit around it. He sprinkled *tragu* from a wooden cup (*q'iru*) on both the *dispachu* and the surrounding herd, and with a final flick of *kañiwa* onto the fire, he again evoked the name of Apu Ausangate as flames began to consume the edges of the *dispachu*. Consuelo announced that the lambskin bags were hungry for more coca, and we went back inside to fill them and continue our *hallpanakuy*.

Agustín was considered especially qualified to perform the yearly *dispachu*, given that he is a *paqu*: a traditional healer whose services are often called upon for healing, ritual practice, and divination. Regardless, that evening Consuelo monitored him with a watchful eye, periodically correcting him when she believed him to be doing something wrong—“*mana yuyarisqakunapaq churankichu, aynallanpuni*,” she reprimanded him: “you’re not placing things like you’re supposed to, it’s always [done] like this.” Despite Agustín’s centrality in the family as the designated performer of major rituals, other family members regularly performed similar rituals in a truncated form through the year. Similar to— and often coterminous with— the *dispachu* is the *pagu* (from Spanish *pago a la tierra*), which is performed in a variety of instances, including the establishment of a new residence for either animals or humans (a house [*wasi*] or temporary residence [*ch'uklla*] for humans, and a pen or enclosure [*puñuna, kancha*, etc.] for animals), so that the earth will be favorable towards them and not make them sick. This process involves creating a bundled offering, with the minimal essential components of *kañiwa*

and *k'intus* of coca, to be burned or buried on site. Additionally, the various constituent practices within the *dispachu*, particularly *phukuy* (blowing on coca leaves), *hallpanakuy* (sharing coca), and *q'apachiy* (to burn or “make smoke”) are performed with regularity—even daily—as routine practices of commensality between humans, animals, and landscapes.



Figure 42: Consuelo preparing her *phukuy k'intu*

The *phukuy* was an essential daily practice for Consuelo and many other herders of her generation. Every morning when she went out with the animals, she prepared a *phukuy* to keep herself and the herd healthy. Once she had settled the herd somewhere, she'd take her plastic bag of coca leaves, stashed in the folds of her *q'ipina*, and set it on her skirt as she was seated on the ground. She'd open the bag wide and search through, gently moving the leaves from one side of the bag to the other, finding three that were perfectly shaped. Laying the leaves on top of one another, she'd grasp them with the thumb and index finger of her right hand. With her gaze to the hilltops, she'd recite the names of the surrounding places, and ask for protection for her herd, herself, and sometimes me:

Phhiiuuu...
 Apu K'illukunka Machula,
 Apu Llusquchu Machula,
 Ama kunanqa unquchinkichu
 Phhiiuuuu— kay gringachata!
 Qhalilla purinqa
 Kallpata valurta qunki apukuna
 Ama laq'achinkichu!

[Blowing on leaves]
 Apu K'illukunka Machula
 Apu Llusquchu Machula
 Don't make sick now
 [Blowing sound]— this little gringa!
 She will walk healthy
 Give your strength, your courage, *apus*
 Don't make her slip!

By performing the *phukuy* every day, Consuelo kept the vital relationship between herself and surrounding places active: in saying their names, and transferring the essence of her coca leaves to them, she could ensure that she and her animals would be protected from misfortune. As she explained:

[I perform the *phukuy*] for my animals, or I say, 'don't make my house sick.' If not, you might get sick, if you didn't *phukuy*. That's why I do it— you'd get sick, you'd trip. You'd roll right down a hill. Like that time you slipped over there, that's why. Every day. For my weaving too.¹¹²

Miming a *phukuy*, she explained further:

'Don't eat my animals [*uywayta*], *phhiiuuu*,' like that. 'Hold off your animals: your black ducks, *apuuu*. Don't release them to eat,' that's what I *phukuy* for. So the *apus* don't yet release them, so I can get my weaving done. 'Hold off your dogs, so that I can weave and spin wool, don't release them yet.' His black duck, the condor. 'Your little dog,' [so] they'd tie him up, I say, 'Your dirty-furred creature, the skunk, don't release him.' To all of them, the *apus*, that's what I *phukuy* when I'm chewing my coca.¹¹³

As Consuelo's *phukuy* demonstrates, codes of conduct between people and places extend to the other beings with which they share this locality— in particular, relations between people and

¹¹² "Uywanaypaq, ama wasiypa unquchunchu nispa. Unquwaq, mana phukurikuqtiy, chaypaq phukukuni. Unquwaqpis, lak'akuwaqpis. Mana lak'akunaykipaq. Nispa nishani. Tirukuwaqpis. Ñaqa haqay yakachaylla yushkanki, anchaypaw phukukuni. Sapa unchay. Awanaypaqpis."

¹¹³ "Ama uywaytapas mikhuchunchuu," nispa, *phhiiuuu*, así. 'Amapuniii kunanqa animalniykitapas watayunkiiii, yana wallpaykitpas watayunkiii, Apuuu, ama kacharimuychuuu mikhunman' chayri, chaypaq phukukuni. Paykuna apukuna mana kachamunraqchu, ruwakunaykama. Ruwakunay nuqaq, awanay puskanaykama, amaraq kachamunrachu riki. Yana wallpanta, kuntur, yana wallpanqa. Alquchaykitapas watayakunku nispa, q'illu q'araykita ama kachamunraqchu, surrinu. Paykunaq, apukunaq, anchayta phukuni hallpachapi."

places are often rendered through their respective animals.¹¹⁴ In her *phukuy*, Consuelo asks the *apus* to hold off their animals—condors (black ducks), dogs (foxes) and skunks (dirty-furred creatures)—all animals that either prey on herd animals or, in the case of the skunk, would spook them and cause Consuelo to have to chase them off. With the herd calm, Consuelo could then focus on her weaving.

Similar to the *dispachu*, the selection of which social beings to include in one's *phukuy* is a crucial process. Over the course of her life, Consuelo had learned that certain places in Chillca were especially malicious, and required different forms of intervention than *phukuy*. Some simply required avoidance: Q'umir Qucha and Tuqlla Pata were two such examples in Antapata, but there was also a brief moment in time when she lived in the hamlet of Ch'uwanpata with her in-laws, and it brought constant misfortune and illness to her family. The only remedy in that case was to move. Other places—like caves, water holes, certain lakes, etc.—house malevolent spirits like *kukuchi*, *kundinadu*, *chullpa*, *qihiki* and *fantasma*, and also need to be avoided, and thus remain unnamed in the *phukuy*. In other cases, different forms of substance exchange are required, including consuming the place itself. For example, as both of Consuelo's earlier *phukuys* suggest, I was admittedly less nimble on my feet than most herders, and I was prone to

¹¹⁴ There are restrictions on the interactions that humans can have with the animals that are considered to belong to the *apus*, especially the vicuña. Condor, foxes, skunks, pumas, vizcacha, and other wild animals are affiliated with *apus* (as their versions of dogs, cats, or horses), and the vicuña is the herd animals of the *apu*, and thus it's most prized animal. Killing a vicuña is grounds for active retribution, as Matías once explained through a story about a relative who killed a vicuña and was promptly chased by malevolent entities sent from the nearby mountain:

Matías: They didn't allow you to kill vicuñas. My uncle killed a vicuña in Ch'uwanpata. They say when he killed it, with a shotgun, he went closer [to retrieve it], and when he got closer, they say, from above from the mountain, a woman came running. A woman with a red skirt and black *montera* [hat]...

Marisol (interrupting): Hail also came, it was blocking him. Go on.

Matías: “*khhuuuu*... where are you taking this vicuña?” she said, running, and my uncle says he ran—*shhuuuu*—all the way down [to the pampa]. And from all the way down, he hid and watched, and the woman went back. And they say, my uncle was kind of mischievous, so he went back to get the vicuña, and the woman came back too. She wouldn't allow him to take the vicuña. He tells the story like that.

There is no remedy for killing a vicuña that will put you back in the good graces of a *pukara*. Other transgressions, such as allowing one of your alpacas to mate with a vicuña, are *phiru* (sinful), but can be remedied with a retributive payment, a *dispachu* offering made to the offended *pukara*. Consuelo maintains that her sister's death was also due, in part, to her negligence to offer payment to the *apu* after one of her alpaca mated with a vicuña.

slipping on the wet hillsides while we followed the herd into the glacial valleys. Each time this occurred, Consuelo insisted that I show her exactly where I fell, and she'd kneel beside the slick boot-mark in the side of the hill to make the sign of the cross¹¹⁵ and place a pinch of mud into her mouth, insisting I do the same: “*mikusayki, ama unquchiwaychu! Niy!*” — “‘I’ll eat you, don’t make me sick!’ Say it!” Piercing the ground with a needle is also a preventive form of this practice, often done before setting a young child to sleep on the ground.

While *phukuy* is often a proactive measure to ensure the health of the herd, many practices are performed either proactively or reactively to address disorder or illness. The practice of *q’apachiy* (lit. “to make smoke”) is one example. As reflected in the opening remedy and vignette of this chapter, in this practice the essence or essential qualities of certain entities (such as grounded tubers, gourds, and human hair) is transferred through the air as smoke or as scent. As a medicinal practice that mediates across humans, animals, and landscapes, *q’apachiy* circulates qualities and essences across social beings. Like *phukuy*, *q’apachiy* is also occasionally used proactively as a communicative practice. The strong smells released through burning are communicative signals that can serve as either a deterrent for malevolent entities like wind and hail, or as a generative offering for place persons. Although the practice of burning strong-smelling objects to ward off hailstorms is not common in Chillca, on the other side of Ausangate mountain people routinely set off fireworks or burn old shoes as soon as they hear a hailstorm approaching. Upon witnessing this in the beginning of my fieldwork, I had assumed the sound of the fireworks was the deterrent,¹¹⁶ but women in the community soon told me that the crucial mediating component was in fact the smell. “Hail doesn’t like bad smells” (*chikchi*

¹¹⁵ In certain instances, making the sign of the cross is an extra measure of protection: as a Catholic, Consuelo knew that Satan was also likely to send malevolent spirits and winds.

¹¹⁶ And, perhaps, this was their original intent: although the origin of this practice is unclear, it is possible that fireworks were distributed in the region to be used as “hail cannons,” devices that are used throughout the world with the belief that the sonic waves would disrupt the formation of hailstones in the atmosphere.

mana asnanta munanchu), I was told: entities like hail and wind are especially repulsed by strong smells, such as that of the sulphuric smoke released by the firework.¹¹⁷ Likewise, strong-smelling substances (burnt rubber, burnt hair, *chuñu*, armpit sweat, alcohol, cigarettes, lavender) are routinely used in Chillca to ward of the ill effects of wind: smelling these substances can help prevent or cure a headache, hiccups, or other physical maladies brought on by *malviento*, a remedy that is effective for both humans and animals.¹¹⁸

Wikch'usqalla: Shifts in Communicative Practice and Conversion to Evangelicalism

While observing the *dispachu*, I noticed how often Consuelo and Agustín would pause to dig through plastic bags, rummaging for various essential components of the ritual that had gone missing over the years and muttering half-amused and half-irritated to themselves (“*anis, anis*, where in the world is the *anis*...”). At one point, they realized that they’d left a crucial bottle of wine down in their wet-season house, but it was too late by then and they decided to do without. Around midnight, as the bundled offering smoked lightly in the pen, we drank a medicinal tincture of *wayra awsima* and alcohol to ward off the cold, and Agustín and Consuelo reminisced about how things used to be, noting that they used to be much more prepared to perform the *dispachu*. They recounted how all the families in the area participated on August 1st, coming together to drink, dance, and share coca through the night, the hillsides twinkling with the little

¹¹⁷ Julie Cruikshank notes a similar practice in the circumpolar region of Alaska, where people burn old clothing or blankets to deter glaciers that are dangerously attracted towards human camping sites by cooking smells (Cruikshank 1992, 332–36).

¹¹⁸ Conversely, some smells, such as the smell of rotting flesh, can be pleasing to the *apus* and are used to stimulate goodwill. Similar to *q'apachiy*, is the practice of burying items in order to encourage them to rot (*ismuy*) and release the smell. For example, herders sever their sheep's tails to prevent illness and injury to the animals, and follow with a feast of sheepstail soup. At the end of the meal, the bones are not tossed to the dogs as they would normally be, but rather herders bury the bones in the sheep's *kancha* to rot, offering them to the *apus* and *pukaras* along with the accompaniments of *kañiwa* and coca. As Consuelo's sister-in-law explained to me as she collected our sheep's bones, upon smelling the rotting flesh, the *apus* will be pleased and will encourage the sheep to reproduce (“*apukuna samichimunqa, kusiqa mirachimunanqa*”).

fires of other families preparing their *dispachus*. Not anymore, as Agustín noted, “because of the evangelicals, it doesn’t happen” (“*Irmanukuna [hermanokuna] kapun chayrayku mana kapunchu*”). They likewise noted that the materiality of the *dispachu* had changed with the arrival of the evangelical religion. In the past, they would find *inqas* (small, stone talismans shaped like animals) hidden in the mountainside in the morning, noting that the ones that emerged on the side where the sunlight hit were especially valued.¹¹⁹ These *inqa*, which they used to incorporate into their *dispachus*, have now been replaced by plastic animal figurines like the ones they selected today: “now, the evangelicals have changed people’s beliefs/minds [lit. ‘stolen their heads’], sellers come and we buy [figurines]... [people] don’t pick up *inqa* anymore” (“*Kunanpis mana, irmanukuna más kapun chay umanta suwapun, rantiq hampukun chaymi vindipuyku... manan inqakunata uqariyapunñachu*”).

¹¹⁹ For more on the use of *inqay* among southern Peruvian pastoralists see Flores Ochoa 1974. Catherine Allen also elaborated on the significance of miniatures in moments of ritual play during the festival of Quyllur Rit’i (1997). Individuals gather small pebbles from the surrounding landscape and organize, rearrange, and exchange them between different “players” on an extended cloth, thereby communicating their desires for material goods and the vitality and sustenance they provide. However, the pebbles are not merely miniature representations of existing material entities (animals, mountains, houses, trucks, landholdings as well as refrigerators, sewing machines, and radios). Rather, they are “prototypes” that *produce* the entity itself “in its vitality as well as its physical form” (1997:79). Gathered from the earth’s surface, they are condensed forms of the same substrate of animating essence that is shared among all things. Furthermore, as chunks of rock bestowed from neighboring mountains, they are condensed nodes of the social relations that run between people and places (81). In moments of ritual play, people use miniatures not only to represent but to actualize and manipulate larger sets of relations. As Allen writes:

The fact that pieces *of* the mountain are presented *to* the mountain to communicate *with* the mountain is an extreme condensation of the normal cycle of reciprocity in which deities provide human well-being and are in turn sustained by that well-being. (1997:81)

In this form of symbolic textuality, forged in the spatial organization of stone, representation does not merely “encode... human thought, memory and desire,” but embodies, enacts, and actualizes it (82).



Figure 43: Consuelo and Agustín preparing the *dispachu*

It became obvious quite quickly during the time I lived in Chillca that, although Consuelo and Agustín wanted me to witness what they referred to as their “customs” (*kustunri*, from Spanish *costumbre*), many of these practices were no longer regular occurrences. In my first few months in Chillca, they spoke enthusiastically of their ritual practices— particularly the *dispachu*, but also the practice of sprinkling chicha over the herd (*ch'allay, anqusay*) around Carnaval in February— always telling me how they would do it so that I could see it (“*rikunaykipaq*”). However, it soon became apparent that it had been a number of years since they had performed many of these practices. When I asked about the last time they had sprinkled chicha on the herd, they responded that it must have been about four years ago, when Kaito was there. Kaito was a Japanese anthropologist that lived in Chillca for a year in 2011 and spent time with Consuelo and her family, and, as they told me, was especially interested in religious practice. Especially in my first few months in Chillca, Kaito was a helpful point of reference as we all made sense of one another and our now intimately-shared lives. But his previous presence in Chillca also meant that Agustín and Consuelo had expectations about what kinds of practices I might be especially interested in witnessing.

Many of these conversations arose around early February of 2016, in the weeks leading up to the major holidays surrounding Carnival (*carnavales*). Historically, *carnavales* was a central ritual time of the year, in which people from surrounding communities would gather to celebrate with drinking, dancing, while marking their animal's ears and sprinkling chicha over them for the year to come. During *carnavales* in 2016, Consuelo was especially enthusiastic about my ritual education, even if it caused some confusion on the part of her children and grandchildren. Once I asked Consuelo when they were planning to *ch'allay* the herd, and she simply said "soon," but her six-year-old grandson asked what it meant to "*ch'allay*," causing her to become slightly embarrassed— she laughed slightly, and didn't answer, turning her attention to the pot she was washing. Another time she told her daughter Camila that she was going to sprinkle chicha on the herd ("*Anqusasaq nuqa...*") to which her daughter responded, irritated, "what for?" ("*Ima anqusanki?*"). Camila reminded her that there more important tasks: she had to finish sewing borders on the skirts and sewing beads on the hats (*monteras*) that her daughter and granddaughter would wear during the Carnival dances in the central plaza.

Consuelo admitted that ritual practices of communication between humans and landscapes were increasingly rare. Many of the communicative practices that once held humans and landscapes together— in particular, the practices through which humans served places— had fallen away for many people in Chillca. It was a shame, she said, but she wasn't especially concerned about the loss of these practices. She was far more concerned with other things, such as the financial wellbeing of her children, which, importantly, she did not tie to their performance of ritual practice as other herders did, but rather to their performance in wage labor and the sale of animal goods. In contrast, her in-law Virginia, a woman of 81 years old, lamented the loss of these practices and was especially concerned by the lack of communication from the

apus and *pukaras*, who used to talk to humans through the medium of a ritual healer

(*altumisayuq*):

In the old times, the *pukaras* were like humans, they talked, they came to visit. There was the *altumisayuq*, and the *altumisayuq* talked with Cinco Machula Ichhunayuq [a nearby place], and also with the *apu* from down the valley, Poma, back then. Sayri also talked, all these *pukara* talked. In those times, offerings were made to the *apus* when they came. People served the *apus* so that the animals reproduced back then. Playing music, we made offerings to the *apus* so that the animals reproduced. We lived like that, offering them chicha...

...My father used to beckon the *pukaras* with the *altumisayuq* and they would come, like people. They all had names. They always talked, the *pukaras*: saying “my name is this, my name is that.” The large mountains would talk to us, they’d speak Spanish, in *runasimi*, Quechua, too.¹²⁰

Notably, Virginia was especially insistent that the *pukaras* communicated verbally, in the very languages spoken by humans in the area. The *altumisayuq* was a critical mediator of these communicative practices, often voicing or otherwise facilitating the verbal engagement of the *pukaras* with the human participants. The loss of reciprocal practice between *pukaras* and humans was made evident in the disappearance of the role of the *altumisayuq*, and the loss of verbal communication, resulting in the silence of the *pukaras*:

Virginia: Back then we used to serve/ make offerings [*alkansakuq*] to the earth [*tira*] here, now the earth isn’t remembered [*mana yuyarisqachu*]. Now there are no offerings whatsoever. It’s just forgotten, lost [*wikch’usqallaña*]... My father used to call the *altumisayuq* and he’d come. Now there are no *altumisayuq*.

Allison: Why not?

Virginia: It’s over now, it was just in the past.

Allison: And the *pukara*, they don’t talk anymore?

¹²⁰ “Ankay pukarakuna rimariq runaynan kaq haykumun. Altumisaq kaq, altumisaq rimarin haqay na Sinku Machula Ichhunayuq, urantaq na Pumapiwan, chaypin rimarin Sayri rimarin chakunaq pukara rimaqmi ñawpi timpupi. Apukunaq aykumun sirvinaq kaq. Hinallataq. Uywaruway kaq ñawpa timpu. Uywaruway kaq chay, uywata ruwaspa tukullaspa puriq kayku. Uywata anqusaspa. Anqusaspa puriq kayku...
... Altumisata papay wahachiq chay haykumun. Runallan rimaspa. Sutiyuqkama. Rimanpuni. Kay pukarakunaqa. Tal nuqa kani, tal nuqa kani, nispa. Hatun urqukuna. Anchaykuna riman nuqansi runata riman kastilluntaq riman, runasimitapas Quechuatapas riman hina.”

Virginia: Not now, they don't say anything. The *pukara* are still living, in August they're alive. [But] now there are no offerings. Nobody makes offerings.¹²¹

Although the *pukaras* are still alive, their refusal to engage in communicative practice with humans was a major cause of concern for Virginia, as I'll explain further in the next section. This silence emanated from the lack of reciprocal engagement on the part of humans, who no longer practiced many of the rituals that engaged and held humans and landscapes in productive reciprocal relations with one another. Like Agustín, Virginia located the breakdown of these relationships in the rise of evangelicalism in Chillca, a process that has reconfigured the social world of Chillca in significant ways.

In the same conversation in which they explained *pukara* to me, Matías and Marisol also told me that many people no longer believed in *pukara*, and fewer people knew how to serve them. "It's all changing with religion [*rilihiun*]," Marisol said:

Allison: So people don't believe in Pukara?

Marisol: That's right, they don't believe.

Allison: Do you two believe?

Marisol: Not anymore.

Matías: I don't believe anymore either.

Marisol: People did those things in vain, it's said now.

Allison: So you don't *phukuy* with coca anymore?

Marisol: No.

¹²¹ Virginia: Tirakuna ñawpa timpu alkansakuq kaypi chaylla, manam, kunan mana tira yuyarisqachu kapun. Mana kunan alcanzakuyapis imapis kapunchu. Wikch'usqallaña... Chaynata papay wahachiq altumisayuy chay, altumisayuy haykumun. Altumisayuy mana kapunchu altumisaqkunaqa. Mana kapunchu.

A: Imanaqtin?

V: Tukupapunlla. Ñawpallapaq chayqa.

A: Pukarakunari manallachu rimanku?

V: Mana imayta rimanchu. Kawsan kay pukarakunaqa, agustutaq kawsanku. Mana kunan alkansakuy kapunchu. Mana pipas alkansakuychu.

At this point in the conversation, Marisol turned to Matías and, giggling, recounted a time when Kaito was living in Chillca and they sprinkled chicha on the herd with Matías' sister, Camila:

[to Matías, laughing]: [Remember when] we danced with our sister Camila?

Matías: Where?

Marisol: Over there, in Chillca Q'asapi?

Matías: Saying what?

Marisol: Sprinkling *chicha* on the alpacas. [Remember] we were sprinkling *chicha*? We made him [Kaito] sprinkle *chicha*. You all threw grain too. And the teachers came over, right.

Matías: And then?

Marisol: For no good reason, we were just messing around doing that stuff, right?

Matías: Of course.

Marisol: Then we marked the animals [*taku*; with colored clay for identification], made them drink *chicha*, all that. We weren't messing around with that though [the *taku*], we did that in an orderly way.¹²²

Matías and Marisol, along with many other young couples in Chillca, had converted to evangelicalism a few years prior with the arrival of the Maranata church in Chillca. For Matías, it was the sermons that captured his attention— upon attending his first service, he was moved to

¹²² Allison: Mana pukarata kriyinkuchu?

Marisol: Ari, mana kriyinkuchu.

A: Qamkunarí kriyikichischu?

M: Manaña.

Matías: Yo también, ya no creo ya.

M: Yanqama chaykunataq ruwasqana nipun.

A: Mana kukata phukunkichischu?

M: Mana. Vilma hermanansipiwán tusuyurayku...

Mt: Maypi?

M: Haqay Chillca q'asapi

Mt: Ima nispa?

M: Paquchata ch'uyaspa. Ch'uyashanchisraqmi riki. Pay [Kaito] ch'uyayachiwanku riki. Qamkuna estibasharankis riki. Chayman tirayamusqaku maestrokuna riki, riki?

Mt: Chayrí?

M: Yanqapunichu linqa linqakaymanta chayta ruwakushayku imanakushaykuyakanpis riki. Mana ruwakushaykupis, eh?

Mt: Claro.

M: Ch'aquyuyku, takuyuyku, aqhakunata upyayachiykuhina ima. Manalla linqaykachaspunichu urdinpipuniya. Chay ch'akulluyku, aqhata uqarichikuyku. Manalla piru linqays chay urdinllapuniya.

tears by the stories of people who were visited by angels or heard divine voices, and were thus compelled to change their ways. “It changed my heart,” he said, citing in particular how becoming Maranata helped him to stop drinking alcohol, which he considered a destructive habit that he had developed while working in the mines in Maldonado.¹²³ For Marisol, her interest in the Maranata religion began when she moved to Chillca to live with Matías, and was living in closer proximity to her sister Alejandra and her husband Herbert, who had already converted to Maranata years prior. She initially brought Matías to the church, and within a short time they were active attendees.



Figure 44: the Catholic church in Chillca

While Peru is a predominantly Catholic country, the presence of Protestantism (particularly North American Evangelical Protestantism) rose substantially in the late 20th century, especially in the countryside surrounding Cusco. The central evangelical church in

¹²³ The use of alcohol is deeply embedded within Andean Catholic practices such as the *dispachu* and *pagu*. Catherine Allen remarked that evangelicalism in the Andes could be considered akin to a “sort of local version of Alcoholics Anonymous,” in that one of its central tenets is supporting the abstention from alcohol through AA-like group support methods (2009, 30). However, many residents in Chillca find it difficult to abstain entirely from alcohol and coca, given the central importance of both substances in practices of labor exchange between households (Mayer 2002; Salas Carreño 2018).

Chillca is the Iglesia Evangélica Maranata, which was first established in the city of Puerto Maldonado through the Swiss Mission of Evangelical Cooperation (*Misión Suiza de Cooperación Evangélica*) in the 1970s. Following the Interoceanic Highway from Puerto Maldonado up to the highlands of Cusco, the Maranata church established a congregation in the town of T'inki on the northern slopes of Ausangate mountain in the 1980s, which was later established as a regional center (*Iglesia Zonal*) that now coordinates 50 local churches in the districts of Carhuayo, Ocongate, and Marcapata, and trains pastors in the nearby town of Ocongate (Salas Carreño 2012, 259). Since then, pastors and congregates from Ocongate have made their way over to Chillca, and continue their conversion efforts in the town center to this day. During my fieldwork in 2015-2016, with the assistance of church members and leaders from Ocongate, the community of Chillca completed the construction of the Maranata church in the *centro poblado*.

For Catholics in Chillca, like Consuelo and her in-law Virginia, the rise of the Maranata church and the conversion of much of the population was to blame for many of the misfortunes occurring in the community.¹²⁴ In particular, many Catholics attributed increasing human and animal illness, lower reproductive rates, and climatic changes (particularly the increase in hail) to

¹²⁴ Catholics in Chillca often typified Maranata as selfish (*maqla, mich'a*), obsessed with the accumulation of money and not generous to strangers. Whenever I visited with other members of the community, Consuelo would ask if they fed me, and if they didn't, she maligned them as being selfish due to their Maranata faith. Similarly, domestic disputes, divorces, and family separations also considered by Catholics to be unique to the Maranata families, even though these were seemingly equal occurrences among the Catholic population. Consuelo was incredulous that her own family members had converted to the Maranata faith, and she maintained that Matias and Marisol had been tricked (*ingañasqa*) by others into becoming Maranata. When I asked if she herself ever considered converting, she responded "No, they wouldn't be able to trick me, it [would be] a betrayal! God would punish me, I wouldn't be able to" ("*manam, mana ingañanmanchu, traysiun chay! Castigawanman Dios, mana atiymanchu*"). Maranata community members, on the other hand, maligned Catholics in the community for being sinful in their drinking and dancing, and regarded practices such as the *dispachu*, *phukuy*, *q'apachiy*, and the chewing of coca to be sinful and associated with the work of the devil.

the loss of these communicative practices between people and *pukara*.¹²⁵ As Virginia explained further:

Virginia: And the hail [*chikchi*] that beats down, right? In the past, it didn't kill animals or people, now people don't remember, so it kills people and animals. *Chikchi*.

Allison: Ah, *chikchi* comes from the *pukara*?

Virginia: Of course, the hail that explodes, that's from the *pukara*. It's always like that, it always comes with bullets [*balas*].

Allison: Bullets?

Virginia: Its hail, its bullets. The *pukara*'s bullets are what are beating down [*t'uqashan*], right? Just like that. In the past they didn't harm animals, they didn't harm [lit. grab, *hap'iy*] people, because offerings were made [*alkansakuq*]. Now they don't make offerings, so it harms people and animals.

Allison: Without making offerings, the *pukara* harms [people and animals]?

Virginia: Now because everyone is evangelical [*irmanullan kapun*], they don't make offerings. In the past they made offerings. On Santiago we made offerings with fire [*sankan*] to the *pukara* so we could have animals. Now we don't do that. So there are fewer animals.¹²⁶

For evangelical community members, on the other hand, climatic changes were not indicative of a breakdown of communication between humans and *pukara*, but were potentially *the result* of these encounters. When I mentioned Virginia's explanation of *pukara* to Matías and Marisol,

¹²⁵ Similar responses are reflected in a recent article by Morgan Scoville-Simonds, in which many Andean community members argued that the rise of evangelicalism and the resulting failure to perform *pagus* "has resulted in problems like increased hail and cattle sickness, as well as the lost ability to read signs that predict the weather" (2018, 351). See also Allen 1988; Bolin 1999; Paerregaard 2013. Guillermo Salas Carreño (2018) likewise noted the attribution of human illness to the anger of neglected places following the conversion to Maranata, which led people to revert back to Andean Catholicism. For similar interpretations of hail and frost in other parts of the Andes, see Berg 1989; Boillat and Berkes 2013; Rivière 2002.

¹²⁶ Virginia: T'uqan chay chikchipsis riki. Chaylla kunanqa alcanzas, ñawpaqa mana uywantapas runatapas hap'iq, kunan mana yuyaripun chaywan uywantapas runatapas hap'ipun. Chikchi.

Allison: Ah, chikchi pukaramanta hamun?

V: Riki! T'uqan pukaraya. aynapuniya, balayupuniya. Ankay qaqakuna.

A: Balayuq?

V: Chikchillan, balan. Kay Pukarakunaq balan chay t'uqashan riki. Aynalla kaq. Ñawpaq mana nishutachu uywatapa hap'iq mana runatapas hap'iq, alcanzakuq chay. Kunanqa mana alkansapun chay runatapis uywatapis hap'in. Hinan kaq.

A: Mana alkansakuqtin, chaymanta hap'in?

V: Kunanqa hermanollan kapunhinantipis chaywan mana alkansasqachu. Ñawpaq alkansasuqa karan. Uywakunatapas sankanpi napi Santiagupi qunuq kay pukarapaq alkansarakuq kayku. Kunan mana chayta ruwapuykuchu. Chaylla uywapis pirdin!

they agreed that when they were younger and considered themselves Catholic, they too had lived in fear of the wrath of *pukara* and served them diligently alongside their parents. Yet when I asked if they were still afraid of the *pukara*, they paused before responding uneasily:

Matías: Of course, I'm still afraid.

Marisol: Me too, I'm afraid of them. People say they're alive, right? The mountains are still alive, right? They protect us from hail, people *phukuy* with *llift'a* [ash], saying *phiiuuu...*

Then their conversation became quieter as they spoke directly to one another:

Matías: [That was] to Satan though.

Marisol: Of course, that's just what they say, right?

Matías (quietly in Spanish): The bible says it clearly: "I'm in the air, in the water," [switches to Quechua] "Also in the soil" it says. We served him [Satan] too often.

Marisol: If we're faithful to God, then hail won't hurt us, that's what they say, right?

Matías: Mm-hm.¹²⁷

As Matías and Marisol articulated in their conversation, for many Maranata, communicative practices with *pukara* had always been in vain, if not overtly harmful: communicating with earth beings was useless at best and potentially dangerous at worst, inviting the devil to work. Like Catholics, they still held that the origin of misfortune was human disobedience, and that the remedy was the initiation of reciprocal communicative practice. However, their interlocutors had changed: the primary interlocutor was not an earthbeing, but God, and the appropriate communicative channel was prayer. The failure to be faithful to God (by abstaining from prayer,

¹²⁷ Matías: Manchakuni claro.

Marisol: Nuqapis manchakuni. Kawsanmi ninku riki, kawsashansi urqukuna riki. Chikchimantapas pukara hark'awankuqa, llikt'awan phukushanku *phiiuuu* nispa.

Mt: Satanas piru riki.

M: Riki, chayna nikupunsi riki.

Mt: Muy bien que dice la biblia: 'yo estoy en el aire, en las aguas, nuqan tukuymi kashan' nishanmi. Hallp'aq chawpipas chayninpis, nishuta payman aypapurankuyki.

M: Dioswan fiyilqa kuwaq chayqa mana na chikchi hap'iwusunmanpis chaypis riki.

Mt: Mm-hmm.

or engaging in sinful practices such as drinking, chewing coca, or serving Satan through ritual practice with *pukaras*) led to misfortune. The appropriate remedy was the demonstration of fealty to God through sanctioned evangelical religious practice. In a conversation with a herder in her forties, Margarita, she described in detail the changes in the harvest schedule, before noting how these changes were all connected to our unfaithfulness to God:

Like this, the climate is going crazy [*muyupushan*]. And why? God's word says so, right? "For your sins, the rainy season will become the dry season, and the dry season will become the rainy season," he said. It was said like this in God's word: "This is the punishment for your sins, I gave you a good harvest, the months and the seasons in their time," he said. When I was a child, we enjoyed the dry season in the harvest months, everything in its time. Now it has changed. All of us people, in our sins, we have caused [these changes] through God's anger. One day, He will return.¹²⁸

Yet other Maranata community members expressed that climatic changes were part of the inevitable, foretold progression of the Second Coming of Christ and the approaching end-of-times, and were therefore unaffected by human intervention. The greater concern was in preparing oneself for the Second Coming.¹²⁹ In a conversation with a herder, Edgar, in the sector of Alkatarwi, he linked the severity of climatic changes over time— increasing intensity of rains, winds, sun, and heat, and the diminishing ice cover on Ausangate and other surrounding peaks— to a broader process of transformation that heralded the Second Coming:

In the future there won't be water, there won't be food, it will dry up, and only then will people listen to the word of God. God's return is coming, the second coming of Jesus Christ is close. Little by little, it's coming. In the past there were good harvests, there

¹²⁸ "Aqna timpukuna kapushan muyupushantaq. Imaraykucha chayna? Chay Diospa simin nin, riki, 'Qamkuna huchaykichisraykun puquypas chirawaman tukun, chirawapas puquyman tukun' ninmi, nispa nisqa Diospa siminpi. 'Qamkuna huchachakusqaykichis, nuqa quraykichis kusi huchuta, killakunatapasp killallanpi,' nispa nin. Chay kusihu killakunaqa munaytaya aqnacha kashaqtiyqa ch'akirikun, aha timpullanpi, kunantaqya manan chaynachu kapun, nuqanchis ya tukuy runa huchachakuspa chayta ruwanchis, chaylla Dios phiñakuynin. Huq p'unchaw kayman chayamunqa, riki."

She had heard through the radio that it was even worse in places like the United States, a place that was portrayed as especially sinful:

Yes, God will return, he's already returned in other places people say. They say there is no water or rain in other places, like the United States and other places, you hear it on the radio. They say they collect and drink cow's urine because there is no more water. For us too there is little water, there used to be much more... there is little time left, and we will have to live like that, what will we do?

¹²⁹ Similar interpretations were recorded by Scoville-Simonds (2018) and Flores Moreno (2014).

wasn't frost or hail, the harvests were good. Now the food is running out, there is frost, it is hailing, it's like that now. It doesn't rain— when it should rain the frosts come, when it should rain the drought comes, that's how the weather is changing. God's return is close now, the Second Coming. Like it was in old times, it will be the same now in the Second Coming. In God's return, people will fight over water, they'll fight over land, they'll be like 'this is my [land] from here to over there.' It is already upon us. This is God's announcement, it's coming to fruition, people are fighting and hating one another.¹³⁰

While a more in-depth analysis of the eschatology of the Maranata church and its followers exceeds the scope of this study, it is worth noting how the social actors have shifted in these interpretations of climatic change, allowing for new chains of causality to emerge that account for different forms of reciprocal engagement. In the following section, I return to a broader discussion of Andean ontologies, to ask what has fallen away, and what has emerged to take its place.

Ontological Disruption: Substance and Absence

The breakdown of reciprocal relations between social beings brings a crucial question to the foreground: if social beings emerge and are brought into existence through reciprocal engagement, then would the inverse be true— does the disappearance of communicative practice lead to the disappearance of the entity itself? It is tempting to make such a leap, given that *pukaras* and other beings are defined not as stable objects, but as bundles of relationships, such that when the communicative practices of reciprocal engagement—feeding, naming, speaking—

¹³⁰ “Qhipaman mana kapunqachu unu, mana kapunqachu mikhuy, ch'akirinpunqa ari chaypiqa yasta runaqa Diusta uyaringaku. Diospa kutimunan cercana, segunda venida de Jesucristo cerca. Chaymi chay astawan avansamushan sigishan avansamushan astawanña poco a poco. Ñawpaqqa karan mikhuy pas sumaq karqan, mana q'asapas karanchu ni chikchipas karqanchu, mikhuy karqan sumaq, kunanqa mana mikhuy kapunñachu, q'asapapun, chikchirapun aynaña kashan kunanqa, mana parapunchu, parananpi q'asa kapushan, parananpitaq ch'aki kapushan, aqnana timpu kambiapushan. Diospa kutimunan sirkaña kashan, segunda vinida, imaynan karan ñawpa nuivu timpupi anchaynaya kunanpas kamullanqataq sigunda vinidapis, chaylla kasqallan kamullanqataq. Diospa kutimunanpi unumanta maqanakuy qichunakuy, hallp'a qichunakuy, hallp'amanta maqanakunqaku, hallp'ata runa 'nuqaq kaymanta haqaymanta' anchaynaña kunan kapushan. Chayaykamushanña. Chay chaylla Diospaq unanchayninpuni kamushan, huntakamushanña chaykuna, runakuna maqanakuy awqanakuy kamushan.”

begin to slip, the entities themselves would conceivably also fall out of being, losing both their substance and their subjectivity.¹³¹ And yet, even when humans fail to engage in reciprocal practice with *pukara*, they note that the *pukara* are still alive—and in many cases, as Virginia argues, they are not weakened but emboldened by their abandonment. Even for evangelical community members that view communicative practice with skepticism and even scorn, *pukara* still exist. In the previous chapter, in which I discussed reciprocal engagement between humans and animals, I suggested that the failure of communicative practice in these encounters indexes a broader socioecological instability and unpredictability. The same seems to hold here, with humans and landscape beings continuing to encounter one another within shifting parameters of engagement. While *pukaras* have not ceased to exist, both Catholic and evangelical herders in Chillca note that the changing quality of the relationship indicates a general instability in the world: an unpredictability of both relations and matter.

As I discussed at length in the introduction, observations of climate change in Chillca do not follow a linear or coherent narrative that suggests a progressive change over time. Rather, a shared commonality among divergent narratives is the noted change in the *intensity* of certain essences, and the sudden presence or absence of phenomena, such that the materials and relations that constitute the broader world have become novel in ways, and thus unpredictable. In the past, the sun wasn't as intense (*fwirti*), the rains were calm (*sampha*), and seasons came at their time. Now the sun burns hot and bright and the rains beat down ferociously during the months when it should be dry. Conversely, the icy chill of the morning is colder, and the parched desiccation of the dry season is even drier. In sum, the expectations of stability with which herders plan their lives have fallen away.

¹³¹ This was suggested by Scoville-Simonds in his research among evangelicals: “as the practices that enact this relationship [of co-constitution] shift, so too do the identities of the co-related subjects” (2018, 353)

Occurring alongside, and at times signaling these broader changes, is the appearance and disappearance of certain substances and essences. One of the most recognizable categories of substances is *kuntaminasiun* (from Spanish *contaminación*, pollution). In Chillca, there was a strong association of the concept of climate change with *kuntaminasiun* in the form of smoke (*q'usñi*, from factories and cars) and trash (largely plastics). On the radio, trash is a common topic of discussion, and reports of high levels of *kuntaminasiun* in the cities of Cusco and Lima gave people in Chillca the sense that urban spaces were especially polluted. However, it was not an exclusively urban problem, and many people expressed fears that *kuntaminasiun* had reached Chillca and was making people and their animals sick. And indeed, *kuntaminasiun* had been detected in Chillca: Consuelo would pick up trash as we walked the hillsides, remarking that in the past she used to find glass bottles, but now it's all plastic, a substance directly associated with *kuntaminasiun* as trash (*basura*) in a way that glass is not: "*puro plastiku, basura basura!*"

Trash was often a source of consternation at the monthly assemblies, and municipal trash collection initiatives tethered the issue into broader notions of sanitation, health, and associated ideals of cleanliness and respectability. Every two months the municipality designated a woman in the community to pick up litter in the town center on Mondays, Wednesdays, and Fridays, for a small sum. Donning a long, skirted blue coat bearing the municipal emblem and plastic white boots, she strolled throughout the center of Chillca with a plastic bag collecting the bottles, cans, plastic bags, and other bits of trash that scattered along the edges of the main road, plaza, school, health post, and community assembly hall. Sometimes the owner of the town store would join her, and together they would decry the amount of trash: "*nishu basura, plastiku, nishu kuntaminasiun!*" they'd remark back and forth.

Another herder, who worked as a caretaker at one of the tourist lodges on the outer edges of the community, remarked on the increasing levels of *kuntaminasiun* due to tourism, and connected it to the rapid snowmelt on the surrounding peaks:

[The snow] is disappearing. As time goes on, so much is coming of this, um, what's it called? Plastic, litter, corrugated tin. All of that is polluting the environment, making [the snow] melt, [the peaks are] bald now. In the past there wasn't any of that plastic, nothing like that, or rubber, nothing like that. These mountains were normal, they retained snow. Now they are being contaminated with [trash] and it is melting the snows. Sometimes the trash makes its way up that distant Vila (mountain). The tourists go up that Vila to climb, and going up they make it melt [until it's] bald. They are going up that peak and they make the snows melt, there isn't any anymore. Too much tourism is coming, they throw trash, they are polluting just like that as they come through.¹³²

In particular, he noted, the reflective qualities of novel substances like corrugated tin cause “embarrassment” or shame to the mountains, scaring them and causing them to retreat or melt:

The highways are coming [to the *alturas*], with all of this there is *kuntaminasiun* in the snows. With the cars coming, the snows are melting. The reflection of the corrugated tin, like a mirror, it scares/embarrasses the snow and makes it melt.¹³³

Both trash and smoke were associated with increasing human and animal illness. The trash collectors worried that people and animals would get sick if they drank the water in which the trash was floating. Consuelo noted a rise in diarrheal illnesses among her animals, which she attributed to pollution:

Allison: Are there more illnesses now than before?

Consuelo: uh huh, there's more. Before there were few. There wasn't much diarrhea back then, now there is.

¹³² “Pisiyashan, timpu avansamushanpuniñaya hamushan bastanti na iman sutinqa? Plastikunakuna wikch'uku chaykuna nashan kuntaminasiun chay ambintita chayqa chay chulluchipushan, kalamina chaykuna kunanqa q'ala, ñawpaqqa mana chaykuna karanchu, plastikun ni nada imapas karanchu, ni hibi ni nada ni imapas karanchu chayqa chaykunaqa kay urqukuna normalllaya kay rit'i urqukunaqa mantinikurqan kunanqa kuntaminakushan chaywan chullupushan, aha, rit'ikunata, basurakunata ayvicsisqa kunanqa siqapunku, turismukuna siqapunku haqay vilata escalaman chaykunaman siqaspaya chulluchipunku chay kunanqa q'alata chullupushan, siqapushanku haqay puntata chayqa chaykunata chulluchipushan, chayya mana kapushanchu, kunan nishu hamushan turismu yasta chayman chayqa wakin basurata wikch'upunku pasaqtin imananku chaykuna kuntaminamushan. Ayna kashan.”

¹³³ “Chaykunawan astawan rit'ita kuntaminasiun karru chayashan chayqa rit'ikuna chullupushan chaykunapipas. Riflihuwan p'inqakuyku, kalaminakuna lliuh espahun chayqa chulluchipushan, kalaminakuna, chaykunaya p'inqaspas chulluchipun rit'itapas. Ayna kashan.”

Allison: Why?

Consuelo: *Kuntaminasiun*, right? When I was a child we didn't see as much diarrhea, and it wasn't as difficult to treat the animals.

Allison: What kind of *kuntaminasiun* is there?

Consuelo: It comes from those things... it comes in the smoke— from the factories. From people. In the past there were few factories. It's because of that.¹³⁴

In addition to making humans and animals sick, the smoke of *kuntaminasiun* also obscures communicative practices between humans and spirits. In the following interaction, three herders were discussing the types of exchanges that used to occur between humans and spirits with more frequency. As one of them described a dream in which he woke up unexpectedly near a wetland covered in a glowing green substance, another herder argued that it wasn't a dream, while the third herder suggests that these occurrences are perhaps unique to Chillca and other highland communities due to a relative lack of pollution:

Eduardo: It was like this, always like this. It wasn't a dream; this is how we lived. There are ghosts (*fantasmas*) here, there are *wayra: uraña wayra, kukuchi wayra*. This I'll tell you. This stuff rains down... like water droplets, but it's not rain...

Benito: He's saying that *malviento* exists. When you go out in the rain or at night, there's nothing—you don't even see the stones at your feet. You have to walk with a flashlight. And when you're walking— this happened to me twice— when I've gone out with my hat, my *chullu*, and it glows this color [points to bright green grass]. It's as if it were frozen or something, like little hairs. And more and more it glows, and you go like this [he rubs his head and hands], and your hands start to glow. One time it happened to me, and I tried to do this [rubs his hands through his hair] and it kept glowing more and more, on my hands, here on my nails. And it got all over me like this [rubs his hands over his clothing], all over. That's *malviento*. It's scary.

Guillermo: Do you know what this is? Sometimes they talk about this on the radio, no? Sometimes at night we walk in fear. This is *mal espíritu*, it happens to us. But it's a story, from our ancestors— my grandparents, great-grandparents, they told us about this. It was

¹³⁴ Allison: Kunan unaytimpumanta aswan infirmitad kashanchu?

Consuelo: Uh-huh, aswan. Unaytimpu pisi karan. Mana q'ichan unquypis karanchu unaytimpu. Kunan kan.

A: Imarayku?

C: Imaymanta, kuntaminasiun, riki? Mana, irqi kashaqtiy mana riqsiranisqa q'ichuntachu. Mana sasa hampinachu karan.

A: Imayna klasi kuntaminasiun kashan?

C: Nakunamanta hamukunpis, q'usñipi hamun riki, fabrikakunamanta, kuntaminasiun. Runakunamanta.

Unaytimpupi mana, pisi fabrikakuna karan. Anchayraykuwan.

bad, for them it was bad. But nowadays, we don't really believe in this anymore. But even though we don't believe, it still happens... This happens all the time here in the *alturas*. But in the city it doesn't happen anymore, because of all the pollution we have, factories, all the cars we have, it doesn't happen anymore. It doesn't happen in the cities. But in the *alturas*, since we don't have much pollution it still exists.¹³⁵

As the final herder suggests, pollution obscures many of the communicative practices between humans and spirits. As pollution begins to become more present in the highlands, it holds the potential to disrupt the lives of herders in Chillca by changing or concealing the material qualities of the essences that pass between humans and other beings.

Similarly, the loss of glacial ice due to *kuntaminasiun* has also led to the disappearance of other social actors with which herders share their world, notably the *kukuchi*, a malevolent entity that causes a variety of human and animal suffering:

Agustín: In the old days *kukuchi* used to live in the snows. There was so much snow back then, you could see it up here [near Ausangate]. Now the snow is decreasing so there are no *kukuchi* anymore, right?

Consuelo: Yes, they're leaving.¹³⁶

¹³⁵ Eduardo: Chayna karan, chaynapuni. Mana swiñuchu, aqua runa purikuyku. Kaypin kan fantasmas, wayra kan, uraña wayra, kukuchi wayra. Chayta willakuyki... Dalikun unuchahina, icha mana parapischu.

Benito: Está diciendo que existe malviento. Cuando vas así en la lluvia o en la noche, no hay nada—no ves ni las piedras así. Con linterna se puede caminar. Y cuando caminas, caminas—me pasó dos veces—cuando voy con sombreo, con el chullu, y aquisito prende de este color. Es como si fuera congelado o algo, como pelitos así. Y más más prende todo, y empiezas tu hacer así, así, y empieza prender en tus manos. Una fecha me ha pasado así, y yo empecé hacer así, más prendió, en mis manos, aquí en mis uñas. Y me pinté acá así así, todo. Malviento es. Es feo.

Guillermo: Sabes como es esa? A veces por el radio se habla de eso, no? A veces nosotros andamos de noche de susto. Eso es mal espíritu, eso nos pasa eso. Pero es una historia siempre, desde ancestro—los abuelos, tatarabuelos así nos dicen. Es mal, para ellos era mal. Pero ahora, hoy en día, nosotros ya no creemos en eso ya. Pero aunque no creemos, pero pasa... Eso pasa aquí en las alturas. Pero en la ciudad ya no ya, por contaminación tanto que tenemos, fábricas, tanto que tenemos carros, ya no hay. Ya no hay en la ciudad. Pero en las alturas, como no tenemos todavía la contaminación, existe todavía.

¹³⁶ Augusto: Ñawpaq timpuq punchayninchis puriq kukuchi rit'ikunapi. Nishu ankay ankaymanta rit'i karan chayqa chay rikuy chaynata. Kunan rit'i pisiyapun chaycha mana kukuchipis kanchu, riki.

Consuelo: Ripushan.

Ag: Ari.

C: Mana askha rit'i kanchu. Rit'i tukushan.

While the disappearance of *kukuchi* and *malviento* could conceivably be interpreted as a positive development— in that both cause human and animal suffering— the loss was concerning in that it represented yet another reconfiguration of social and material relationships in Chillca. As certain entities and essences become present and others slip away, relationships between social beings in Chillca become less predictable.

Conclusion: Who (or What) Emerges?

Later in the year, Consuelo would have to prepare another treatment, this time for me. In the middle of the wet season, I suddenly became deliriously sick, unable to eat and drink, my vision foggy and my hearing replaced with a dizzying ringing. My illness was attributed to *malviento* compounded by the frustration of chasing unresponsive, restless animals in drought conditions. In a clay pot, Consuelo once again prepared a base of alpaca dung coals, on top of which she placed cobweb (*wayra liklla*) and lavender (*wayra alsima*), wafting the smoke onto my face and into my hands. She rolled a leafy herb (*ufway suru*) in her hand until it leaked a bright green juice, which she dripped into my ears. Before she left to tend to the animals, she placed two additional treatments next to my pillow: two tablets each of *paracetamol* and *loperamide* from the local health post.

The rise of evangelicalism and the shifting presences and absences of entities and essences has constituted a reconfiguration of social and material relationships in Chillca. As Consuelo and other herders argued, the illnesses wrought by the novel substances and essences of industrialized pollution and changing climatological conditions require new remedies. Increasingly, herders incorporate pharmaceutical remedies into their medicinal practices, purchasing and circulating broad-spectrum antiparasitic and antibiotic medicines (such as

ivermectin, *enrofloxacin*, and *oxytetracycline*), vitamins, and topical insecticides (such as *cypermethrin*) to combat maladies such as fever (*fibri*), diarrhea (*q'icha*), mange (*sarna*, *karachi*), and fleas (*usa*). They also consult healers and pharmacists in regional cities to purchase tonics and medications for themselves. In doing so, they establish and sustain new networks between social beings, entering into forms of exchange through which they circulate vital substances between humans, animals, and institutions. In place of *pukaras*, herders make appeals to municipal and regional governments for supplemental grasses and seeds, and seek the breeding management advice of regional wool producers to increase the productivity and quality of their herds. These shifts index broader transformations in the social relations between herders and their animals, neighboring communities, city-dwellers, development agencies, the state, and the sentient beings that inhabit their landscapes—mountains, glaciers, rock outcrops, and other socially agentive place-persons. As certain social actors fall away, others emerge in their place: state development agencies, pharmaceutical purveyors, and the Maranata church.

In the next chapter, we follow herders as they circulate their animals across space—the primary method through which they counter shifting landscapes, diminishing grasses, and restless animals. As this system of mobility becomes increasingly difficult to manage due to population increase and competition over diminishing pastures, herders imagine novel socioecological configurations through the nexus of land tenure change, reimagining themselves in the process.

CHAPTER IV

Moving the Herd: Adaptive Decision-Making in an Era of Uncertainty

Chillcantin Sector, Beginning of Dry Season

Every year between the months of March and May, as the rains dry up and the deep chill of the dry season begins to settle in, herders in the sector of Chillcantin move their herds from the valley floor to the high, glacier-fed wetlands at the base of Ausangate mountain. Six households (including Consuelo and Julio) migrate to the hamlet of Antapata, while two households migrate to the valley of Unu Palqa, and four households (including Consuelo's mother Asunta, and her son Matías and daughter-in-law Marisol) walk twenty minutes further to the hamlet of Uqi Kancha, where the piercing white peak of Ausangate hangs over a high, narrow gulley. Setting out in the early morning as the sun peeks over the valley walls, they lead their alpacas, llamas, and sheep up the valley, employing the help of family and neighbors to flank the animals on all sides. Once the animals are settled on the wetlands above, they turn back to the valley floor to load their horses with all the possessions (*kawsaqninkuna*) they'll need in their high pastures: food, pots and pans, utensils, clothing, bedding, medicines, and weaving materials. They take only what they consider their necessities, leaving many of their possessions and their food reserves in the storehouses below.



Figure 45: Interior of a dry-season *astana*

Their huts in the high, dry-season settlements don't allow for many non-essentials. The small, rectangular dwellings— typically no more than two meters wide by four meters long— are made of stone and thatch, and are dominated by a central alpaca-dung hearth. In the deep cold of the dry season, the embers are always warm, rendering the floor next to the hearth as the most desirable sleeping spot. Otherwise, family members bundle together on a raised stone platform covered in sheepskins and blankets. After a number of years of occupation, the inside of the hut is blackened by smoke, and the underside of the roof drips tendrils of soot-covered thatch. In addition to small adjacent storehouses, the stone walls of the main hut provide small nooks in which to stash plastic bags and bottles filled with various essential substances (alcohol, salt, herbs, spices, medicine, beads, yarn, batteries, etc.).



Figure 46: A dry season *astana* in Chillcantin, with Ausangate in the background

Later in the year, between the months of October and December, the rains return and the residents of Antapata, Unu Palqa, and Uqi Kancha make the migration in reverse, descending from the mountains down to the valley floor. The twelve households split evenly between the two wet-season locations: Chillca Town and Suqlla. Six households will return to the town center to herd their animals on the central pampa, while the other six households travel over a narrow ridge from Antapata to the hillside hamlet of Suqlla, herding their animals on the central valley directly below the neighboring sector of Uyuni. In addition to their possessions, the herders bring with them the large sacks of alpaca dung (*ucha*) that they have collected over the course of the dry season in conical peat structures called *pirwas*. For those without gas stoves, this dung will serve as their fuel for the entirety of the rainy season. In the safety of the wet season pastures, the alpacas will give birth to their young, and herders will be tasked with protecting the vulnerable young alpacas from predators.¹³⁷

* * *

¹³⁷ Herders note the relative safety of the low pastures as another reason to descend in the wet season: in the high pastures, young animals are more susceptible to predators such as condors, fox, and pumas, and to drowning in wetlands. Herds and herders are also at higher risk of being struck by lightning and hail on exposed, high ridges.

These are the two major migration events in Chillcantin sector, coordinated in large part to seasonal variability in precipitation and biomass. The other sectors of Chillca follow similar migration patterns. In its idealized form, this pattern falls under an established typology of semi-nomadic montane transhumance, as recorded in the Andes as well as the Alps: in the wet season, herders and their animals keep to the lower rain-fed pastures of the valley floor, and in the dry season they migrate vertically to the glacier-fed wetlands of high pastures. However, this normative pattern obscures a more complex system of migration in Chillca that is highly flexible to accommodate a range of ecological, political, and social factors. Notably, three of the sectors in Chillca do not follow the typical pattern, but do the opposite: in the dry season they descend to the valley floor, and in the wet season they retreat to the hills. Another sector migrates back and forth between pastures on a month-to-month basis, while yet another sector maintains three residence clusters and alternates among them. Two households in one sector do not migrate at all, but remain with their small herds on the central valley floor throughout the year.

More importantly, in all sectors of Chillca— Chillcantin included— these migration patterns are continuously adaptable. The specific dates of major seasonal migrations are subject to debate and negotiation throughout the year. In fact, the difference between the reported seasonal migration patterns and observed migration patterns are significant. Therefore, a normative representation of herding patterns prevents an understanding of the dynamic patterns of mobility through which herders constantly accommodate changing ecological, social, economic, and political conditions. In addition to variation in the timing of seasonal migrations, households throughout Chillca regularly return to wet season pastures during the dry season for days, weeks, or even months at a time, a crucial strategy that relieves grazing pressure on

wetland ecosystems and allows herders to take advantage of pastures that would otherwise be lost to exposure and frost.

In this chapter, I detail patterns of mobility in the community of Chillca and present a range of variations and accommodations that take place throughout the year. This chapter aligns with a longstanding tenet in pastoralist studies: that normatively reported migration patterns do not reflect observed practices of migration on the ground, and migration patterns are not exclusively determined by ecological conditions. Rather, as is the case in pastoralist communities throughout the world, pastoral mobility in Chillca is a highly complex social phenomenon. The motivations for moving, the ways in which migrations are undertaken, and the social, political, and economic consequences born out of them are diverse, and engage with broader networks of actors, interests, and concerns. While this may seem a somewhat obvious point, the stakes are intensified given that mobility is the foremost strategy through which communities like Chillca respond to increasingly erratic climatological conditions, including significant delays and inconsistencies in seasonal precipitation, and extreme weather events throughout the year. Furthermore, increasing tourism and infrastructure, as well as the increasing presence of educational and religious institutions, are shifting animal-based livelihood strategies in the high Andes. A fine-grained ethnographic analysis of pastoralist migration patterns, in all their complexity, is fundamental to understanding the ways in which communities like Chillca reconfigure their spatial strategies in a rapidly shifting socioeconomic and ecological context. Through granular ethnographic detail, this chapter elaborates on the decision-making practices behind livelihood strategies in a time of increasing uncertainty, particularly the delayed onset of seasonal rains due to global climate change.

Mobility as Adaptive Strategy in Pastoralist Systems

Historically, pastoralist mobility was often portrayed as unsystematic and reactionary, necessitated by the “marginal” environments that pastoralists are understood to occupy: grasslands, shrublands, savannas, tundra, steppe, desert fringes, and alpine areas.¹³⁸ Only comparatively recently has there been a shift in attention towards what researchers call the “mobility paradigm” in both pastoralist literature and sustainable development policy (Behnke et al. 2011; Butt 2016; Global Drylands Imperative 2003; Turner 2011). This body of scholarship and related policy imperatives emphasizes the central importance of livestock mobility as an adaptive strategy, and privileges the strategic, forward-thinking decisions through which pastoralists anticipate and accommodate change within shifting sociopolitical, climatological, and economic landscapes (Agrawal 1999; Scoones 1995; Swallow 1994). Many of these studies serve as a useful corrective to the assumptions of ecological degradation inherent in Garrett Hardin’s tragedy of the commons argument, which holds that open access to a commons and common-pool resources inevitably leads to overuse (Hardin 1968). In contrast, longitudinal studies of pastoralist systems provide evidence that mobile pastoralists manage common-pool grazing resources relatively equitably and without major degradation over long periods of time, even in the absence of a central or collective decision-making apparatus (Moritz et al. 2013, 2015).

Contemporary researchers are working towards greater specificity in defining pastoralist mobility over time, aided in part by geospatial technologies that can map long-term patterns and correlate them to environmental changes (Fust and Schlecht 2018; Moritz et al. 2010; Svoray et

¹³⁸ Notably, these environments were considered “marginal” due to their inability to sustain sedentary agriculture, a livelihood strategy that was privileged by the Western researchers and policymakers that were making these categories.

al. 2009).¹³⁹ Ethnographic approaches are often part-and-parcel of these long-term studies, documenting how pastoralists track resources within and across ranges, monitor animal health, and coordinate closely with neighboring households to evaluate grazing conditions and animal health across large distances, often with a critical attention to indigenous knowledge systems and the ways in which herders themselves conceptualize mobility (Adriansen 2008; Fernández-Giménez 2000). A focus on the motives, decision-making processes, and land-use histories underlying mobility patterns is thus vital to understanding pastoralist mobility as a whole, given that an overemphasis on metrics and abstract models often leads to “inadequate and decontextualized understandings of pastoral mobility” and related development failures (Butt 2016, 464).¹⁴⁰ While ethnographic approaches to understanding pastoralist mobility as an adaptive system are increasingly common in the Africanist literature, contemporary systematic approaches to pastoralist mobility are still comparatively lacking in the Andes (notable exceptions include: (Browman 1983; Göbel 2002; Postigo 2013; Yager 2009, 2015; Yager et al. 2019). In particular, there continues to be sparse ethnographic engagement with the processes of decision-making that shape mobility patterns at the household level. In light of this gap in the literature, this chapter dwells on the particularities and peculiarities inherent in these household decisions as a means of understanding the range of factors that can affect migratory decisions, and how they intersect with broader sociopolitical, socioeconomic, and ecological contexts. First, it is necessary to consider the system of migration in Chillca as a whole in order to place it within a broader historical context of Andean pastoralism.

¹³⁹ These studies remain largely confined to the African continent.

¹⁴⁰ Turner further highlights how, in West Africa, “short-term observations of poor range conditions coupled with conceptual models of property contributed to persistent diagnoses of pastoralists’ propensity to overstock their range in an ecologically and economically irrational fashion” (2011, 474).

Overview of Pastoralist Mobility in Chillca

As described in the introduction, the community of Chillca is split into ten administrative units: nine sectors and one annex.¹⁴¹ The largest sector is Chillcantin, which is occupied by 17 households,¹⁴² followed by Chimpa Chillca (15 households), Phinaya (12 households, dived into four settlements: Uchuy Phinaya, Lloqllasqa, Saytukancha, and Sallikancha), Kileta (8 households), Antaparara (8 households), Quesiuunu (7 households), Uyuni (6 households), Alkatarwi (6 households) and Qampa (4 households).



Figure 47: Map of the nine sectors and one annex of Chillca

Each sector contains designated wet-season and dry-season pastures within its boundaries, and each household has multiple residences located in residential clusters alongside

¹⁴¹ The designation of annex (*anexo*) refers to a satellite settlement that is politically integrated with a larger community (*comunidad*), but separate in terms of ownership and administration. In the case of Chillca, the annex of Mulluviri operates under a separate land tenure system: the land is privately owned by the families that reside there, who are not subject to same administrative oversight as the other divisions of the community.

¹⁴² Only twelve of these households migrate seasonally: the other five households either do not have animals, or in two cases, maintain herds in other communities that are managed by contract herders.

seasonal pastures. Unlike some communities in the Andes, grazing areas are not inheritable. Rather, pastures are shared as common property among the households of each sector, and their use is negotiated on a daily and seasonal basis among the households of that sector. This is similar to a pattern found in many Andean pastoralist communities, where pastures are held communally, with certain usufruct rights allotted to agnatic groupings (Arnold and Yapita 2001; Custred 1977; Flores Ochoa 1968; Félix Palacios Ríos 1977; Postigo, Young, and Crews 2008).

On a daily basis, herders coordinate the daily rotations of their herds between designated grazing locations with their neighbors, typically in the evening or morning. These are informal arrangements, which do not require explicit verbal agreement and are often undertaken tacitly through observation of neighboring herds. In contrast, seasonal migrations between designated wet-season and dry-season pastures are formalized: they require a verbal agreement (*acuerdo*) between households in a sector and are subject to the oversight of the broader community governing structure, in particular, the *junta directiva* and *comité de alpacas*, since the migrations also concern the seasonal location of the communal alpaca herd (*majada*). Once the households in a sector designate the date for a seasonal migration, all participating households must migrate within a timeframe of a few days after that date. The *majada* in each sector gets preferential access to seasonal pastures, so the household herding the *majada* migrates a day before the other households begin their migration. These seasonal migrations are described with the verb *astay* (in Spanish: *trasladar*) and seasonal settlements are called *astanas* (in Spanish: *estancias*) which I translate here as hamlets.¹⁴³ The travel time between dry-season and wet-season residences in

¹⁴³ Definitions of *astay*:

1. Centro Bartolomé de las Casas Trilingual dictionary
 - a. *Astay*: Transfer, move (household goods) / *trasladar, llevar una serie de cosas*.
2. Ediciones El Lector SRL Mini Diccionario Quechua
 - a. *Astanakuy*: *Costumbre indígena en que el novio lleva a su novia al nuevo lugar*.
3. Academia Mayor de la Lengua Quechua

each sector ranges from twenty minutes to over an hour. In smaller sectors, seasonal pastures may overlap slightly at the boundaries between seasonal settlements, such that herders may migrate between designated seasonal residences but utilize some of the same pastureland year-round. In these cases, they avoid overgrazing by monitoring the grasslands and augmenting daily rotations.

The primary driver of seasonal migration in Andean pastoralist communities is fluctuating availability in biomass, particularly the wetland and grassland plants that constitute the diet of alpacas, sheep, and llamas. The community of Chillca is situated in the *puna* (Andean montane grasslands), an ecozone located between 3800 and 6000 meters above sea level and characterized by semi-arid conditions, limited oxygen, sparse vegetation, high solar radiation, and diurnal temperature fluctuations that produce deep nightly frosts almost year-round. The soils are predominantly acidic and low in phosphorous and nitrogen, due to cold temperatures that inhibit decomposition of organic matter, and are therefore hostile for most plant communities (Cooper et al. 2010). The *puna* of south-central Peru is dominated largely by three vegetation communities: open grasslands (*pajonales*); alpine wetlands (*bofedales*); and limited areas of shrub-cover (*tolares*).¹⁴⁴ The *bofedales* are predominantly glacier-fed, allowing for consistent biomass year-round, whereas the open grasslands are subject to seasonal biomass fluctuations based on precipitation.

-
- a. *Astana*: s. *Choza provisional, trasladable, para el cuidado de chacras y animales. // Terreno distanado a la rotación en el pastoreo. Sinón: iphina, astara. Adj. Trasladable. Para trasladar.*
 - b. *Astanakuy*: s. *Constumbre indígena en que el novio lleva a su novia al nuevo hogar o domicilio. // Trasladarse en forma conjunta.*
 - c. *Astay*: *Trasladar, transporter, acarrear.*

In Bolton et al. 1976 *astana* describes a small, rustic hut where the herder may sleep alone. This would be *ch'uklla* in Chillca, whereas *astana* refers to both the residences and pastures.

¹⁴⁴ Tree cover in the *puna* is sparse, and includes queñoa (*Polylepis* spp.) and chachacoma (*Escallonia* sp.) in lower altitudes, especially along river banks. In many communities there are also scattered eucalyptus and pine plantings, the remnants of periodic development initiatives. Shrubs include *Parastrephia lepidophylla*, *Parastrephia quadrangularis*, *Azorella compacta*, *Pycnophyllum bryoides*.

A year in the High Andes is marked by two distinct seasons defined by stark differences in precipitation: the wet season (Quechua: *puquy timpu*, Spanish: *tiempo de lluvias*) and the dry season (Quechua: *chirawa*, Spanish: *tiempo de sequia*). In the wet season, roughly between November and April, conditions are slightly warmer with significantly higher average rates of daily precipitation. This season is called *puquy timpu* (ripening season), or simply *pastu timpu* (grass season). According to reported seasonal patterns, rains typically start to arrive intermittently in September and October, and by November the grasses have started to replenish, and flowers come into bloom. The light rains steadily strengthen into erupting rainstorms, and in the wettest months, mid-afternoon hailstorms whip across the landscape with a startling ferocity, appearing as ominous, opaque curtains that descend into the valley and shroud the hillsides in white. The months of February and March have notoriously high levels of daily precipitation, earning them the names “Febrero Loco” and “Marzo Borracho” (Crazy February and Drunk March). On the low valley floor, the herds take advantage of the seasonal grasses of the *pajonales*. These areas are dominated by dense bunch grasses, predominantly of the genera *Festuca sp.*, *Stipa sp.*, and *Calamagrostis sp.*, interspersed with stunted vascular plants, such as *brachypodium* and *valeriana* (Flores Martínez 2005). These plant communities have a high root-to-shoot ratio, with well-developed and extensive root systems that aid in surviving the prolonged dry season. However, these grasses have less nutritional value than the wetland varieties and are thus less favorable pasture for llamas and alpacas (Bryant and Farfan 1984).

The dry season (*chirawa*), between approximately May and October, is slightly colder, with deep nightly frosts. In this season, also known as *q'ara timpu* (the bare time), precipitation is scant to non-existent in the driest months. Given the low levels of moisture in this season, herders keep their animals close to the high-altitude, glacier-fed wetlands, or *bofedales* (aka

cushion bogs or tropical unforested peatlands). The unique alpine *bofedales* (*uqhu* in Quechua) are vital microenvironments for high altitude camelid pastoralism. Year-round soil humidity allows for the maintenance of plant communities that are highly adapted to the regional high and dry conditions: cushion vegetation (especially *Distichia muscoides* and *Distichia acicularis*) feature highly packed leaves in a cushion-like formation and thick cuticle layers that absorb and hold water (Squeo et al. 2006; Rado Janzic 2011). The wetlands thus provide high-quality pasturage for camelids, nourishing plant communities with higher biomass and protein content than similar non-wetland species (Bryant and Farfan 1984; Maldonado Fonkén 2014; Vining 2011). In a 2004 study of alpaca and llama diets in Parinacota province of Peru, for example, Giorgio Castellaro and colleagues (2004) determined that the pasturage preferences of both species were dominated by wetland vegetation, with alpacas consuming a much more focused diet of grassy and succulent wetland species.¹⁴⁵ In many other communities in the southern Peruvian Andes, herders respond to drought conditions by expanding and irrigating wetland vegetation (Postigo 2012; Verzijl and Quispe 2013). This was not widely practiced in Chillca in 2015, although herders expressed interest in developing widespread irrigation projects (including canals as well as reservoirs) in the future. There were a few smaller irrigated wetlands close to the main road, and some herders also irrigated their reserve enclosures (using both canals as well as sprinklers), but this constituted a relatively minor strategy in comparison to the widespread system of pastoral migration.

¹⁴⁵ Wetlands also perform critical ecosystem services such as carbon storage, nutrient filtration, and water storage and retention, collected from glacier run-off as well as lakes, rivers, underground aquifers, and precipitation. “[B]ofedal ecosystems regulate the downhill flux of water and ensure the stability of the soil. Although they may not replace the water storage function of glaciers, *bofedales* also store considerable quantities of water, which is important in the context of climate change” (Maldonado Fonkén 2014, 6), see also Dangles et al. 2017; Loza Herrera, Meneses, and Anthelme 2015; Polk et al. 2017.

Herding patterns in the High Andes have been categorized as semi-nomadic montane transhumance (Galaty and Johnson 1990; Rhoades and Thompson 1975), a classification that describes patterns of shorter, seasonal migrations that are largely vertical, oscillating between residences in higher and lower pastures. This general pattern has been found in communities throughout the Andes (Allen 1988; Browman 1987; Flannery, Marcus, and Reynolds 1989; Flores Ochoa 1968; Flores Ochoa and Kobayashi 2000; Orlove 1982; Postigo 2012; Sendón 2009) and in the Alps (Dyson-Hudson and Dyson-Hudson 1980). However, it is impossible to designate a singular strategy of mobility as prototypical of the Andes, much less typical of alpine regions in general.¹⁴⁶ Mobility patterns vary widely across communities according to land tenure and pasture inheritance patterns, additional livelihood strategies such as agriculture or cattle-raising (Flannery, Marcus, and Reynolds 1989), as well as the availability and extent of infrastructure such as irrigation and artificial wetland creation (Buttolph and Coppock 2001; Verzijl and Quispe 2013). In Chillca, herders do not create extensive artificial wetlands through irrigation, and only practice small-scale irrigation in their dry-season enclosures. There is limited competition with agriculture: while more than two hundred varieties of potatoes are grown in Chillca, the farmlands are largely confined to the lower altitudes of the community. However, the potato farms are planted on a four-year rotation, so accommodations do have to be made during the years that farmlands overlap with pasture, as I will explain in a later section of this chapter.

¹⁴⁶ Rhoades and Thompson (1975) attempted to typologize Andean herding mobility in their comparison of pastoralist systems in the Andes, Alps, and Himalayas. They designated the pastoral transhumance patterns of the Q'ero community as prototypically Andean, citing the work of Steven Webster (1973). As a point of contrast to the herders of the Alps and Himalayas, who live in agricultural settlements located kilometers below the snowline and migrate upwards as the snow melts during the summer to pasture, the Q'ero keep their primary residence directly below the snowline next to their herds, and descend into the valley to tend to their cultivated plots. In the case of the Q'ero—and the broader Andes, they argue—transhumance is related primarily to agriculture rather than pastoralism (Rhoades and Thompson 1975, 546). However, this pattern of mobility is highly specific to the Q'ero.

As is the case with other glacier-dependent alpine communities, Chillca's sectoral migration patterns are largely determined by the location of *bofedales*. In each sector where a *bofedal* is present, the households will occupy wetland-adjacent residences during the driest months of the year. In order to avoid damaging these delicate ecosystems, herders will move their herds as soon as the rains return. *Bofedales* are reserved (*reservado*) in the wet season. In some sectors (like Chillcantin) the high pastures remain open for free-ranging llamas and horses, but alpacas and sheep are forbidden by threat of a fine (*multa*).¹⁴⁷ Depending on the size and location of each sector, the largest natural wetlands may be located at a higher, lower, or lateral altitude, thereby determining whether the seasonal migrations within that particular sector are vertical or horizontal, and if they ascend or descend in altitude during the dry season. The location of seasonal pastures also depends on the boundaries between sectors, and related concerns of overgrazing or herd mixture during particular seasons.

¹⁴⁷ This is the key difference between resting (*samay*) and reserved (*reservado*) pastures: the first is a recognized norm based on the observation of grass conditions, whereas the second is a formalized, regulated use-category instituted by a fine.

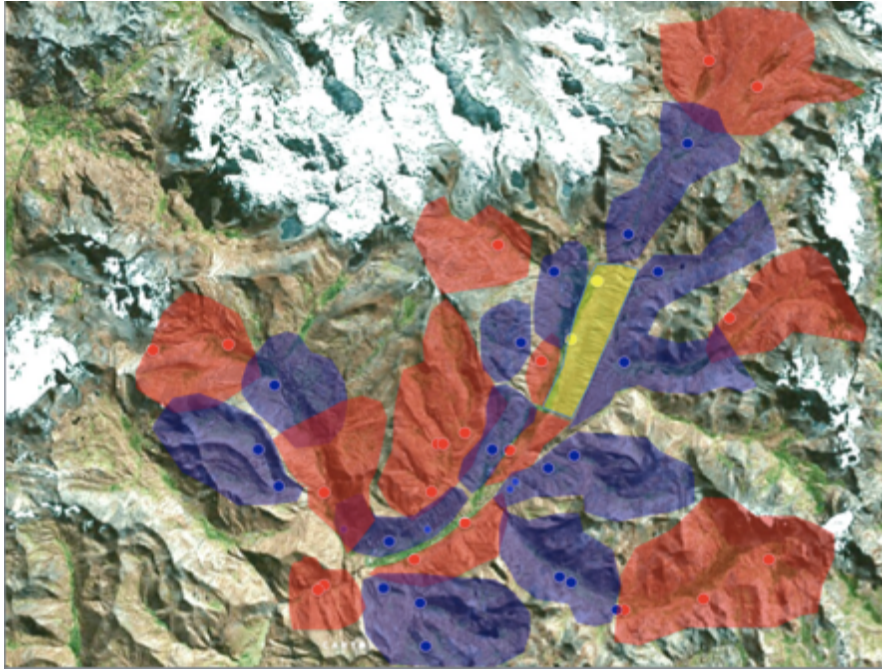


Figure 48: Approximate location of seasonal residences and pastures in Chillca. Red areas are dry season pastures, blue areas are wet season pastures, and yellow areas are locations where herds do not have seasonal pastures. The blue, red, and yellow points are residential clusters.

In six out of the nine sectors in Chillca, the locations of seasonal pastures follow what could be considered the “typical” montane transhumance pattern: dry season pastures are located in higher, glacier-fed alpine wetland areas, and wet season pastures are located in the lower, central valley floor. This is the case for the sectors of Chillcantin, Alkatarwi, Antaparara, Qampa, Killeta, and Phinaya Center. It is important to note, however, that herders in these sectors are not necessarily moving vertically, but in some cases laterally: further into glacier-fed valleys towards the edges of the glaciers, but not necessarily to a higher altitude. Out of these six sectors, in four the dry season pastures are approximately 200 meters higher than the wet season pastures. In the sector of Killeta, however, the vertical difference between wet season and dry season pastures is a negligible 17 meters, and in the sector of Phinaya Center, households moved laterally (-3 meters) into a glacial-fed valley located directly behind the main wet-season residences.

<i>Sector</i>	<i>Wet Season Altitude (average)</i>	<i>Dry Season Altitude (average)</i>	<i>Altitudinal Difference (Wet to Dry)</i>
Chillca	4375m	4585m	+ 210 m
Alkatarwi	4503m	4666m	+ 163 m
Antaparara	4609m	4838m	+ 229 m
Qampa	4617m	4818m	+ 201 m

Figure 49: Sectors with ascending migration in the dry season

<i>Sector</i>	<i>Wet Season Altitude (average)</i>	<i>Dry Season Altitude (average)</i>	<i>Altitudinal Difference (Wet to Dry)</i>
Phinaya Center	4509m	4506m	-3m
Killeta	4724m	4741m	+ 17m

Figure 50: Sectors with lateral migration in the dry season.

<i>Sector</i>	<i>Wet Season Altitude (average)</i>	<i>Dry Season Altitude (average)</i>	<i>Altitudinal Difference (Wet to Dry)</i>
Chimpa Chillca	4512m	4311m	- 201 m
Quesiunu	4623m	4351m	- 272 m
Uyuni	4640m	4403m	- 237 m
Phinaya-Lloqllasqa	4699m	4462m	- 237 m

Figure 51: Sectors with descending migration in the dry season.

In four out of the nine sectors (Chimpa Chillca, Quesiunu, Uyuni, and Phinaya-Lloqllasqa), households migrate in the opposite direction, descending towards the main valley floor in the dry season. For two of those sectors, Chimpa Chillca and Uyuni, their migration patterns are necessitated by glacial-hydrological constraints: both are situated on the southern border of the community, farther away from the central, glaciated mountains of the Cordillera Vilcanota. Their high pastures have very limited wetland coverage, and their main *bofedal* is located on the central valley floor.

In the other two sectors, Quesiunu and Phinaya-Lloqllasqa, the seasonal migrations are adapted both to the geographic limitations of the sector as well as sociopolitical constraints. In Quesiunu, the high pastures are located on the southwest border of the community and likewise have limited wetland coverage, although they do have larger wetland areas in their high pastures

than Chimpa Chillca and Uyuni. More significant, however, are the sociopolitical constraints given its position between the sectors of Alkatarwi to the north, Chillcanti to the east, and Chimpa Chillca to the south. The sector shares a valley floor with the residents of Alkatarwi, whose households herd their animals in that space during the wet season. Likewise, in the wet season, Chillcanti residents herd their animals on the hills opposite Quesiunu. If the households of Quesiunu were to herd their animals on the valley floor during the wet season they would risk overgrazing or mixing their herds with neighboring sectors. Therefore, to avoid conflict, Quesiunu herders reverse their seasonal migrations, occupying the main valley floor during the dry season and retreating to the hills and accessing smaller wetland areas during the wet season.

Phinaya is a slightly more complicated case, since this sector encompasses multiple residential settlements with different migration patterns. In addition to Uchuy Phinaya, and Phinaya-Lloqllasqa, there are two additional settlements: Saytukancha and Sallikancha. Approximately seven households live in Uchuy Phinaya and move laterally to an inner valley during the dry season to access a large *bofedal* located below the glacier. Two households live in Phinaya-Lloqllasqa, just slightly down the valley to the west, and move their herds in the opposite migration, retreating to the hills during the wet season and descending into the central valley in the dry season. Again, this decision is related to the topographical characteristics of this particular area, which does not have wetlands in its high pastures. It is also shaped by sociopolitical constraints imposed by virtue of sharing that particular section of the central valley floor with central Phinaya as well as Chillcanti. During the wet season, these households would find themselves in competition with herds from both Phinaya-Center as well as the Chillcanti wet season *astana*, Suqlla. Therefore, during the months of January, February, March the households move up into the hills to avoid overlapping. The households in the settlements of

Saytukancha and Sallikancha do not migrate seasonally, but rotate their herds within the areas surrounding their residences, up to the borders with Killeta and Qampa.

Thus, not only do migration patterns vary between pastoralist communities in the Andes, even within one community there is a high level of variability to accommodate a range of geographical, hydrological, and sociopolitical characteristics. In the next section I attend to patterns of variability in seasonal mobility in Chillca, focusing in particular on the sector of Chillcantin.

Flexible Mobility: Adaptive Decision-Making in Uncertain Conditions

In Chapter Two, I began with a conversation between two sisters, Marisol and Alejandra, who determined through their observations of the distribution of a particular grass-type (*q'upi q'upi* [*azorella biloba*]), that the rains were weeks late. Indeed, throughout the community, herders remarked on the late onset of the wet season, a phenomenon that was likewise noted by a team of climate scientists gathering meteorological data in the region (Perry 2018, personal communication). Fluctuations in yearly precipitation— in terms of seasonal onset as well as regularity, amount, and intensity— and longer periods of drought have been widely noted through the Andes in the past decade by both climate researchers and local community members (Haylock et al. 2006; Seth et al. 2010; Perry, Seimon, and Kelly 2014; Perry et al. 2017; Valdivia et al. 2010; Vuille et al. 2008). Changes in rainfall patterns were especially noticeable in Chillca in late 2015, with a delayed onset of about three to four weeks. In mid-November, multiple herders expressed concern that the rains hadn't yet arrived with the frequency that they had in previous years.

Allison: In your lifetime, have you noticed the climate to be changing?

Martín: Yes, it's changing a lot. Because even now, the rain is starting really late. Before, it didn't fall like that.

Allison: In what months did it fall?

Martín: In November it was raining already, but now [this year] it's been raining about a week, only recently the rain [has come]. Before, in September, October we were already seeing rain.

Allison: And last year, was it like this year?

Martín: No, it was more or less November that it was raining already, but this year no, it's too dry. Hopefully for next year it won't be like this.¹⁴⁸

Another elder in the community also expressed concern over climatological changes in light of recent precipitation patterns:

Allison: I wanted to ask you, in your opinion, if you think the climate is changing?

Miguel: Yes, it is changing. Yes, it is changing a lot. Before it was not like this, in the past, in this season the pasture was green.

Allison: Just this year, or every year you see changes?

Miguel: Little by little, every year it is changing a lot. This season, only recently it's started raining, it's just dry. In the past, it wasn't like this. In this season there was already rain. The rain is also changing, it is becoming intense (*fwirti*) when it rains, right? Now it is raining more intensely when it rains, before [it rained] softly, slowly (*despacito*). It comes intensely, yes.

Allison: Do you recognize [this change] with the pastures?

Miguel: The animals are also skinny now. But this season wasn't like this before. They should be recuperating [from the dry season] already. That's how it is.¹⁴⁹

¹⁴⁸ Allison: En tu vida has notado que está cambiando, el clima?

Martín: Si esta cambiando bastante. Porque ahora también, muy tarde esta comenzando a llover. Antes no caía así.

A: En que mes caía?

M: En noviembre ya llovía ya... pero ahora esta lloviendo hace una semana, recién la lluvia. Antes... septiembre, octubre ya se veía la lluvia.

A: y el año anterior, era así?

M: No, era mas o menos noviembre ya estaba lloviendo ya, pero este año no, se demasiado seco. Ojalá para el año no sea así.

¹⁴⁹ Miguel: Sí, está cambiando siempre. Sí, mucho está cambiando. Antes no era así, más antes, en esta temporada verde estaba el pasto. Sí, mucho está cambiando siempre.

Allison: Solamente en este año, o en cada año se ve cambios?

M: Poco a poco, cada año está cambiando mucho. Esta temporada, recién está lloviendo. Seco no más está. Más antes, no era así pe. Esta temporada ya era lluvia. También la lluvia también cambia, fuerte también esta cambiando cuando llueve, cierto? Ahora está lloviendo más fuerte cuando llueve, antes despacito no más. Viene fuerte ya también, sí.

In response to these shifts in seasonal variation of rainfall, herders throughout the community delayed their herding migrations to their wet season pastures by a number of weeks. Additionally, as I discussed in Chapter Three, herders rely in part on animal cues in their evaluation of grassland health. While monitoring grass types and rainfall patterns are significant methods through which herders adjust their migration schedules, the foremost indicator is the physical and emotional state of the animals themselves. In drought conditions in which their nutritional needs are not met, animals become skinny, more prone to mange and other illnesses, and take on an increasingly agitated, restless state. Expected norms of human-animal communication fall apart, as the animals break from the cooperative work of herding in pursuit of grasses. As animal movement becomes difficult to manage (specifically to “hold off,” *atajar/hark’ay*), the decision has to be made collectively to move pastures.

As I learned early in my fieldwork in Chillca, short-term survey methodologies are inadequate indicators of herder migrations, since herders will largely report their mobility patterns normatively. For example, if I asked where and when the herders of a particular sector pasture their livestock in each season, the response typically reflected designated seasonal pastures and the average seasonal transition period between the wet or dry season. However, after a year’s observation of herding patterns in the community of Chillca, it was obvious that herding migrations differed significantly in practice from the stated norm. In reality, seasonal access to pasture was reconsidered and evaluated constantly throughout the year, both in terms of when households migrated from one seasonal pasture to the other, and whether these stayed in

A: Se nota siempre la gente?

M: Sí, todos estamos notando eso.

A: Y se nota mucho de los pastos?

M: los animales también están flacos ahora pe. Pero esta temporada antes no era así pe. Ya estaban recuperando. Ya debe de recuperar. Así es.

seasonal pastures continuously or shifted between multiple pasture locations. According to the agreement reached in each sector, some households were permitted or encouraged to deviate from the norm for a variety of reasons, including pasture availability and concerns about overgrazing, conflict with agricultural spaces, and in some cases, family disputes. The system was necessarily flexible to accommodate a wide range of social, political, economic and ecological factors and opportunities. The only consistent factor throughout all sectors was the importance of the agreement (*acuerdo*): once the families in a particular sector reached an agreement, all herders had to agree to the terms. Any further deviations had to be introduced and debated in a public forum.

In Chillca, I found that there were three major points of flexibility, listed here from the most to least common:

1. The dates of seasonal migrations between pastures

- a. Herders acknowledge that the exact dates of the seasonal migrations vary year-by-year. While there is an anticipated date of migration between seasonal pastures that is calibrated to the expected seasonal precipitation patterns, it is rare that herders will consistently migrate at the same time each year.

2. The length and continuity of occupation in seasonal pastures

- a. Upon agreement, herders in a given sector may return to the wet season pastures during the dry season to exploit grasses. However, they never return to dry season pastures during the wet season, and *bofedales* are reserved (*reservado*). In Chillcantin—where wet season pastures overlap with the central town of Chillca—herders were also able to return to wet season pastures to accommodate school and work schedules.

3. The creation of temporary seasonal herding locations

- a. In multiple sectors in Chillca, herders established temporary *astanas* or off-shoot pastures to relieve pressure on late dry season pastures; to avoid conflict with neighbors, or conversely, to hold a contested boundary between sectors; or to avoid conflict with agricultural spaces.

Since I lived primarily in the sector of Chillcantin, I observed the migratory patterns of households in that particular sector in greater detail and was present during the conversations that preceded and followed them. My knowledge of the migratory patterns of the other sectors, in contrast, is largely based on conversations I had with sectoral residents, and occasional direct observation. Therefore, in the following section I will focus primarily on the sector of Chillcantin, providing a narrative of the migration patterns in that sector over the course of a year. When I arrived in Chillcantin in June of 2015, I recorded the seasonal migration patterns of this particular sector as its residents reported them to me: in other words, I recorded the normative, stated migration pattern. This pattern is represented in the figure below, for the twelve migrating households of Chillcantin:

Household	DRY SEASON				WET SEASON						DRY SEASON		
	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16
1	DS (1)	DS (1)	DS (1)	DS (1)	WS (2)	WS (2)	WS (2)	WS (2)	WS (2)	DS (1)	DS (1)	DS (1)	DS (1)
2	DS (1)	DS (1)	DS (1)	DS (1)	WS (2)	WS (2)	WS (2)	WS (2)	WS (2)	DS (1)	DS (1)	DS (1)	DS (1)
3	DS (1)	DS (1)	DS (1)	DS (1)	WS (2)	WS (2)	WS (2)	WS (2)	WS (2)	DS (1)	DS (1)	DS (1)	DS (1)
4	DS (2)	DS (2)	DS (2)	DS (2)	WS (2)	WS (2)	WS (2)	WS (2)	WS (2)	DS (2)	DS (2)	DS (2)	DS (2)
5	DS (2)	DS (2)	DS (2)	DS (2)	WS (2)	WS (2)	WS (2)	WS (2)	WS (2)	DS (2)	DS (2)	DS (2)	DS (2)
6	DS (3)	DS (3)	DS (3)	DS (3)	WS (2)	WS (2)	WS (2)	WS (2)	WS (2)	DS (3)	DS (3)	DS (3)	DS (3)
7	DS (2)	DS (2)	DS (2)	DS (2)	WS (1)	WS (1)	WS (1)	WS (1)	WS (1)	DS (2)	DS (2)	DS (2)	DS (2)
8	DS (2)	DS (2)	DS (2)	DS (2)	WS (1)	WS (1)	WS (1)	WS (1)	WS (1)	DS (2)	DS (2)	DS (2)	DS (2)
9	DS (1)	DS (1)	DS (1)	DS (1)	WS (1)	WS (1)	WS (1)	WS (1)	WS (1)	DS (1)	DS (1)	DS (1)	DS (1)
10	DS (1)	DS (1)	DS (1)	DS (1)	WS (1)	WS (1)	WS (1)	WS (1)	WS (1)	DS (1)	DS (1)	DS (1)	DS (1)
11	DS (1)	DS (1)	DS (1)	DS (1)	WS (1)	WS (1)	WS (1)	WS (1)	WS (1)	DS (1)	DS (1)	DS (1)	DS (1)
12	DS (3)	DS (3)	DS (3)	DS (3)	WS (1)	WS (1)	WS (1)	WS (1)	WS (1)	DS (3)	DS (3)	DS (3)	DS (3)

Figure 52: Reported seasonal migration pattern in Chillcantin, July 2015 – July 2016. Red is dry season; green is wet season. Dry season locations: DS(1) = Antapata; DS(2)= Uqi Kancha, DS(3)= Unu Palqa. Wet season locations: WS(1) = Chillca town; WS(2) = Suqlla.

As this table shows, I was informed that herders would migrate from their high, dry season *astanas* and residences (Antapata, Uqi Kancha, and Unu Palqa) to their low, wet season residences (Chillca town, Suqlla) in the month of November with the onset of the seasonal rains. They would then return to their dry season *astanas* in the month of April.

However, through direct observation of herding patterns in Chillcantin, I determined that the migratory pattern for that year was remarkably different than the herders' stated plans:

Household	DRY SEASON				WET SEASON						DRY SEASON		
	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16
1	DS (1)	DS (1)	DS (1)	DS (1)	DS (1)	DS (1)	WS (2)	WS (2)	WS (2)	DS (1)	WS (2)*	DS (1)	DS (1)
2	DS (1)	DS (1)	DS (1)	DS (1)	DS (1)	DS (1)	WS (2)	WS (2)	WS (2)	DS (1)	WS (2)*	DS (1)	DS (1)
3	DS (1)	WS (2)	WS (2)	WS (2)	WS (2)	WS (2)	WS (2)	WS (2)	WS (2)	DS (1)	WS (2)*	DS (1)	DS (1)
4	DS (2)	WS (1)	WS (1)	WS (1)	DS (2)	DS (2)	WS (2)	WS (2)	WS (2)	DS (2)	DS (2)	DS (2)	DS (2)
5	DS (2)	DS (2)	DS (2)	DS (2)	DS (2)	WS (2)	WS (2)	WS (2)	WS (2)	DS (2)	DS (2)	DS (2)	DS (2)
6	DS (3)	WS (2)	DS (3)	DS (3)	DS (3)	DS (3)	WS (2)	WS (2)	WS (2)	DS (3)	WS (2)*	DS (3)	DS (3)
7	DS (2)	DS (2)	DS (2)	DS (2)	DS (2)	DS (2)	T2	T2	T2	DS (2)	DS (2)	DS (2)	DS (2)
8	DS (2)	DS (2)	DS (2)	DS (2)	DS (2)	DS (2)	T2	T2	T2	DS (2)	DS (2)	DS (2)	DS (2)
9	DS (1)	DS (1)	DS (1)	WS (1)	T1 (s)	T1 (s)	T1	T1	T1	DS (1)	DS (1)	DS (1)	DS (1)
10	DS (1)	DS (1)	DS (1)	DS (1)	DS (1)	DS (1)	T3	T3	T3	DS (1)	WS (1)*	DS (1)	DS (1)
11	DS (1)	WS (1)	DS (1)	DS (1)	DS (1)	DS (1)	WS (1)	WS (1)	WS (1)	DS (1)	WS (1)	WS (1)	DS (1)
12	DS (3)	DS (3)	DS (3)	DS (3)	DS (3)	DS (3)	WS (1)	WS (1)	WS (1)	DS (3)	WS (1)*	DS (3)	DS (3)

Figure 53: Observed seasonal migration pattern in Chillcantin, July 2015 – July 2016). Red is dry season, green is wet season, and purple is temporary off-shoot pastures. Dry season locations: DS(1) = Antapata; DS(2)= Uqi Kancha, DS(3)= Unu Palqa. Wet season locations: WS(1) = Chillca town; WS(2) = Suqlla. Temporary offshoot locations: T1 = Waylla Waylla; T2 = Yana Rumi; T3 = Misk'i Pukyu, * shorter term (1-2 weeks). (s) just sheep.

What follows here is a sweeping narrative overview of this migratory pattern in Chillcantin, in all of its messy complexity. In contrast to the neat spreadsheets of herding patterns I diligently mapped those first weeks in Chillca, what unfolded over the course of a year was quite different: in the dizzying hum of daily life, contingencies ranging from twisted ankles to house-raising parties waylaid herders' plans. While delayed rains, drought conditions, and restless animals prompted the initial sector-wide agreements to rotate pastures, what actually followed on the ground reflected the ways in which these migrations emerged within broader socioecological landscapes. Caring for herd animals was co-emergent with the practice through which people sustained relationships with their kin and neighbors through labor exchange (house-raising,

farming, and herding) as well as larger institutional structures like the community (*hampiy fainas*, shearing, *chaku*), the church (church-raising and attendance), school (attendance and cooking obligations), and the state (receiving *apoyo* shipments, attending workshops). It is worth wandering through these moments of decision (and indecision) here, to become a little lost in the seasonal life of a household in Chillcantin: that of Matías and Marisol. In order to provide some clarity, I mark seasonal residence/pasture locations as (DS) for dry season hamlets, and (WS) for wet season hamlets throughout.

A Year of Migrations in Chillcantin



Figure 54: Map of 2015-2016 *astanas* in Chillcantin

July to October 2015: Late dry season

As Matías explained to me in July of 2015, the decision to move pastures— both in terms of the daily rotation of pastures, as well as major seasonal migrations— is determined by the

cues herders pick up from two major indicators: the rain and the animals. It was simple, really, he assured me, as he drew a map of seasonal migrations in the dirt at our feet: if there is plenty of rain, you stay. If it is getting dry, you move. If the animals are calm, you stay. If the animals are restless (specifically, they refuse to be contained [*no se deja atajar*]), then you move. The initial dates of a potential move begin to be discussed in the months prior: often, given that herders do not keep detailed month-by-month calendars, they are linked to a particular Catholic holiday or saint's day. As the date looms closer, families discuss the impending move within their household, and then they discuss it with the neighbors before finally bringing the proposal to the monthly *faina*.

That particular conversation, in early July of 2015, took place outside Matías and his wife Marisol's small stone hut in the dry season hamlet Uqi Kancha, where they lived alongside three other households: his grandmother Asunta, with whom they often shared herding tasks; a distant maternal cousin and his wife; and a young couple who had recently moved to the sector and were tasked with herding the *majada* that year. At the time, the rest of the herding households of Chillca were living in the hamlets of Antapata (DS) and Unu Palqa (DS). Matías estimated, in July, that the four households of Uqi Kancha (DS) would all migrate to Suqlla (WS) in October, whenever the rains came back and the pastures looked green again. Within a week that assessment had changed: due to low pasture in Uqi Kancha (DS), Matías and Marisol had decided to descend to their house in Chillca center (WS) for the month of August, to pasture their herd in a 200m² reserved enclosure (*tullu kancha*). This enclosure, one of eleven in Chillca, held reserve grasses that they left untouched for most of the year, only pasturing their sickest and thinnest animals there on occasion. However, in August, the driest month of the year, most of the *kanchas* were full. Most households only put part of their herd in the *kancha* and continued to

herd their animals in their seasonal pastures, but Matías and Marisol's herd was small enough that they could keep the entirety of their animals in the *kancha*, and reside in their house in town. They decided this would be preferable in comparison to living in Suqlla (WS), where they would be competing with other households for pasture, and traveling a long distance to the enclosure, as well as to their child's school.



Figure 55: Cleaning the canal that irrigates the reserve enclosures

So, in August, Matías and Marisol stayed in Chillca (WS), with Matías reporting that they would go back to Uqi Kancha (DS) in mid-September, and then move to Suqlla (WS) in late October. They were joined in Chillca by another household that came down from Antapata (DS) for a number of weeks in order to ease pressure on the wetlands. An elderly widow in Antapata (DS), and another household in Unu Palqa (DS), also left for Suqlla (WS) in early August to take advantage of pasture and ease grazing pressure on the wetlands. By mid-August, a more developed plan solidified: all four households would return to their dry season hamlets (Uqi Kancha, Antapata, and Unu Palqa) in mid-September, and remain until mid-December, at which point everyone would migrate to Suqlla (WS).



Figure 56: The wet-season astana of Suqlla

By mid-September, Matías and Marisol were still in Chillca (WS). One household from Chillca (WS) had returned to Antapata (DS), and another household had returned to Unu Palqa (DS) from Suqlla (WS). On her trips down to town from Uqi Kancha (DS), Asunta reported that the grass was coming back well in the high pastures. By that time, however, Matías and Marisol were enmeshed in the town errands that dominate the end of the dry season: Matías was making adobe for a two-story house he and Marisol were planning to build on the family lot, spending many of his days cutting and mixing earth from a corner of the town plaza. He was also helping his neighbors and kin prepare their adobe, in mutual *ayni* exchanges. He was also helping to construct two new buildings on the town outskirts: two evangelical churches, one Maranata and one Peruana. Last year it wasn't this busy, he told me, and he and Marisol had stayed up in Uqi Kancha (DS) for the duration of the dry season. The grasses, he insisted, were “normal” this year— nothing too out of the ordinary. In previous years he always brought the skinny animals down to the *kancha*, but the rest of the herd usually stayed up in Uqi Kancha (DS).

Marisol was likewise busy: every day she would drop Melisa off to school before taking the animals out of the enclosure to pasture them on the grasses between Chillca Town (WS) and Suqlla (WS). She would cook for the men that came back to help Matías make adobe. Now that Melisa was in school, she was also required to cook for the 34 students at the school on rotation with the other mothers. She was also helping at the church, cooking food for the laborers and assisting with some of the construction. Furthermore, she hated the idea of being up in Uqi Kancha (DS) without Matías, as she found it isolating and was terrified by the prospect of *kukuchi* or *kundinadu* wandering the high valleys at night. In future years, with Melisa entering primary school, she imagines they will spend more time in Chillca Town (WS) while school is in session.

Late September came and went. Matías was up early in the mornings making adobe. He and his father had planted their bitter potatoes (*mallku papa*) the first week of October, and made plans to plant their sweet potatoes (*dulsi papa*) in two weeks. By mid-October, it was obvious that the rains were late. It had only rained a handful of days in early October, not nearly as much as would be expected. The lack of rain was actually useful for the preparation of adobe: once formed, the bricks need two days without rain to set, and a heavy rainstorm can take down a recently-erected adobe wall in hours. Regardless, on a hot afternoon in mid-October, Matías looked up from the adobe bricks he was forming with a wood-frame mold, and uttered a phrase to the man next to him, one that I would hear repeatedly in the next few weeks: “*ch’akishan, imanasun...*”—It’s drying up, what will we do? The reserved grass in their *kancha* was beginning to look thin, and replenishing rains didn’t seem likely to come anytime soon. The

elderly widow was still in Suqlla (DS), where she would remain for the rest of the wet season,¹⁵⁰ but another household had already returned to Unu Palqa (WS). Matías and Marisol started to talk about returning to Uqi Kancha (DS) again.



Figure 57: House-raising labor in Chillca

Finally, it seemed that mid-October would be the time they returned to their dry season pastures, before eventually moving to their wet season pastures later in the year. On October 12th, a Monday, they tentatively designated Thursday (October 14th) as the day to migrate. On Tuesday, Matías would make adobe and help Marisol’s sister’s husband roof his house, and Wednesday they would medicate the herd while they were still contained in the *kancha*, before they took them back to the dry season pastures. However, they also noted that some relief supplies (*apuyu*) were coming from the municipality on Thursday, and the following weekend they were hoping to go to Pitumarca to buy wooden stakes for their *kancha*, and then of course the following week Matías would have to come back down to plant the sweet potatoes. There

¹⁵⁰ The elderly widow always migrates early in November before the other households in the sector. As a respected elder she has more flexibility and less oversight in that regard. Her independent migration would only be an issue for the other households if they had made an explicit *acuerdo* to rest pasture or reserve it during the weeks she migrated.

were always things to be done, and never enough time to get it done, they remarked. By Wednesday—the day they had planned to medicate the animals in preparation for the migration—Matías was still working on his brother-in-law’s roof. They briefly considered moving the animals without medicating, but decided to wait. In the meantime, another household from Antapata (DS) came down to Chillca Town (WS) for the month.

By late October—later than usual—the rains slowly began to come back. Periodic midday hailstorms surged across the valley, and in the mornings the ground was often blanketed in a light snowfall. However, house construction responsibilities had priority, and Matías hadn’t yet finished his own house due to his reciprocal obligations to his relatives and neighbors. He also needed to plant his sweet potatoes and bring down *wanu*¹⁵¹ for the bitter varieties of potato. The yearly shearing event for the communal alpaca herd was approaching in early-mid November, and they would need to shear their own animals shortly thereafter—both of which would take place on the valley floor. To complicate things further, Marisol had slipped while herding and hurt her ankle. They decided they would return to Uqi Kancha (DS) in November.

Finally, on October 29th, Matías and Marisol returned to Uqi Kancha (DS), and reported that they would migrate to Suqlla (WS) the first week in December.

November 2015 to January 2016: End of dry season, beginning of wet season

By mid-November, as the herders were considering making their seasonal migrations from the dry season *astanas* (Antapata, Uqi Kancha, and Unu Palqa) to the wet season pastures (Suqlla and Chillca town), a key problem emerged. The location of this year’s potato farms (on a 4-year rotation) overlapped with a good portion of the herding area in Chillca Town (WS). Given that the herds would be arriving in Chillca just as the first leafy sprouts of wet season grasses

¹⁵¹ *Wanu* (guano) is animal dung used to fertilize the potato plots, usually within a month of planting.

were emerging, the herders would have to expend extra energy to keep their animals out of the farms or face a fine. Consuelo and her mother Asunta were considering building temporary homes (*ch'uklla*) in a location called Yana Rumi, located at the last bend of the road from Pitumarca before it descends into the town center. This had been done in years past, and would allow Chillca herders to utilize grasslands further down towards the sector of Quesiuunu. Ultimately, it was decided that Asunta and one other household would occupy temporary homes in Yana Rumi, and Consuelo would take her herds up the road to a location called Misk'i Pukyu, closer to Suqlla.

At the same time, Consuelo's neighbor in Antapata, Faustino, had been assigned the task of watching the *majada* sheep herd. His father (Patricio, Consuelo's uncle) would herd their alpacas in Antapata until the other households left for the wet season, while Faustino relocated down the valley to Waylla Waylla, a hamlet of Chimpa Chillca located next to the farmlands. There he lived in a house once occupied by Consuelo's in-law (the mother of her son Luis' wife), and his father would join him in late November with the alpacas.

Despite their initial plan that they would migrate to the wet season pastures in early December, Consuelo migrated to Chillca Town (WS) on Christmas day, and the other households in Antapata (DS) came down in the days before and after. She then relocated up to Misk'i Pukyu on January 15th. The Suqlla (DS) households relocated the first week in January, except for the elderly widow, who had already been there. This was notably late, which was attributed to the late rains and subsequent dry grasses on the valley floor. By January the rains seemed to take on their regular frequency and intensity. Despite Consuelo's initial plans to build a *ch'uklla* in Misk'i Pukyu, she instead borrowed my small tent for the nights, and returned to the house in Chillca Town to cook and avoid the rains, as it was only a short distance away.

February to April 2016: End of wet season, transition to dry season

By March, people began reporting that they would return to their dry season pastures around Easter (Sunday, March 27th), which was consistent with previous years. Even though they had migrated late to their wet season pastures, and there were concerns about letting the *bofedales* rest longer, the animals were becoming more difficult to contain and escaping up towards the reserved pastures in Antapata (DS). They decided on the move in mid-March, after a herder was leveled with a fine for allowing his animals onto the reserved pastures and suggested that they all move. As the wealthiest person in the sector, and the son of the elderly widow in the sector, he had considerably more leverage than most. The other herders agreed that the grasses were looking replenished in the high pastures, and that their animals were increasingly difficult to contain. As usual, the *majada* returned first, on Saturday, March 26th (*Sabado Gloria*), and then Consuelo, Matías, and Marisol, and the other households returned to Antapata (DS) on Monday (*Pascua Lunes*) and the two or three days following.

May to July 2016: Beginning to middle of dry season

All households stayed in the dry season *astanas* through April, but by early May there were talks of returning yet again to the wet-season pastures for a number of weeks. Rather than a response to limitations imposed by either low precipitation or low pasture availability, this move was framed as an opportunity to take advantage of (*aprovechar*) the plentiful grasses that remained in the wet-season pastures, before they became burned by the inevitable frost and dryness of the coming months. Matías had been speaking with two neighbors in Antapata (DS), and they were considering making an appeal to the sector at large to return to Suqlla (WS).

Matías was convinced, but Marisol remained uncertain. During a *faina* in mid-May, the herders of Chillcantin sector made the decision that half of the residents of Antapata (DS) and Uqi Kancha (DS) would return to Suqlla (WS) and Chillca Town (WS) in the following weeks, to take advantage of available pasture before it was lost, and to ease pressure on the dry season pastures, since they had migrated early. Some also argued that it would be beneficial to have a number of Chillcantin households pasture their animals on the wet-season grasslands at the border with the sector of Quesiuunu, since there had been recent encroachments made on their land by Quesiuunu households. The border needed to be held, and the most efficient way was to hold it with grazing animals. A similar argument was made along the Suqlla (DS) border with the neighboring sector of Phinaya (specifically the settlement of Lloqllasqa).



Figure 58: the town of Chillca, as seen from the potato plots on the northern hillside

Consuelo was not pleased about the move, since her animals were accustomed to the dry-season pastures and would be difficult to move, but she returned to Chillca Town (WS) for a week on May 26th. Given that the potato plants had already lost or were losing their leaves, she didn't have to be as careful about keeping her animals out of the farmland, which gave her more

flexibility and meant she didn't have to return to her tent in Misk'i Pukyu. She was joined in Chillca Town (WS) by two other households (one from Antapata [DS] and one from Unu Palqa [DS]), both of whom planned to stay a week or two. Matías and Marisol ultimately decided not to go to Suqlla (WS) and to remain in Uqi Kancha (DS). Instead, four other households went to Suqlla (WS) on the 20th of May: one from Unu Palqa (DS), and three from Antapata (DS). None of the households from Uqi Kancha (DS) went to Suqlla (WS), even though they all agreed they would at the *faina*. Asunta and one other household insisted on staying in Uqi Kancha (DS)—whereas the residents of Antapata (DS) felt compelled to move, in Uqi Kancha (DS) it was not compulsory. Since the *majada* was staying in Uqi Kancha (DS), it was implied that the temporary move to Suqlla (WS) to take advantage of pasture was completely voluntary for the other households in Uqi Kancha (DS). Given that Matías and Marisol were split on whether to move, they decided to remain in Uqi Kancha (DS) so that they could continue sharing herding responsibilities with Asunta. Furthermore, Matías was a member of the vicuña committee and they had the yearly vicuña roundup (*chaku*) on May 25th, which meant it would be difficult to contract another herder, besides Asunta, to watch the animals in Suqlla (WS) while he and Marisol were attending.

The households temporarily in Suqlla (WS) returned to Uqi Kancha (DS) after two weeks. Consuelo and another household returned to Antapata (DS) and Unu Palqa (DS) after just one week, and another household followed after two weeks. All households remained in their dry season *astanas* (Antapata, Unu Palqa, and Uqi Kancha) until my departure in mid-July of 2016.

* * *

Migration Summary and Comparison Across Sectors

Over the course of a year in Chillcantin, the herders predictions of where they would be and when changed constantly, and their plans were continuously delayed or augmented depending on a variety of factors: house construction, reciprocal labor obligations, school responsibilities, illness and injury, herding labor, disputes with neighbors, holding borders between sectors, accommodating agricultural schedules and community work schedules, among others. Importantly, the decision to migrate was not solely that of the herders themselves; rather they relied on the intuition of their animals as critical interlocutors in strategic decision-making. When the animals indicated that they were ready to move—by becoming restless and resistant to control— herders often had to change plans. In sum, migration patterns between designated seasonal pastures were flexible enough to accommodate a range of social, political, and ecological factors. As I'll summarize below, in both Chillcantin and other sectors, migration patterns were flexible in terms of: (1) the date of major migrations between seasonal pastures, (2) the length/continuity of occupation in seasonal pastures, and (3) the location of seasonal pastures and residences.

1. The dates of major migrations between seasonal pastures (*Astay*)

a. Chillcantin

- i.** There was a delay of more than two months between anticipated/ reported wet to dry season migration (October 2015) and actual wet to dry season migration (late December 2015/ early January 2016), due to delays in the onset of wet season precipitation.
- ii.** A new member of Chillcantin Sector decided to delay his arrival to Antapata (DS) in the dry season to ease pressure on grasses, as well as

ease his own transition into the community by not aggravating neighbors who were displeased with the addition of another herd.

b. Other sectors

- i. Significant delays (>2 weeks) in the wet- to dry-season migrations of 2015 were reported in the sector of Antapata, Killeta, Quesiunu, Uyuni, and Chimpa Chillca due to the delayed onset of wet-season precipitation.

2. The length/ continuity of occupation in seasonal pastures

a. Chillcantin

- i. Five households returned to wet season pastures during the late dry season of 2015, between the months of August and November, for periods ranging from a few weeks to several months. The intent was to: (1) ease pressure on dry-season *bofedales*, (2) access reserved grasses in enclosures, (3) attend to school and church responsibilities, (4) perform construction and agricultural labor and participate in reciprocal labor exchanges.
- ii. Seven households returned to wet season pastures for a number of weeks in May during the early dry season of 2016. The intent was to: (1) take advantage of wet season grasses that would be lost in the coming months, and (2) maintain boundaries with neighboring sectors.

b. Other sectors

- i. **Multiple sectors:** Short-term trips were made to wet-season pastures in multiple sectors during July snowstorms. Some households left their

alpacas in high pastures and brought down sheep, or brought the entire herd down to valley floor.

- ii. **Killeta:** herders returned to wet-season pastures in August to take advantage of pasture.
- iii. **Phinaya:** In order to decrease overcrowding during the dry season, three of the six households in Phinaya remain in the dry-season pastures during the dry season, while three households rotate between the dry-season pastures and the wet-season pastures on the valley floor. Since they have wetlands in both locations, they are able to move back-and-forth with more fluidity.
- iv. **Alkatarwi:** It appeared that multiple households brought their herds back to dry-season pastures in August for a number of weeks.
- v. **Uyuni:** In Uyuni, there was a great deal of flexibility. Out of six households, only one follows the normative herding pattern. One household does not migrate but remains in dry-season pastures year-round, and the remaining four households rotate between designated seasonal pastures during the dry season. One of those households alternates between seasonal pastures year-round.
- vi. **Chimpa Chillca:** Eight out of thirteen households returned to wet-season pastures during the month of May in the dry season. Two of those households returned to wet-season pastures (in areas with *bofedal* access) in the month of July and stayed throughout the rest of the year.

3. The location of seasonal pastures and residences

a. Chillcantin:

- i. One household relocated to a lower-altitude, off-shoot pasture (officially belonging to the neighboring sector of Chimpa Chillca) during the wet season, due to a temporary increase in herd size and composition (the addition of a large herd of sheep).
- ii. Three households were temporarily displaced to temporary off-shoot locations (Yana Rumi and Misk'i Pukyu) during the wet season due to the rotation of potato fields intersecting with useable pasturelands.

b. Other Sectors

- i. **Qampa:** Two households move to separate, lower *astanas* for the months of January and February to relieve pressure on wet-season pasture.
- ii. **Quesiunu:** Six households pasture their sheep and llamas in two off-shoot pastures (Q'illu Qaqa and Q'achu Machay) during the months of August and September to relieve pressure and avoid overgrazing on the dry-season pastures on the valley floor. They do not reside there, but just utilize the pastures.
- iii. **Uyuni:** Herders reported that, in previous years, three households occupied off-shoot locations (Paskay Pata and T'uqullaq Pata) in the month of January.
- iv. **Chimpa Chillca:** Two households occupied off-shoot locations during the months of August and September.

Conclusion: Mobilities in Question

Mobility is a key strategy in pastoralist systems throughout the world that allows herders to pool risk across space in the face of ecological variability and uncertain conditions, thereby reducing the potential for grassland depletion (Adriansen 2008; Brottem et al. 2014; Fernández-Giménez 2000; Galvin 2009; Thébaud and Batterbury 2001). Given the compounding effects of global climate change on arid regions worldwide, comparative scholarship has increasingly placed pastoralist systems in different regions of the world into conversation (Cassidy 2012; Dong et al. 2011; Nozières, Moulin, and Dedieu 2011). Out of this comparative analysis, there has been an increasing attention to a “mobility paradigm” that emphasizes the central importance of flexible mobility as a key strategy in the face of ecological variability and sociopolitical challenges (Brottem et al. 2014; Butt 2016). Studies of the adaptive features of pastoralism have been strengthened by experience-near ethnographic approaches that capture the multitude of nuanced ways in which herders make decisions in the face of shifting social, political, economic, and ecological conditions. This chapter has provided an overview of one such system, grounded in a single sector of the community of Chillca. By bringing attention to the particular moments of decision-making that occur throughout the year, I join a broader effort to empirically demonstrate the complexity of pastoralist mobility and the ways in which this fluidity is vital in the face of ecological and sociopolitical shifts.

However, not everyone in Chillca is satisfied with the current status of living in a commons—in fact, some herders seek to free themselves from the cooperative work that underpins these yearly migrations. In doing so, they envision radically different futures that

require new configurations of people, place, and animals. In the next chapter, I engage with these speculative futures and place them within broader historical narratives of improvement in Peru.

CHAPTER VI

Mejoramiento as Aspirational Imaginary: Land Tenure Change and “Better” Futures

Community Assembly - Centro Poblado de Chillca, December 2015

At a community assembly in December of 2015, a familiar scene emerged as two herders argued bitterly before the community leadership about alpacas crossing sectorial boundaries. Community members distractedly conversed with one another in the background, the men slumping in their plastic chairs and the women huddling tightly against the wall to ward off the evening chill as the sun set outside. Finally, a young man rose to his feet, and— voicing the frustration of many of the community members around him—suggested that the community should once again take up the issue of dividing the pasture into family-owned landholdings (*parcelas*). The subdivision of communal land had been implemented in many surrounding communities in the previous decades, and it had already been raised multiple times as a solution to the continuous arguments surrounding communal pasture usage in Chillca. Unsurprisingly, it was José Luis who broached the issue this time: a slight man with a toothy smirk, his voice perpetually lilting toward playful humor, José Luis was well-known for his brash and often provocative commentary at public forums. His seriousness in regard to this particular matter was made palpable only in his punctuated pleas for his compatriots’ attention: “*compañeros*,” he pleaded through the rowdy back-and-forth of the herders’ argument, “*compañeros, su atención por favor...*” As a prominent member of the community Alpaca Committee, José Luis was widely respected as an educated city-dweller who split his time between Chillca and Pitumarca

and worked in tourism. His argumentation slipped between Spanish and Quechua and was grounded in claims to legal knowledge, which he marked by repeatedly hedging his remarks with the qualifier *legalmente*.¹⁵² Although privatization had come up many times before, this time it was taken seriously enough to warrant a lengthy discussion that continued well into the evening before the community leadership tabled the issue for further discussion and a community-wide vote the following month.

* * *

The *comunidad campesina* of Chillca has operated under a communal land tenure system since the breakup of the three major *haciendas* in the area following the Peruvian agrarian reform of 1969. Historical family claims to particular areas were formalized into a sectoral system in which extended agnatic groups hold patrilocal residence in distinct sectors. Chillca is one of few remaining communities in this part of the Andes to practice this form of land management, and there have always been moments of tension, negotiation, and reconfiguration, including the secession of one sector, Mulluviri, as an independently-operating annex fifteen years ago. Especially in the past decade, population growth has placed greater pressure on the pasture and has led to increasingly tense encounters between neighbors, and between herders and a community leadership that periodically seeks to exert limitations on herd sizes and enclosures.

Like many surrounding communities in the high Andes, Chillca is undergoing rapid processes of transformation due to climatic changes, an expanding population, and increasing

¹⁵² Although, in this context, the term is used in the way that American English speakers might use “technically” or “officially,” rather than as a direct reference to a specific legal precedent.

tourism, leading to shifts in livelihood strategies.¹⁵³ More and more of Chillca's residents (largely men) seek seasonal wage labor opportunities in mining and tourism, and many herders strive to tap into a growing luxury alpaca wool market. To this end, many of Chillca's residents seek to spend less time and effort on transhumant herding and the associated tasks of communal land tenure management, and find the frequent communal work requirements and the constant squabbles and coordination with neighbors especially burdensome. Instead, many envision a more lucrative future with improved stock, intensified fiber production, and more time to devote to pursuing other forms of income. In short, in 2015-2016 the people of Chillca envisioned "better" futures for themselves, their children, their alpacas, and their land, and they imagined these futures to be attainable through a parcelized land tenure system.

As the previous chapters have argued, the herders' world in Chillca is changing rapidly. The entanglements that compose that world—the entanglements of *ayllu*, as a configuration of people, place, and animals—have shifted, allowing for novel possibilities in their reconfiguration. A discussion of land tenure change in Chillca must acknowledge all of the ways in which land is inextricable from animals and humans, such that territorial transformations also articulate herders' idealized versions of themselves and their animals. This discussion must also acknowledge the ways in which the materiality of entities and beings in Andean ontologies is inherently unfixed: bodies and landscapes are endlessly malleable by virtue of their continual coproduction. As the relationships between entities are reconfigured, so are the material and symbolic properties of the entities themselves: humans, animals, and landscapes can shapeshift into new forms. The forms they take, however, emerge within historically situated ideologies of race, class, and gender that encourage particular kinds of bodies and relationships but not others.

¹⁵³ This is especially true given the recent popularity of the Ausangate trek and Vinikunca ("Rainbow Mountain"), which experienced a rapid increase in tourism in 2015 due to its popularization in a number of high readership, global newspapers.

In this chapter, I consider the potential fracturing of the commons system in Chillca in terms of *imaginaries*, to consider the ways in which herders envision and cultivate futures in a time of precarity. Their aspirational futures are articulated through an ideology of *mejoramiento* (improvement), and manifest in the discussions and interventions through which herders seek to improve upon human, animal, and landscape bodies and futures. In addition to producing *mejorado* animals that fetch higher prices for their wool, people in Chillca envision better versions of themselves: as savvy livestock producers and *profesionales* (educated professionals such as doctors, lawyers, and engineers). Reconfiguring the system of land tenure in Chillca, to many, is a necessary first step towards obtaining the resources and honing the practices through which they could produce better versions of themselves, their animals, and their children. These “better versions” that herders envision emerge in coordination with broader regimes of power—the state, neoliberal development agencies, and international wool markets—through development initiatives aimed at the rural poor. Predictably, these hopes are channeled through the bodies that serve as the typical nexuses of reproductive imaginaries: children (and, by extension, their mothers) and reproductive animals.

It is important to note, however, that these imagined futures didn’t include everyone, and they are laden with ambivalence around the entwined fates of people, place, and animals. There were many people in Chillca that expressed opposition to land tenure change, the majority of whom were women and older men—in other words, those who were largely left out of developmentalist narratives in Chillca. Furthermore, most of the community remained hesitant about getting rid of alpacas altogether, especially the community’s collective alpaca herd, the *majada*. When it came time to discuss the dissolution of the alpaca herds, the discussion stalled, and the stakes of privatization came into sharp relief. In a place in which human, animal, and

landscape vitalities are mutually-emergent, models of individualization run up against synechdochal configurations whose very existence depends on the continued integration of the units therein. And yet, many herders saw the loss of animals as an inevitability, and perhaps, the only way forward.

Improving the Land, Improving the Self: Land Tenure and *Parcelización*

Prior to the Peruvian agrarian reform of 1969, much of the land that comprises Chillca's current territory was occupied by three large *haciendas* and a smaller private landholding. After the agrarian reform, the Peruvian state held title to those lands, while the rest of the area was incorporated into the peasant community of Pampachiri. In 1985, the community of Chillca separated from Pampachiri and became a separate *comunidad campesina*, initiating a lengthy process of land retitling, particularly in those areas that had previously been under private ownership before being incorporated into the Peruvian state. Much of this land retitling occurred during the late 1980s and early 1990s, overlapping with the "alpaca boom" (*boom alpaquero*) that saw greater interest and investment in the modernization and mechanization of the alpaca industry (Browman 1983; Dong et al. 2011; Orlove 1977a, 1982; Postigo, Young, and Crews 2008). As such, the community was targeted by a multitude of lawyers and engineers that overcharged them for poorly-done retitling services, leading to titling issues that continue into the present day.¹⁵⁴

Following the agrarian reform, many of Chillca's residents that had previously fled the area during the *hacienda* period (including Consuelo's family, who had lived in Quispicanchis between the late 1960s and early 1980s) returned and established households in their natal

¹⁵⁴ Due to the contentious nature of land titling disputes in Chillca, and the vulnerability of the community's lands to mining concessions and other forms of private and state intervention, I will not go into great detail about this process or its outcome.

lands.¹⁵⁵ Certain community members were then tasked with the initiating the land-retitling process, including Consuelo's late father, whose descendants recall his many lengthy and laborious trips to the Lima to file the paperwork necessary to reclaim his family's territory of Antapata—lands that the family maintains were purchased by the *hacendado* under false pretenses for a sack (*arroba*) of coca. During this initial process of retitling, the community progressively established sectoral boundaries that corresponded largely to historical family claims to particular lands, as well as previous *hacienda* areas. The sectoral management of pasture was also established at this time, although it wasn't formalized (i.e., subject to central management by a central community governing structure) until a number of years later.

Land tenure regimes can be understood as institutional configurations that articulate “bundles of rights” with regard to the access and use of land by individuals and groups within a specific territory (Schlager and Ostrom 1992). They are thus highly variable from one community to the next, even if they fall under similar classifications.¹⁵⁶ Two such bundles of rights include (1) the rights to access the land and obtain resources within it (a.k.a., “Operational Rights”) and (2) the right to define *future* operational rights in terms of how, when, where, and who will access those resources, and if they are available for transfer or sale (“Collective Choice Rights”). In Chillca, the Operational Rights are largely held at the sectoral level, such that the agnatic family groupings that reside within each sector establish who has access to the pasture within those boundaries, and who is able to utilize the resources therein. However, these are

¹⁵⁵ These are approximate years based on self-reporting of the relative ages of Consuelo and her siblings during this time. Many of Consuelo's cousins (specifically, the children of her father's brothers) still live in Tinki.

¹⁵⁶ In describing the current land tenure configuration of Chillca, I rely on the classification utilized in a recent policy-oriented research paper series produced by the Group for the Analysis of Development Peru (GRADE) for the Evidence and Lessons from Latin America (ELLA) knowledge exchange program, titled “The Evolution of Collective Land Tenure Regimes in Pastoralist Societies: Lessons From Andean Countries” (Damonte et al. 2016). Their classification is based on a theoretical framework developed by Schlager and Ostrom in their article “Property-Rights Regimes and Natural Resources: A Conceptual Analysis” (1992) as adapted by Villarroel and colleagues (Villarroel et al. 2014).

subject to oversight by the broader community governing structure. Thus, the community governing structure holds the Collective Choice Rights of the lands within Chillca's boundaries, with ultimate decision-making over future operational rights in each sector. However, in the simplest terms, both bundles of rights are shared in coordination between the sector- and community-levels of management. This follows a prevalent system of mixed property rights in the Andes, wherein "individual rights are predominant for property and herd management; family-based rights have a defining importance in mediating access... while community-based rights play a central role in the administration of resources and herds" (Damonte et al. 2016).

The general trend in land-tenure change in Peru in the past 50 years has favored land tenure systems in which collective choice level rights and operational level rights are held at the household level (i.e. privatization), or one in which operational rights and some collective choice rights are held by the household, but the ability to sell or lease rights to property remain under the control of the community governing structure (Damonte et al. 2016; Browman 1974; Casaverde 1985; Postigo, Young, and Crews 2008; Sendón 2008). While this is referred to as a "parcel" system, the system that people in Chillca envision more closely resembles that of the privatized model in which both bundles of rights are held at the household level, such that each family has ultimate control over both the present and future usage of their land-holding, including its future sale or lease.

When the Chillca community assembly reconvened to address the issue of privatization in January of 2016, it was decided that each sector should discuss the issue separately before reconvening for a final vote. Community members huddled outside the assembly hall by sector, discussing the issue for about forty-five minutes before they were called back. When the sectors reconvened, the vote was unanimously in favor of privatization: one by one, representatives from

each sector rose to face the *junta directiva* and report that their sector was 100% in favor.¹⁵⁷ All agreed that an objective third party (specifically, an *ingeniero*) should come and determine how to divide the land into equal parcels, and that they should be allotted through a lottery system. There were a few major points of contention, however. The first was whether or not the parcels should be divided and distributed at the community- or sector-level. Four sectors voted that the community's land should be subdivided at the community level, such that any individual could be assigned any parcel within Chillca's territory, while the other five sectors voted that the land should be divided sector-by-sector, such that the current occupants of each sector would continue to occupy individual landholdings within those sectors. A second point of contention was whether former community leaders—specifically, those that had worked to reclaim land titles in the 1980s and 1990s—should be given preferential parcels, given the disproportionate labor they undertook in establishing the territory of Chillca in previous decades. There was, of course, the broader difficulty of the differences in topography and resources across the community's territory. Should the most arable lands continue to serve as community potato farms? What about the *bofedales*— would certain *comuneros* have preferential access, and would they lease or otherwise exchange access to these crucial ecosystems with other herders? Some speculated that in the absence of the current system of pasture rotation, they would have to establish a different form of community-wide migration between individualized parcels, while others protested that this would result in similar issues of overgrazing, and the better option would be for everyone to adjust their livelihood strategies based on the parcel they were given.

¹⁵⁷ Although, as I will discuss later in the chapter, there was much variability in herders' individual responses towards privatization.



Figure 59: Herders gathered for a communal work event

In many ways, this drive to subdivide pasture in Chillca fits within a broader trend in pastoralist communities throughout the world towards greater fragmentation into spatially isolated parcels. These efforts are largely in response to increasing limitations on communal pastures (the result of population growth, environmental change and land degradation), and land-use changes related to shifting livelihood strategies and corresponding market demands. More to the point, however, these changes reflect conflicts over the viability and value of living in a commons: of contributing time, effort, and labor towards the reproduction of a particular kind of social configuration, and trusting in other members of the commons to do the same. Many herders in Chillca, for example, cite the abuses of “freeloaders” that seek to exploit the commons system by increasing their herds and partitioning areas of land for large reserve pastures. In fact, the dispute that initiated the privatization discussion at the December assembly originated in the fact that one of the herders in the dispute had nearly four hundred alpacas (four times the average herd size), and was accused of allowing his herd animals to spill into neighboring sectors. Other alpaca-rich herders were accused of neglecting their community work requirements by failing to attend assemblies or participate in communal work events (*fainas*), with some arguing that the

disproportionate pasture consumption of their large livestock holdings should require them to participate even more than other community members. Herders—even those not necessarily in favor of privatization— were unanimously critical of those who were seen to be exploiting the system for personal gain, particularly households that had large herds. People who took advantage of the commons were widely considered to be acting selfishly: “some people have lots of animals, and they’re taking advantage (*están aprovechando*) because they don’t think of the [other] *comuneros*, they only think of themselves,” one young man told me, implicating one individual in particular who had 240 sheep.

He doesn’t want to reduce his herd, in the assemblies he’s said “no, no I won’t reduce the herd.” He has so many animals, and it’s [considered] normal, in the assemblies, in the *fainas*, everything. Maybe he works more than us? I doubt it. He only comes to assemblies every once in a while, even though he has more animals.¹⁵⁸

This argument aligns with a central tenet of the “Tragedy of the Commons”: that common pool resources will invariably be exploited by opportunistic individuals. Similar to Garrett Hardin’s famous assertion that “freedom in a commons brings ruin to all” (1968, 1244), many people in Chillca argued that herders would be more responsible and conscientious land users when the land belonged to them alone. And yet while Hardin’s assertion has led to many decades of rebuttals— many of which critique the cynical portrayal of humans as purely rational economic

¹⁵⁸ “No quiere reducir pe, en las asambleas ha dicho ‘no, no voy a reducir.’ Tiene tantos animales, y normal, en las asambleas, en las *fainas*, todo. Quizás él trabaja más que nosotros? No creo. Solo viene a las asambleas de vez en cuando, aunque tiene más animales.” The accusation that one is skipping out on communal labor is particularly damning, as it is considered the responsibility of everyone who benefits from the common pasture to contribute the resources and labor necessary for maintaining it. Household attendance is noted at every assembly and communal work gathering (*faina*), and those who are repeatedly absent are chastised publicly. This is especially true of male members of the community. While household attendance is defined by the presence of either the male or female adult in the household, if only the woman attends regularly it is considered an abdication of household duty, since women are considered to participate less in assemblies and contribute less to work events that require manual labor.

actors, and instead provide pertinent examples of successful, sustainable, long-term common-pool resource management— this stance was very much present among herders in Chillca.¹⁵⁹

Notably, proponents of privatization in Chillca did not simply malign individualism or opportunism as undesirable traits, but rather acknowledged that they were incompatible with the current communal land tenure system. Herders were being selfish and taking advantage of the commons, yes, but it wasn't the herders that needed to change— it was the commons. In particular, many people expressed the belief that once individuals were able to become private landowners, and were thus freed from the tethers that bound them to other community members, they would be better able to improve upon their own standing. As José Luis elaborated in a discussion a couple months after the assembly, “Now that we are living communally, we can't improve— *no podemos mejorar pe.*” He explained,

It's a bit of a problem— [an individual] wants to do this, he wants to do that, or he says I can't, [my neighbor] won't let me do it, this or that— so there are problems. But if there were a parcel, it's just for me (es para mi es). It's more productive... it's like, like in the city, for example— this is your property, your house, and you pay for what's yours every year, by what you have lived and earned, right?¹⁶⁰

Per this argument, subdividing the land into parcels would release individuals from the limitations of communal living, thereby allowing them to embark on new forms of resource accumulation and self-improvement. This was an argument I would come to hear again and again, often with the comparison to having one's lot or house in an urban center. The comparison of a land parcel to an urban house is significant, in that trajectories of *mejoramiento* aligned with racial geographies in Peru that culminated in white urbanness as the pinnacle of social and

¹⁵⁹ See for example McCay and Acheson 1990; Behnke and Scoones 1993; Berkes et al. 1989; Galvin et al. 2007; Feeny et al. 1990; Ostrom 1999b, 1999a, 1990; Trawick 2002; Villarroel et al. 2014.

¹⁶⁰ “Un poco de problema hay— él quiere hacer eso, esto quiere hacer, o dice no puedo, no me deja, esto, aquello— entonces hay problemas. Pero si había una parcela, es para mi es. Es más productivo es... es como decir en la ciudad por ejemplo— aquí es tu casa, y tú el tuyo lo pagas al año no, por lo que has vivido, no es cierto?”

economic power, a point I will return to in a later section. As another young man, Sebastián, told me,

A parcela is like... in a town you have your lot, right? Your house. You worry about your house, how you're going to fix it up. You worry about the space you have; you improve upon it. By your own will (*a la voluntad que tienes*) you go about working for what you want."¹⁶¹

Sebastián's reference to one's will (*voluntad*) was echoed in other appeals to notions of personal responsibility, which many people linked to the proper management of pastures: keeping the pasture clean and irrigated, preventing overgrazing, and seeding "improved" grass varieties (*rayras*, alfalfa, and *avena*). For example, one man referenced the rockfall and bare patches on the surrounding pastures as a sign of neglect, signaling that if it were his own property, it would be his responsibility ("*nuqaqmantaña nuqaq prupiutaq chayqa*") to take care of it:

In *parcelas*, people would acquire [more benefits]. These rocks wouldn't be here in the *parcela*, they would pick them up. All of it would be picked up and [made into] enclosures. ... like the terrain is here, these [rocks] are delaying the growth of the pasture. Let's say I'm going to have a *parcela*, I would collect all [of the rocks] and build an enclosure over there. That's where I would seed pasture, it wouldn't be like it is now. I would also bring water from other places; this would be my responsibility alone.¹⁶²

Citing the current rates of pasture decline, he continued:

The pasture is declining, currently it's cloudy but soon it will get dry and the pasture will decline, it will get dry in June, July, August, and there won't be grasses for the animals. If there were *parcelas*, then the pasture would maintain itself just fine, we would irrigate. Us owners [*dwiñus*] would irrigate what is ours [*prupiyuykuta*]... [living communally] who will irrigate? Nobody irrigates, so the wind quickly blows [the grass] bare.¹⁶³

¹⁶¹ "Es pe, una parcela es como una... en un pueblo tienes tu lote, no? Una casa, te preocupas de tu casa, como vas a hacer, vas a hacer tu casita como siempre, no? Te preocupa del alcance que tienes, vas mejorando. ... A la voluntad que tienes vas trabajando para lo que quieres."

¹⁶² "Parsilapi runa masta adkirinqa. Kay rumikuna mana kapunqachu parsilapiqa, pallarapunqaku. Q'ala pallasqa kancha kancha kapunqa... Kaykunahina kapushan hallp'a, pastukuna wiñanata atrasapushan. Sichus nuqaq parsila kancha digamus chayqa nuqa q'alata pallarapusaq kanchata chaypi ruwarusaq, chaypi pastuta ruwasaq, mana kayhinachu kancha. Unutapas maymantapas apamusaq nuqamantana nuqaq prupiutaq chayqa."

¹⁶³ "Pisiyamushan pastu, kunan phuyumushan chaylla mana, astawan ch'akirimunqa chayqa pisiyapunqaya pastu ch'akiriramunqa kunan juniu juliu agustu chayta mana pastu kapunqachu uywapaq. Sichus parsila kancha chayqa pastuqa normallaya mantinikunqa qarpasaqku chayqa. Dwiñuykutaqa prupiyuykuta qarpasayku irigasiunwan usia imawanpas qarpasaqku chayqa pastuqa normallaya, kunidad chayqa pitaq qarpanqa, manaya pipas qarpanchu chayqa ratu q'alata wayra apapun."

In addition to motivating herders to improve upon the pasture through irrigation and seeding, people also reasoned that privatization would decrease overgrazing. A community leader explained that he saw the maintenance of the pasture's carrying capacity as the key benefit of privatization:

Yes, definitely, it would be good, because in your plot (*canchón*) you could have your own pasture (*pasto*). If everyone had a plot, you'd go about calculating the pasture (*vas calculando el pasto*) so that your alpacas won't die. If everyone is in their own plots, you're going to evaluate, right? You're going to sustain the plot and the alpacas— these alpacas I should raise, or perhaps there's one that should be eaten or sold. Like that, little by little, you go about selecting just the good ones, the best ones. It's like this, [living] communally, everyone wants to have good ones, and everyone wants to have lots of them. But the pasture doesn't grow for that amount. It's like, for my alpacas the pasture should be for 800 [alpacas], how is the pasture going to grow for 1200, what are we going to do?¹⁶⁴

Living in a commons system, he continued, “who cares [about the grass]— nobody! No one gives it a thought, this is the future of the community, [it's] difficult” (“*Comunal, quien se preocupa, nadie! No hay pensamiento, así el futuro de la comunidad, así, difícil*”).

Currently, the carrying capacity of the commons is maintained under the oversight of the community governing structure. In the past decades, the *junta directiva* has repeatedly attempted to place limitations on herd sizes, targeting certain animals that place particular strain on the grasslands: horses were reduced to two per family, and cows were banned entirely in the early 2000s. In 2015, the community leaders attempted to impose a reduction of sheep by limiting herd sizes to fifty sheep per household. These efforts were met with resistance by community members, largely on the grounds that the reduction deadlines (originally planned for February,

¹⁶⁴ “Sí, claro, sería bueno porque en tu canchón puedes tener tu propio pasto. Si cada persona tiene su canchón, vas a calculado el pasto, no van a morir las alpacas. Si todo está en canchones, vas a evaluar pues. Vas a sostener tu canchón y las alpacas— estas alpacas debo crear, si es uno que se debe comer o se debe venderlo. Así, poco a poco, vas seleccionando a los buenos no más ya, a los mejores. Así es, comunalmente, los soltamos, todo el mundo quiere tener bueno, y hartos quieren tener todos. Entonces pasto no crece pues para más. Es que para mis alpacas el pasto que sea para 800, el pasto va a crecer para 1200, que vamos a hacer?”

and then November) did not account for fluctuations in the price of sheep's meat (and the fluctuating weight of the sheep themselves, given seasonal biomass variability), and the fact that many families combine their herds such that they appear larger per administrative family. Regardless, others in the community critiqued this resistance as another example of certain members' desire to exploit the commons for personal gain. When I asked Matías, for example, if he thought there would still be sheep in Chillca in the future (given the prior eradication of cattle), he again pivoted towards an appeal to individual responsibility:

I'm don't know, but hopefully in ten years from now there will be *parcelas*, that's what I hope. When there are *parcelas*, I think that, if each family member has two hundred or one hundred sheep, that wouldn't [be in their] interest... When there is a *parcela*, like they gave you this place, this little spot [gestures to land], and you raise like a hundred sheep or two hundred alpacas, and the pasture doesn't withstand it, where else [would you go]? Everything would die. People would have to be responsible.¹⁶⁵

In Chillca, discussions of privatization were very attuned to the notion of individual responsibility, and the cultivation of particular individualistic qualities (ambition, self-promotion, economic rationality) as part of a broader process of improvement. Those in favor argued that, in the absence of community oversight, herders would more effectively regulate their own behavior. Cultivating these subjectivities required severing oneself from the broader community— which many were in favor of for other reasons. Community living was burdensome: in the midst of scrutinizing and complaining about their neighbors, people maligned the constant *miramiento* (*qhawanakuy*) and jealousy with which their neighbors scrutinized and complained about them (Van Vleet 2003). Furthermore, they found the time

¹⁶⁵ No lo sé. Ojalá de acá de diez años que haiga parcelas. Eso es lo que espero. Cuando va a ver parcelas, yo pienso que, en cuando sea cada uno de la familia que tenga 200 ovejas o 100 ovejas, no interesa... cuando haiga una parcela, como esto lugar te darían, este partecito, y si no habría pasto, y crearías como uno cientos ovejas o doscientos alpacas, y no resiste el pasto, a donde más va a dar? Todo se muere. Hay que ser responsable.”

constraints of communal living limiting.¹⁶⁶ Those in favor of parcelization saw the work of community living—especially the *fainas* and other labor obligations— as a significant barrier to their own improvement, in that it prevented them from devoting their time to other pursuits. Many people made comparisons to surrounding communities that had privatized land tenure, suggesting that communal living was preventing them from *avanzando*, getting ahead or moving forward like these other communities had done. For example, one young woman referenced her relatives living over in Ocongate on the other side of the mountain:

They say [*parcelización*] is good. They dedicate themselves to lots of different things. People [over there] are knowledgeable, more awake (*dispirtu*) than [the people that live] on this side [of the mountain]. They devote themselves to trout fishing, *artesenía*, making woven border for skirts on machines, everything. Not here, they just watch alpacas... they have not yet attained other ambitions.¹⁶⁷

This woman was not the only one to contrast the people who devoted their time to other income-providing pursuits against those who just “watched alpacas,” in terms of their industriousness (*ambisiun*) and mental acuity (as *saban pirsuna* or *dispirtu*). As part of the broader project of improving upon their lands, herders in privatized landholdings would improve upon themselves— freedom from the time-consuming responsibilities and discomforts of communal living, it was argued, would allow for greater individual industriousness. As a result, they could

¹⁶⁶ In addition to the monthly assembly, which lasts from nine in the morning well into the evening (and sometimes into the next day), community members are required to attend multiple work events (*fainas*) each month. Most of these events are related to maintenance of the *majada*, the care of which involves the rotation of herding responsibilities, the *hampiy faina* medicating events every two months, the *tuwi taqay* in January (when the weaned alpacas [*tuwi*] are separated from the female herd and relocated), and the yearly multi-day shearing event in November. Community members also contribute to the maintenance and harvest of the community potato plot: planting in September/October, harvesting in May and June, and processing *chuñu* in July and August. There are also required administrative tasks such as serving on the community governing board or subcommittees, and attending festivities related to Peruvian state holidays (Independence Day), and regional town/city anniversaries. Additionally, multiple school events throughout the year and periodic work events coordinated with NGOs and development organizations draw herders away from their work.

¹⁶⁷ “Allinmi ninku. Askha clasimanta didikakunku paykuna. Saban pirsuna, kay ladunmantaq más dispirtu chay ladunqa. Paykuna truchaman, paykuna artisaniaman, paykuna makinakunapi chay burdadu pullirakunaman... sapankama runa didikakun. Mana kaypi, na alpallatas qhawarillanku. ... Manaña huq ambisiunkunmanllachu.”

devote themselves to producing the better futures that they imagined for their animals and their children, as I'll discuss in the following sections.

Analyses of land tenure change in pastoralist communities often frame the decision to subdivide the commons in terms of an external versus internal dichotomy: fragmentation is either externally-driven (imposed on users by external authorities), or internally-driven (sought by users as a means of exerting or maintaining control over resources, or to diversify livelihoods). Considered within this lens, the decision to privatize in Chillca would be classified as “internally-driven,” in that it was the herders themselves that sought to improve their futures through land tenure change. However, rather than reproducing a dichotomization of land tenure shifts within a frame of internally- versus externally- driven models of privatization, it is more productive to think through the ways in which the worlds that herders envision take shape in coordination with broader regimes of power. The aspirational futures they envisioned for themselves did not emerge in a vacuum. Rather, state and market forces interpolated with herders' aspirational imaginaries through notions of “better futures,” to produce privatization efforts that, while nominally internally-driven, aligned with predominating neoliberal models of modernization and self-improvement.

Aspirational Imaginaries: Better Futures through *Mejoramiento*

In Chillca, debates around the privatization of land are one of the sites in which people “evok[e] possible worlds” (Gammeltoft 2014, 154). These possible worlds are predicated upon the improvement of both animal and human bodies and futures: people imagine future possibilities in which their animals are *mejorado* and their children are educated *profesionales*. Individual landholdings were seen as a necessary precursor to such improvement. The

aspirational narrative unfolds like this: with smaller landholdings, people would regulate their own behavior in such a way to avoid overgrazing and invest more in cultivated pasture and improved animals. Instead of devoting their time to the maintenance of the commons, they would be able to diversify their livelihoods by taking up other pursuits like dairy, handicrafts (*artesanía*), or tourism. The income gained from these activities would allow them to further invest in improved alpaca herds and their children's future. Those children would then go on to become *profesionales*, and would come back to serve the community as doctors, lawyers, and engineers, thereby lifting the entire community out of poverty.

Here, I draw my analysis from anthropologies of the imaginary that seek to engage with the “complex, partly imagined lives” (Appadurai 1996, 54) that people throughout the world formulate in their increasing connections with international markets, popular media, and technology (Appadurai 1996; Crapanzano 2004; Comaroff and Comaroff 1999; Hansen and Stepputat 2001; Fortun and Fortun 2005). In articulating how these imaginaries become actualized through human and animal bodies, I draw inspiration from Tine Gammeltoft's work with reproductive technologies in Vietnam, which seeks to articulate the concept of the imaginary within the realm of biopolitics as a way of understanding family reproductive choices in light of prenatal screening technologies (Gammeltoft 2014). In doing so, she extends the frame of biopower to account for the ways in which state power is actualized through the forces of *fantasy* as well as bodily control. Foucault's concepts of biopower and biopolitics (1990) have been effectively applied in critiques of development and modernization projects in terms of how powerful state and global actors and institutions compel the self-formation of idealized subjects (Escobar 2011; Ferguson 1994). Imagination, Gammeltoft argues, is likewise a powerful sociopolitical force, specifically the ways in which coercive imaginaries operate through the

seemingly-personal fantasies, desires, and fears of individuals.¹⁶⁸ Her work focuses on moments of technological intervention in human reproduction, namely ultrasounds, as the “terrains in which the imaginary manifested with particular force” (2014, 163)— where the “imaginary constructions of self and society” propagated by the state, through narratives of productive citizens and population quality, become palpably present in pregnant women’s fears for their children (154). Similarly, in Chillca, moments when people discussed the future of the community through the nexus of land tenure change were terrains in which to imagine the future of *ayllu*, by envisioning and cultivating idealized versions of themselves, their animals, and their children. The possible worlds they imagined in these moments aligned with broader models of improvement that made such worlds imaginable in the first place.

Through developmental initiatives aimed at the rural poor, the Peruvian state— in partnership with international NGOs and regional development programs— has articulated clear visions of what improvement looks like. For example, one particular non-governmental organization, Pachamama Raymi, was an especially prominent player in Chillca. This Cusco-based NGO spearheaded a number of development initiatives in Chillca and surrounding communities based on a development methodology established in the 1980s in Peru under the Rural Development Program PRODERM (financed by the Dutch Cooperation and the European Commission). A central feature of this methodology is the use of competitions or contests between families and communities as a form of incentivization, in which the winners are awarded a cash prize. As is the case in many global developmentalist projects in Peru,

¹⁶⁸ She raises two critical points here about the terms imaginary and fantasy: (1) they do not mean “fictitious,” and (2) they are not privately- or personally-held. This requires extracting imagination or desire from the realm of the inner, private, and personal, as it is understood in general parlance. Rather, citing Lacan, she writes that “[w]hile in everyday understanding fantasy tends to stand in contrast to reality, being associated with an inner, private world as opposed to the external and public social world, Lacan defines fantasies as intersubjective and therefore social structures” (158).

Pachamama Raymi espoused the neoliberal tenets of competition, ambition, and self-promotion as necessary components of the project of *mejoramiento*.¹⁶⁹ In 2015-2016, Pachamama Raymi implemented two major competitions in Chillca centered around the “genetic improvement” (*mejoramiento genético*) of alpacas and household sanitation (*viviendas saludables*). The genetic improvement project was driven by a regional livestock competition, while the household sanitation project was likewise a competition whose parameters included improving the external appearance of houses in the town center, constructing outhouse bathrooms, and dividing domestic space into separate cooking, living, and sleeping areas—in particular, gender-specific bedrooms. Pachamama Raymi was not the first to implement such projects in Chillca: the last few decades have seen a plethora of development initiatives in Chillca centered around the improvement of livelihoods through interventions in the living conditions, education, and market integration of Chillca and its residents.

¹⁶⁹ The formation of idealized subjectivities in the context of neoliberalism constitutes a robust body of literature in anthropology and adjacent disciplines. This body of literature largely draws on Foucauldian conceptualizations of the self, as produced and reproduced in relation to broader discourse to argue that individuals draw upon broader cultural models in their own self-constitution in order to fashion themselves (and their children) into legible subjects that are aligned with dominant cultural ideals. Neoliberalism—arguably definable as a political ideology expressed and instituted through hegemonic discourse (D. Harvey 2005) and forms of governance (Foucault 2010; N. Rose 1999)—encourages a model of the idealized human subject as an autonomous, self-directed, entrepreneurial agent. The coherence of neoliberalism as a global hegemonic project has been put into question, especially in the face of particular local particularities and productive reconfigurations (Hoffman, DeHart, and Collier 2006; Kingfisher and Maskovsky 2008) as well as critical differences in epistemologies and social organization (Gershon 2011). However, in global developmentalist projects—such as Pachamama Raymi—neoliberal tenets (competition, individualization, economic rationality, etc.) continue to circulate, arguably most successfully when bolstered by the uptake of similar neoliberal virtues by the recipients of development intervention (D. Harvey 2005, 42).



Figure 60: An NGO presents their project and distributes blankets at the community assembly in Chillca

Such interventions are commonplace in the high Andes, and have been for some time: in fact, developmental initiatives aimed at the rural poor have been a central part of the project of nation-building in Peru and Latin America more broadly in the 20th and 21st centuries. Such initiatives frame improvement in terms of social welfare and public health, yet they contain powerful assumptions about ideal types of human and animal bodies and behaviors. The ideology and practices of *mejoramiento* gesture towards a broader cultural narrative in Peru, one that promotes the blending of distinct racial identities through *mestizaje* as part of the project of national identity-formation. Aspirational narratives in Peru have historically been tethered to a racial geography that assumes the superiority of urban whiteness: in these models, one must shed the markers of *indianness* (in terms of dress, speech, diet, comportment, and geography) in order to improve their standing and livelihood (Colloredo-Mansfeld 1998; de la Cadena 2005; Hill 2013; Leinaweaver 2005; Roberts 2012; Whitten 1981; Weismantel 1988). Whether overtly or covertly, state-sponsored development initiatives in the Andes have historically sought to address

the “Indian problem” by imposing a trajectory of improvement that culminates in a distinct *whitening* (*blanquemento*) of the population (Whitten 1981). As many scholars of race in Latin America have articulated, this aspirational whiteness only partially overlaps with what would be recognized as the racial category of “white” in Europe or the United States (de la Cadena 2000; Orlove 1998; Poole 1997; Roberts 2012; Wade 2009; Weismantel 1997). Phenotypic traits are only one part of a wider assemblage of language, dress, education, class, comportment, and character that confer racial identity—all of which is subject to change over the course of an individual’s life. One’s race is inherently mutable, allowing racialized projects to be easily incorporated in discourses of improvement under the guise of education, sanitation, and economic improvement.

This isn’t to say that people in Chillca were striving to become white urbanites, nor were development initiatives in the area suggesting they do so. They wanted their children to go to the cities and study, speak Spanish and English, become professionals, and wear professional clothing— but they also wanted them to come back to Chillca, have alpacas, and don their traditional clothing during festivals and weddings. The majority of them took great pride in being *michiqkuna* and *alpaqueros*, and—as I’ll explain further later on— a future entirely without animals was not desirable or even feasible. However, their articulations of improved, better futures required the alignment of human and animals bodies towards idealized types that were very much shaped by more powerful others. In the sections that follow, I elaborate on the processes of cultivation that were held to produce kinds of improved animals and people— the *mejorado* alpaca, and the educated *profesional*— as the loci of better futures.

Bonitos Animales: Practices of Cultivating Ideal Animal Bodies

As I discussed earlier, those in favor of privatization argued that living in a commons system prevented herders from improving their animals due to a lack of investment in grasslands, as well as communal labor obligations that prevented them from accumulating cash to purchase *mejorado* alpacas. However, people also argued that, by virtue of sharing the same pastures, they couldn't breed *mejorado* alpacas: the constant mixing between neighboring herds in the communal pasture rendered any one household's attempts to selectively pair reproductive animals ineffective. Intensive breeding of carefully selected animals was considered an essential component of "getting ahead." One man in his mid-40s, Tomás, who had only a small herd of thirty alpacas, expressed his enthusiasm for privatization in terms of this type of selective breeding, which he considered an essential component of *supirasiun* (from Spanish *superar*, to overcome):

Allison: What do you say about parcels?

Tomás: I want a parcel, let it happen, I say.

Allison: Why?

Tomás: Why? In the community, raising alpacas and sheep, there isn't improvement (*mihuramintu*). Because they are mixing, [the animal] one person purchased is mixing with that of their neighbor, so one can't get ahead (*mana kanchu supirasiun*). They [the alpacas] are mixing with llamas, they are combining, they end up the same. But in a parcel, you would tend to your improved alpaca no matter what, and just like that it wouldn't mix. This is what I like.

Allison: so would you improve your alpacas?

Tomás: I would see. Here they are just mixing already. For example... these males come over, the females too come over, and just like that they mate over there [points to *pampa*]. The sheep, llamas, come over the bridge [between Chillcantin and Chimpa Chillca sectors] with the alpacas, and there isn't improvement. [It's all] communal. But in a parcel, of course it would be possible little by little, year by year [to improve]. This is what I like.

Allison: So you would buy better stud males?

Tomás: I would buy a stud male for the females. It would be possible. In the community it isn't possible, but in parcels it would be possible. That's why I want there to be parcels.

Allison: But some people would reduce their herds, right?

Tomás: Yes, they would reduce [their herds]. But, sometimes where there is quantity there isn't improvement. But there should be quality, more or less ten, twenty improved alpacas.¹⁷⁰

With a parcel, Tomás envisioned buying a stud male to breed exclusively with his own animals, an aspiration that would be impossible in the current commons. Sharing a stud male with one's neighbors wasn't ideal for herders in Chillca— not necessarily because it meant their neighbor would unfairly benefit from their purchase, but because they wouldn't be able to control the breeding in order to concentrate the gains within their own herd. The goal of breeding *mejorado* alpacas was to improve the *entire* herd, not just select individuals: this required a herder to keep track of the future offspring of the purchased alpacas, a task that would be greatly complicated if some of those offspring ended up in neighboring herds. Breeding practices emphasize the cultivation of increasingly refined generations of alpacas over time, and for that reason a herder needed to keep the *mejorado* alpacas within their own herd so that they could continue to refine and breed their offspring down the line.

Andean herders have always been deeply involved in the mediation of animal reproduction through various forms of intervention (Kadwell et al. 2001; Mengoni Goñalons

¹⁷⁰ Allison: Ima ninki parsilamanta?

Tomás: Nuqa parsilata munashani, kachun nispa.

A: Imanaqtin?

T: Imanaqtin, comunidades mana kanchu na paquchamanta, uwiamanta uywanqa chay, mana mihuramintu kanchu. Porque minukapushan, huq runa masikiqwan rantiramunkichipis minurakapun, mana kanchu na supirasiun. Mana kanchu, entonces minukapun llamakunawan, tuparapun, igual chaypi karapun. Piru parsilapaq, más o menos kanchu, tinduruwaqchaq imaynatallapas, mihura alpacykita, chaypuracha mana minukunmanchu. Eso, eso me gusta.

A: Entonces mihurawaqchu alpacykita?

T: Rikurayman. Kaypiqa minukapunlla. Por ejemplo [...] pasamushan kay laduman chayqa... paquchahina mikushan chay minukapun, este machukunapas hamun, hembra kunapas hamun chayqa igual chaypi napun, charqunapun. Uwiha llamapas haykuran chay puntamanta, alpawana na, mana kanchu mihuramintu. Comunalpi. Pero parcelapi claro atikunmanmi pisimanta pisi, watamanta wata. Eso me gusta.

A: Entonces aswan allin qhaynachutachu rantiwaq?

T: Rantiyman, padrilluta rantiyman chinapaq. Chayta atikunmanlla. Mana comunidadspi atikunchu, parsilaspí atikunmanmi. Chayna nuqa munani parsila kananta.

A: Piru wakin runakuna paquchankuta bahachinkuman, manachu?

T: Ari, bahachinkuman. Piru, waqin cantidad piru kashan mana kanchu mihuramintu. Piru kalidads kanan más o menos diez alpaquitas, mejores pe, veinte alpaquitas.

2008; Wheeler 2012a; Wheeler, Russel, and Redden 1995; Wheeler 2012b). Historically, controlled breeding methods included the separation of reproductive animals, the selection of mating pairs, supervised breeding, and castration (Browman 1974; Custred 1977; Flores Ochoa 1968; Félix Palacios Ríos 1977).¹⁷¹ The controlled breeding of selected alpaca pairs was still relatively rare in Chillca, but all households practiced some form of selective breeding, largely by purchasing or selecting stud males from their herds and castrating the other young male alpacas. Their selection of studs, while not as firmly regimented as the *majada*, reflected the demands of the wool market and associated idealized alpaca types, in that the alpacas selected from the main herd as studs were always *phinu* (*fino* or fine-wooled). For example, another young man expressed frustration with the inability to improve his herd in terms of *la mejoración técnica*, signaling the kind of intensive breeding practices that were part of alpaca mejoramiento campaigns in the region:

To me, it seems like *parcelización* will work much better. Because now, it's all communal, right? [He gestures to a swath of grass next to him] This belongs to many people— someone lives here, someone lives here, someone lives here. *Y normal*, their alpacas here, my alpacas too, and the technical improvement of alpacas, it can't improve (*la mejoración técnica de alpacas, no se puede mejorarse*). For example, in my case I'm going to buy an alpaca with 10,000 soles, 20,000 soles, I'm going to buy a good animal because I'm going to put it with my animals, but it's also going to [mate] with other people's animals, and it isn't possible to improve.¹⁷²

¹⁷¹ In many communities herders also hold pairing ceremonies, typically in the months of January through March, in which mating pairs are hand-selected, often with a ritual acknowledgement of their marriage followed by libations, singing, and dancing. For example, Félix Palacios Ríos has described the *walqicha*, or “sowing of the animals,” (Chinchillapi, Peru) and Deborah Caro described the *chaqruyapiña* (“to mix together”) ceremonies of Ulla Ulla, Bolivia (Caro 1985; see also Félix Palacios Ríos 1981; Dransart 2003; Flores Ochoa 1977). In Chillca, herders acknowledge that they used to celebrate the symbolic marriage of alpacas (*paqucha kasarachiy*) in January and February, but this ritual has fallen out of practice with the increased evangelization of families in the area.

¹⁷² “A mí, parece que esta va a funcionar más mejor. Porque ahora es común no? Esta parte pertenece a mucha gente, una persona aquí, otro acá, y acá... y normal, sus alpacas aquí, de mí también, y la mejoración técnica de alpacas, no se puede mejorarse. Yo por ejemplo, en mi caso, voy a comprar una alpaca con 10,000 soles, 20,000 soles, voy a comprar un buen animal, porque voy a poner a mis animales y también va a estar con otros animales, y no se puede mejorarse.”

Improvement, as he clarified, is tethered to the production of finer fiber, which is sold wholesale and transformed into clothing for the luxury alpaca fiber market:

[the wool] is not going to cost the same, because those alpacas that are not improved, they are not fine-wooled— they are thick-wooled, so the clothing [they would produce] as well is ugly, thick. When it is fine it's beautiful, like cotton. This is where we want to get. When you have your own *parcela*, your *padrillo* can't go to another place, to [mate with] other animals. Since it is yours, in only your own [herd] will there be more beautiful animals.¹⁷³

The *bonitos animales* that this young herder aspires to breed are based on the intensively bred animals he has seen in places like Puno, where they have long-standing breeding programs in place. Most of the *majada padrillos* (which cost 10,000 to 20,000 soles, approximately \$3,500 to \$10,000 USD) are sourced from Puno, and community members likewise express a desire to purchase these types of animals. While they settle instead for lower-priced animals in regional markets such as Combapata and Pampamarca, the metrics they use to qualify the animals they purchase are based upon recently implemented standards in animal breeding and competition, always tethered to the prices of the international wool market.



Figure 61: *Suri* alpaca for sale at the animal market in Pampamarca

¹⁷³ “Ya no va a costar así, como aquellas alpacas, que ya no son mejorados, no son muy finos, son gruesos, entonces para la ropa también es feo, grueso. Cuando es fino es bonito, como algodón. A eso queremos llegar. Cuando tienes tu propia parcela, tu padrillo no puede ir a otro lugar, a otros animales. Como es tuyo, en tuyo no más saca más bonitos animales.”

The animal market in Pampamarca takes place in mid-January of every year, and as the date approaches, it becomes the main topic of conversation in Chillca. People talk excitedly about the animals they are going to purchase and speculate what their neighbors will buy, and discuss which animals they should sell off in anticipation. Most of the community travels to the market together, packing into the extra cattle trucks that arrive for the occasion. The market is busiest on the day the alpaca are sold. A large crowd descends onto the wide field where all the animals have been gathered in pens, ringed by brightly colored cattle trucks. Herders meander through the thick crowds with their family and neighbors, gravitating towards the vendors they know best or the animals that are drawing the most attention. Given that the herder's income will derive from the sale of wool, the evaluation of the animal's fiber is of central importance.¹⁷⁴ Typically, the family member deemed the most knowledgeable about alpaca fiber (an uncle who works on the alpaca committee, for example) designates the finest alpaca in the pen by parting the animal's wool and evaluating the density and sheen of the fiber at the root. This alpaca then becomes the metric from which to evaluate the relative quality of other animals, the price of which the families will use to negotiate for the medium-range alpacas they are more likely to purchase.¹⁷⁵ Besides the fiber, herders also check the eyes, which should ideally be clear, bright,

¹⁷⁴ Alpaca fiber is sheared and sold once a year in November. Until 2015, the wool was sold to middlemen from Pitumarca, but herders complained that the prices were low: in 2015, wool was selling for 12 soles/lb. for white *suri*, 8 soles/lb. for white *wakaya*, and 5 soles/lb. for color *wakaya*. In November of 2015 the community entered into an agreement (*acopio*) with a wool consortium that utilized a direct export system, thus cutting out the usual chain of middlemen and promising the community more money. The wool was sorted into classes: white *wakaya* wool of average quality sold for 10-11 soles/lb., while finer quality white *wakaya* wool sold for 12-13 soles/lb. However, families could also choose to continue to sell their fiber in bulk (unsorted by color and texture) for 9.5 soles/lb., which was judged to be an agreeable price, especially for fiber of mixed color.

¹⁷⁵ While both men and women are involved in the purchase, they consistently take different roles: men position themselves at the center of the exchange, as the seller and the buyer, and women position themselves slightly outside of the conversation. This isn't to suggest that women are not active participants: they hold the money, and they often direct the interaction, commenting on both the animal and the price. They will suggest questions for the man to ask, or will simply shout them from outside the transaction. Men buy animals without their female kin present, but women never do. However, the purchase has already been discussed between husband and wife and an acceptable

and black; the teeth, which should be straight and whose relative lack of wear should reflect a young, virile animal; the ears, which should be upright and the appropriate size; a thick and wooly tail free from mange or fleas; and the general size and stature of the animals, which should indicate the animal is “well-formed” (*bien formado*).



Figure 62: Evaluating alpaca fiber quality

The idealized alpaca has gone through various iterations throughout its domestication, including periods of standardization during the Inca and Spanish empires and the international wool market.¹⁷⁶ In its current iteration, the phenotypic characteristics of the idealized alpaca are shaped by the wool export economy, the initial expansion of which occurred around the 1860s and led to the spread of *haciendas* into indigenous pastoralist territories (Orlove 1977b, 1985).

price range settled on. Men are also more involved in the purchase of llamas and horses, both of which are associated with conventionally male labor (farming and tourism). Oftentimes, men will be present to help their mothers purchase animals. For example, Matías usually helped Consuelo, since she was worried that she had “bad luck” with financial transactions (she didn’t perform them as often as Agustín or Matías), and that she wouldn’t be given a fair price, or that the animal would be cursed and die.

¹⁷⁶ During the Inca empire, pastoralists paid tribute in the form of specially-bred animals designated for the Sun God, the Inca, and for various prominent individuals and lineages. These animals were selected for wool, meat, and for ritual, economic, and military use (which were not necessarily separate domains). During the Spanish empire, pastoralists continued to provide wool, meat, and labor for the colonial economy (Gil Montero 2009).

After the agrarian reform, state-sponsored breeding programs have progressively integrated with poverty-alleviation development initiatives to promote breeding management programs in rural pastoralist communities (Valdivia Corrales 2013). The ideal alpaca they promote is one that reflects market demands, disseminated through breeding workshops that delimit the qualities of an alpaca's most desirable features: fine, luxurious, white wool as well as good posture, correct ear position, and eye color. These images inform which animals the herders purchase at local markets, and frame aspirational visions of idealized breeding studs that herders would purchase if they were to acquire more income. At these workshops, regional development workers distributed materials such as the one pictured below.

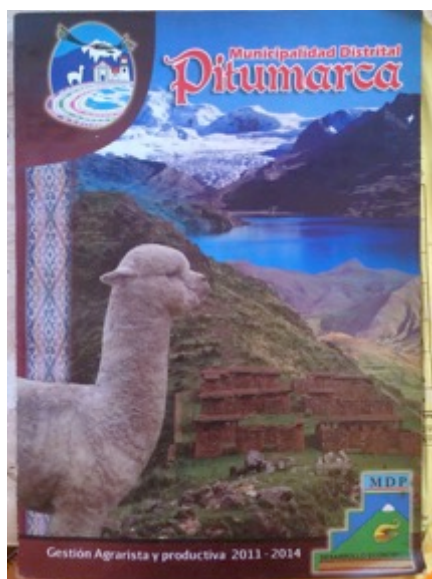


Figure 63: “Improvement of the Competitiveness of Producers of Alpacas and Llamas of the District of Pitumarca” Program Workshop Document, district municipality of Pitumarca and Heifer International 2011-2014.

This document came from a thirty-three-month development project implemented between 2012 and 2014 by the district municipality of Pitumarca in partnership with Heifer International, the “Improvement of the Competitiveness of Producers of Alpacas and Llamas of the District of Pitumarca.” The stated goals of the program are to “improve the living conditions

of the alpaca producers in the face of climate change” through the technical management of animal breeding and genetic quality, cultivation of pastures, and increased access to the wool market. Most families in Chillca had a copy of this document in their home, and some had diligently referred to it, as evidenced by the presence of their extensive notes and markings throughout the pamphlet. Pamphlets such as these serve as a comprehensive overview of the technical management of breeding and familiarize herders with the parameters of “improved genetic quality” through the evaluation of animal phenotypic characteristics. It is worth describing in detail the precision with which these phenotypic characteristics are articulated. This particular pamphlet included an extensive explanation of the ideal alpaca, including photographs of show-quality animals and animals “of good breeding” as well as animals with various ailments (mange, enterotoxaemia, osteomyelitis). The educational sections of the document reflect the evaluation metrics through which *wakaya* and *suri* breeds of alpaca, are awarded scores at competition: fleece fineness (40 possible points), density (10 points), curliness and shine (5 points), and uniformity (15); conformation of the head (10), height (10), wool coverage (5), and general appearance (5). The fiber of the *wakaya* breed, which they clarify should be “soft and spongy with waves, and shines when opening the fleece,” is judged across four characteristics:

1. **Fineness** (*finura*): “the main productive characteristic that determines the quality of the alpaca fleece [and] is directly related to the diameter or thickness of the fiber, expressed in microns.”
 - a. Evaluated as High Quality (<22 microns), Medium Quality (23 – 26 microns), or Low Quality (>26 microns)
2. **Density** (*densidad*): “the number of fibers that exist per unit area of fleece (fibers per mm² of skin). Low density fleece feels *flojo* or *suelto* when pressed.”
 - a. Evaluated as High, Medium, or Low (0-2 mm²)
3. **Curls or character** (*rizos o carácter*): “characteristic of *huacaya* alpaca fiber; very small ripples that occur along the fiber.”
 - a. Evaluated as High, Medium, Low

4. **Uniformity** (*uniformidad*): “the characteristic of the fleece, where it is necessary to find or observe the same degree of fineness, density, and curls of the fibers in the different areas of the fleece.”
 - a. Evaluated as High, Medium, Low

The bodily conformation (*conformación*) of *suri* and *wakaya* breeds is judged according to the following criteria:

1. **Head**: For *wakaya* breed: “relatively small, small triangular-shaped ears, wide nostrils, and mouth with very mobile bellows with well-shaped tuft and clean face.” For *suri*: “The head of a *suri* alpaca is relatively small, with small ears in a triangular shape, clean nostrils and mouth with very mobile belts (*belfos*) and dark pigmentation with a typical tuft that falls on the clean face.”
 - a. Evaluated as Good (*buena*), Regular (*regular*), or Low (*baja*) Quality
2. **Size** (*talla*): also called *alzada* or *altura* of the animal. It is the distance from the cross (shoulder) to the surface line of the ground where it is standing.
 - a. Evaluated as Good (larger or equal to 80 cm), Regular (71 – 79 cm), or Low (less or equal to 70 cm)

For the *suri* breed, the animals are also evaluated according to their “General Appearance,”

(Good, Regular, or Low) which is described as:

the expression of the mark (*estampa*), aspect (*aspecto*) or look (*parecer*) of the animal, as determined by: the strength and good, bony constitution of its bodily composure (*aplomos*) [along the] neck, head, and line of the spine, with head proportioned to a long and thin neck, with long straight lines that continue to the tail; strong limbs, good bodily composure (*aplomos*) denoting the harmonious and slender silhouette of a rectilinear body shape, covered with lucent fibers (*fibras lutosas*) that hang in curls (*rulos*) perpendicular to the body. In other words, the animal must keep proportioned harmony (*armoniosidad proporcionado*) throughout the body.

In providing this detailed information about the characteristics of the ideal alpaca body, as determined by market demands and animal competitions, training materials such as this pamphlet seek to educate herders on how to identify the types of animals that will be more competitive in regional competitions as well as the global wool market.

However, more than simply defining and promoting *bonitos animales*, training materials like this one also emphasize the cultivation of specific practices on the part of the herder: namely, specific forms of monitoring, recording, and shaping animal health and reproduction.

The pamphlet provides recommended methods for shearing, breeding (*empadre*), treating illnesses, calving, pre-selection and registry of individuals, along with photos of herders weighing, marking, tagging, medicating, and weaning *crias* and *tuwis*, and photos of shearing equipment (a mechanical shearer, brushes, tarp, first aid kit, restraints, stakes, etc.). As I articulated in chapter one, such materials are meant to recruit herders into a repertoire of pastoralist expertise by promoting the mastery of an expert register and teaching herders how to adopt the “correct” stances towards the objects and skills of the trade. Adopting these practices and orientations is framed as the *personal responsibility* of the herder, and they are provided with tools for their own self-evaluation: in this pamphlet, there are extensive charts and tables that prompt the herders to keep diligent records of the selection, breeding, calving, weaning, culling and general health of their alpacas. In the letter that opens the document, the mayor at the time, Benigo Fredy Vengoa Caro— writing to his “high Andean brothers dedicated to the breeding of South American (domestic) camelids,” who “work tirelessly day-to-day to genetically improve the production and productivity of alpaca breeding”— urges the herders to take advantage of the document and handle it with responsibility, a message reiterated throughout the pamphlet: “this material should be used with great responsibility and honesty, because the misuse of this booklet will not serve as an instrument for the better management and success of the producer.” As a point of emphasis, the pamphlet includes a photo of an emaciated alpaca corpse with the caption “lack of attention will bring consequences.”

Livestock improvement programs in the Andes involve multiple forms of negotiation and accommodation between indigenous knowledge and scientific expertise regarding animal improvement (M. Bolton 2006; Browman 1974; Custred 1977; Flores Ochoa 1968; Félix Palacios Ríos 1977). Increasingly, “expert” parameters of animal conformation take precedence

over that of the herders, as development initiatives gain more traction in communities such as Chillca. In Peru, alpaca improvement has become an issue of national concern, a trend that Bolton noted in Bolivia with the llama in the late 1990s:

[P]roprietorship of llamas has slipped discursively from herders to the wider nation and hence their improvement is the concern of all. As a corollary to this, knowledge about the animals has been displaced to new sites and away from herders and towards professionals. (M. Bolton 2006, 534)

Producing fine alpaca wool is a concern of national cultural patrimony, and while powerful state and NGO actors dictate the parameters of that improvement, the responsibility of implementing and managing genetic improvement still fell squarely on the shoulders of the alpaca herders.

Producing animals with fine fiber was a matter of immense pride in Chillca, as evidenced by the prestige conferred through showing animals in regional animal competitions. This prestige alone was motivating, but herders also spoke in practical terms about the amount of income they could gain through selling *mejorado* alpaca fiber. When I asked herders what they would do with the money they earned from selling higher-priced alpaca wool, the answer was, overwhelmingly, that they would send their children to school. In articulating their ideas of an improved future, this was the central vision they held for future generations. For example, Florentina (the woman with relatives on the other, more “*despierto*” side of the mountain) told me that “I would sell so that I could send my children to study. They [on the other side of the mountain] study, we don’t have any *profesionales* here. In your country they produce *profesionales*, right? Here no.”¹⁷⁷

In Chillca, as in many rural communities in the high Andes, education was considered the essential key to overcoming poverty— if children were given the opportunity to complete their education and become *profesionales*, the adults believed that they would then return to contribute to the overall wellbeing of the entire community. As Jessaca Leinaweaver put it bluntly in the

¹⁷⁷ “Wawakunay istudiachinaypaq vindiyman. Paykuna istudiakunku, mana nuqayku prufisiunalchu kayku. Llaqtayki ladupi prufisiunal kamay kanku riki? Kay ladupi mana.”

very first sentence of her article on child circulation, “Peru is an impoverished and divided country in which great expectations are invested in young people” (Leinaweaver 2008, 60). In many communities of the Andes, people’s hopes for the future are articulated through the aspirational narratives they bestow upon their children. In that sense, Chillca is no different.

“They will be better than us”: Childhood Education and *Profesionales*

I was always struck by a photo on the wall of Matías and Marisol’s townhouse in Chillca center that seemed to encapsulate their aspirations. It was a family portrait they had made in the regional city of Sicuani, rendered from a composite image in which their images taken from their national identity cards had been photoshopped onto fictionalized generic bodies: Matías’s wearing a suit, Marisol’s a starched blouse and cardigan, and Melisa’s a white christening gown. Matías’s face was severe and Marisol’s scowling and slightly askew, as if she were looking into the sun. Along with the framed portrait and the painted walls, gas stove, large wooden bed, and the plastic barrels full of foodstuffs that dominated one corner, their possessions lent the young family’s home a deliberately “modern” feel. Like other couples in their generation, they expressed that they only wanted two children, so that they could invest in their education and raise them to be *profesionales*. Marisol was especially interested in talking to me about contraception, and she, along with many young women in the community, actively sought family-planning assistance from the health post. She told me in a hushed tone about other women in the community who had children too early, or had too many, and expressed her fear over becoming pregnant again. She was interested in how many, and at what age, women had children in the United States, and when I told her that it was typically fewer and later than in Peru, she

replied (as did many other women in Chillca) “that’s good, so you can afford to send them to school.”

In discussions about future land tenure in the future of Chillca, having too many children was considered irresponsible for many of the same reasons as having large herds— it placed stress on the territory’s resources and signaled a lack of personal responsibility and selfish behavior. The fear of overcrowding in Chillca was pervasive, especially given the division of sectoral space among residents with many children: due to the norm of sectoral patrilocality, if one family had multiple male children, their future families would all have to build their homes and pasture their animals in their natal sector. This created a problem for the more crowded sectors, and indeed in recent years there have been increasing incidents of young men successfully petitioning to live in their wife’s family’s sector, or move their family to a relatively under-occupied sector (such as Qampa or Killeta) due to overcrowding. Proponents of privatization argued that—similar to self-imposed limitations on herd sizes— the responsibility of allotting space to children would fall on the families in each parcel rather than the community as a whole. As one young man explained it:

When we are [in the future], there are going to be more and more children, and we are going to grow [in population]. So this place will no longer hold all of us. [After privatization] every family will have their parcel, and every family will know how to divide it among their children. For example, when you have your parcel, your decision will always be to not have lots of children, right? That’s the decision. Some don’t think of that, and they have like ten, twelve, or eight children. And their children, where are they going to go?¹⁷⁸

¹⁷⁸ “Cuando vamos a estar más atrás, va a ver más hartos niños, más, más, y más, vamos a aumentarnos. Entonces este lugar ya no nos va a alcanzar ya. Cada familia va a tener su parcela, y cada familia sabrá partir a sus hijos. Por ejemplo, cuando tu tienes la parcela, tendrías una parcela así, siempre tu decisión sería no tener hartos hijos, no? Con esa decisión es eso. Algunos no piensan en eso, y tienen come 10, 12, 8 hijos. Y sus hijos a donde van a ir?” Note here that his use of the word “atrás” (behind) is a translation from the Quechua “qhupa,” which is both the preposition “behind” and the way one says “after” in a sequence of events.

Rather than having *many* animals or children, it was considered better to have fewer of the *right* kinds of animals and children. Marisol’s perspective— that was it was good to have fewer children and educate them— was reflected in the child-rearing development programs that dominated young women’s lives in Chillca as soon as they were of childbearing age. According to these programs, it was a young woman’s responsibility to have fewer children and to raise them “well,” the meaning of which was shaped through state-sponsored childhood wellness initiatives. Before they even began having children, women attended health seminars at the local health post in which they were familiarized with different forms of birth control (*planificación*) and received family planning advice. At one such meeting in late September of 2015, the health post worker asked the roomful of women, “Why have lots of children?” Answering her own question, she pivoted directly to the cost of educating children: if your children want to study in Sicuani, she specified, it would cost 700 soles a month (500 soles for the matriculation costs and 200 soles to rent a room). “If the child wants to become a good *profesional*, where will the money come from? There wouldn’t be any, right? If there are just two or three children, I could manage it, right?” Every time she punctuated her questions with “right?” (*riki*) women in the room nodded their heads and hummed in agreement. “If there were just the one only, up to three or two, I would manage it. But if there are four, five, six, then this or that child wouldn’t be able [to study], and they will want to study, right? It wouldn’t be good, mamas.”¹⁷⁹ Even before the children are born, their aspirational narratives begin to take shape, molding the contours of the

¹⁷⁹ “Imapaq wawacha masta, awir? Wawastaq allin kananta prufisiunal riki munashan chay, maymanta qulqi hamunqa? Mana kanqa riki, iskaylla kanqa, kimsalla kanqa chaylla atirusaqmi imaynatapas riki? Ch’ullachallaña kan chaypis, kimsakama iskaykama chayqa atirusaq kaytaqas, imaynatapas. Piru tawa, pisqa, suqta karapun mana atisunchu chay wawanchis chay wawanchis, istudiyta munanqa, riki? Mana allin chu kanman, mamas.”

young mother's responsibility to their future child and the practices of cultivation that would allow her to raise the "right" kind of child.¹⁸⁰



Figure 64: Women's attendance at a campaign to register household dogs and vaccinate against rabies

As I elaborated in Chapter One, development projects aimed at communities like Chillca are laden with assumptions about gendered divisions of labor, such that animal breeding is considered the responsibility of young men (thus, the mayor's appeal to his "Andean brothers" in the Heifer International project), while investing in the child's schooling and socialization is considered the primary responsibility of young women. Formalized schooling begins quite early in Chillca, due to the recent establishment of a preschool and infant center in the town center.

¹⁸⁰ Giving birth is likewise regimented to produce ideal outcomes. Women are coerced into giving birth at the regional health post in Pitumarca or face a hefty fine. During 2015, one woman in Chillca failed to do so and was widely condemned after her baby was born breech and did not survive. For weeks, her story was recounted over and over again on the radio. Consuelo, Marisol, and I would huddle close and listen with incredulity as regional health workers maligned the woman, all but accusing her of murder: "it's illegal to kill a person," one health worker noted, "are children not people?" (*wawa manachu runa?*). The health worker finished the broadcast with a final lament about the child's lost future—the child could have grown up to become a *profesional*. She then spoke directly to the women listening to the broadcast: "How many children do you want to have? How many resources do you need to have so that they turn out to be *allin runa*, to become *profesionales?*" After the broadcast finished, Consuelo and Marisol agreed that it was probably for the best that the child died, as the mother had too many children already and wouldn't have been able to "properly" raise them all.

The municipal government, along with multiple international NGOs (including Pachamama Raymi, KOICA-Korea, Worldfriends Korea, and APRODH) established a project during in 2015 entitled “Improvement of Conditions for the Integral Development of Early Childhood and Food Security” that included the construction of a centralized daycare center (*centro de vigilancia*, “surveillance center”) and a contest that had children competing against one another in height, weight, and attendance to the playroom. Chillca would also compete with the neighboring communities of Ananiso and Pampachiri in children’s height and weight for the 2016 year. The local women who served as the representative for the program, Flora (who referred to her own four-year-old daughter with the aspirational nickname “*doctora*”) implemented a special focus on parent-child interaction and play, recommending that mothers speak directly to their children, include them in decision-making, narrate their daily activities, and regularly prompt their children to identify objects or colors. The emphasis on verbal socialization was an integral part of the project, and parents were held responsible—often vehemently so—for the developmental wellbeing of their children, as directly tied to the success of the project as a whole. When the center was opened in November of 2015, the community healthworker placed the responsibility of its continued success on the parents, and specifically their communicative practices with their children: “You all, the community of Chillca,” she addressed the assembly, “what do you have to do so that [the center] functions? From the time our babies are born, we must be speaking, singing, chatting with them” (“*Qamkuna llapa comunidadpa kaypi Chillcamanta ima ruwanaykis kashan, funshiunanan? Wawachanchismi wiksamantapacha rimapallaña, takipallaña, parlapallaña, ima*”). She continued that parents should model good behavior by avoiding speaking vulgarities (*groserías*) in front of their children, and by greeting other people in the community properly.¹⁸¹ She concluded her program by telling the mothers in the room that

¹⁸¹ Initiatives aimed at child socialization are widespread globally, and are often premised upon a particular ideology

“Truly, our children walk forward [into the future]. Let our children not be like us anymore— [let them be] better than us.” (“*Realmente wawachanchis ñawpaqman purin. Manaña wawanchis nuqanchishinañachu kanan, mejor que nosotros*”).

Women in Chillca typically brought their youngest children with them while they herded, teaching them how to tend to and communicate with the animals. Walking the extra six to eight hours to the town center to bring their youngest children to the *centro de vigilancia* was exceedingly difficult. However, health workers publicly chastised women whose children were absent, holding up attendance reports and announcing their children’s health evaluations before the community assembly. The women were made to stand, heads bowed and hands clasped, before the audience while community leaders threatened them with a fine of 100 soles. A prominent leader reiterated the importance of the program, stating, “more than anything this is for the children, this work is part of education” (“*Más que todo wawakunanpaq, este trabajo es parte de la educación.*”). He asked a rhetorical question to the assembly: “Why is it our children aren’t going to university, or to institute, *compañeros*? And why don’t we have *profesionales*, *compañeros*? For a lack of [attendance to the program] we don’t have *profesionales*. Think about it, *compañeros*.” He implored those present to take responsibility for the success of the program, adding “the children will become good *profesionales*, they’ll be good lawyers, doctors, and that is how Chillca will be for us, *compañeros*, we are going to get out of poverty and all the [other] bad things, *compañeros*. Isn’t that right?”¹⁸²

of the relationship between language socialization and personhood, one that is based in Lockean, enlightenment understandings of rational subject formation (Ochs 2018). Development psychology in the United States, for example, has stressed the importance of language development through direct, dyadic exchanges between parent and child. Practices such as the discursive bracketing of what one does, thinks, and knows, are considered invaluable to producing a rational, successful, neoliberal subject, which are tethered to related knowledge practices of relating to objects in the world in reflective, detached ways (Ochs 2018). This is reflected in initiatives that seek to ameliorate the “word gap,” for example, holding that caregivers are individually responsible for addressing achievement gaps between lower and higher income children through proper language socialization in young children.

¹⁸² “Imanaqtin mana wawansi ingrisanchu ni siquiera universidadman, compañeras, o institutokunaman. Y porque no

The notion that these children would return to Chillca and improve upon the community as a whole represented, for many, the end-goal of *mejoramiento*. In the end, fracturing the land, selling animals, and sending children away to study—in other words fragmenting and then reconfiguring the various components of *ayllu*— would ultimately lead to the improvement of its entirety. It was a goal that had yet to come to fruition: young people that did go on to formal schooling usually went on to work in urban centers, or returned to Chillca only sporadically as tourism guides.

Improving Land, People, and Animals: *Mejoramiento* and Racial Imaginaries

It is no coincidence that ideologies of improvement in Chillca are articulated through the Spanish-language concepts of *superación* or *mejoramiento*, embedded in Quechua speech as *supirasiun* and *mihuramintu*.¹⁸³ In Peru, Spanish is the language of social, political, and economic power, and is inextricably linked with developmentalist narratives of progress, improvement, and upward mobility (Mannheim 1991). The emphasis on education—i.e., becoming a *profesional*— is code for social improvement, which is inextricable from notions of racial improvement in the Andes. Elsewhere, scholars have likewise noted that education initiatives in the Andes are essentially “racism in disguise” (Leinaweaver 2008, 64, see also de la Cadena 1998, 2000; Colloredo-Mansfeld 1998). Along with church campaigns that emphasized clean-living and abstention from alcohol, sanitation efforts aimed at bathroom construction and trash collection, and housing initiatives that emphasized the creation of improved homes with painted exteriors and metal cookstoves, education efforts in Chillca were aimed at reconfiguring

tenemos profesionales compañeros? Por falta de eso no tenemos profesionales, así compañeros... Piensan bien, compañeros. Wawankuna risultanku buenos profesionales, buenos abogados, medicos, va a ser, y así vamos a tener comunidad Chillca, compañeros, vamos a salir de la pobreza y de todas las malas cosas, compañeros. No es cierto?”

¹⁸³ In Leinaweaver (2008) the concept was expressed by Quechua speakers as *llalliy*, but I never heard the term *llalliy*, or any other Quechua-language term, used to express similar ideas in Chillca.

the relations between people, objects, and animals in order to produce the “right” kinds of subjects. Placed within the broader discourse of racial imaginations in Latin America, legislative and developmental efforts to change the conditions in which people lived, shape human health and behavior, and contribute to the improvement of the education, comportment, character, language, dress of current and future generations are laden with racialized assumptions about ideal bodies and behaviors.

As Nancy Leys Stepan argued in *The Hour of Eugenics* (1991), 20th century Latin American eugenics movements were successfully hidden within broader improvement initiatives, such that efforts to “improve the race” fell under the guise of social welfare and public health. Eugenics initiatives in Latin America in the mid-20th century were just as prevalent and pervasive as those occurring in Europe at the same time, yet they were more easily disguised by virtue of their focus on environments instead of bodies. The central difference lied in the ways in which these initiatives understood (and thereby constructed) human races. Initiatives in Europe and the United States were founded upon the premise of race as a biological reality (i.e., fixed, “natural,” and inherent), underpinned by Mendelian principles of genetics, such that improving the race required interventions in human reproduction—undesirable traits had to be bred out. In contrast, in Latin America, eugenics movements were premised upon Lamarckian principles of human heredity. Improving the race required the creation of optimal conditions (an improved “social environment”) in which the population could thrive and pass down their improved traits to future generations. By changing the conditions in which people lived, legislative efforts could shape human health and behavior and contribute to the improvement of the education, comportment, character, language, dress of current and future generations— and, critically, their *race*. As Stepan Leys describes, it was a specific type of “‘preventative’ eugenics,” which strived

to “cleans[e] from the milieu those factors considered to be damaging to people’s hereditary health” by establishing norms of appropriate social behavior (17). Hygiene— social, mental, and reproductive— was a central fixture, and became channeled through legislation and developmental initiatives referred to broadly as sanitation.

When development and health workers urged parents that their children would be “better than us” (*mejor que nosotros*), they were recruiting them into the project of cultivating the linguistic, bodily, and social practices that would allow their children to live “successful” lives: lives in which they would navigate urban centers and elite institutions and engage with the market economy in particular ways. Animal improvement efforts were likewise efforts at *whitening*, literally, the animal population—at producing idealized herds of white, fine-wooled *wakaya* and *suri* alpacas that catch the top marks at regional livestock fairs and whose wool fetches higher prices on the market. More importantly, however, the goal was not simply to produce white animals, but to produce a particular kind of *orientation* towards the animals: the practices through which animals become whiter are also practices through which people improved upon themselves according to the metric of *mejoramiento*. In these idealized futures populated by pristine white alpacas, herders also saw themselves as different sorts of subjects: as savvy, educated, entrepreneurs and livestock producers. Improving their alpacas is thus one articulation of the broader project of improving upon themselves: through assimilation to dominant standards of animal breeding, indigenous alpaca herders sought to “approximate [themselves] to more powerful others” (M. Bolton 2006, 537).

This improvement was predicated upon a certain kind of distancing between people, animals, and land. Whereas indigeneity has historically been associated with closeness and intimacy with land and animals (Orlove 1993, 1998), improvement was predicated upon a kind

of detachment: animals and the land were to be managed at a distance. The unruly qualities of land, animals, and indeed people could be brought into order as resources to be organized and tabulated in particular ways—their physical bodies and landscapes measured, evaluated, partitioned, and recalculated through networks of other people, places, and institutions. These practices led to the reconfiguration of relationships between humans, animals, and land, approximating the “proper” hierarchy in which humans have dominion over the animals and land under their control, and thereby become more ideal persons themselves.

The End of Chillca? Reproducing Animals, Reproducing the Community

Despite the stated 100% support for privatization in Chillca at the January 2016 assembly, many community members were privately skeptical or even opposed to the idea. In addition to those that were doubtful of the logistical viability of the project as a whole—particularly regarding the equitable division of land and water—many feared being removed from their land. It is significant that the majority of sectors voted to subdivide the land by sector, so that they could remain where they lived. This was especially important for people like Consuelo, who rooted her family’s history—and her own identity—inextricably in the lands of Antapata. Yet others were skeptical of other community members’ motivations. Some argued that private landowners would make decisions about their own landholdings without taking into account the impacts their decisions would have on their downstream neighbors. Others expressed the fear that privatization would open the community’s lands to appropriation or exploitation by the Peruvian state or mining companies. Of course, there were those that welcomed the arrival of extractive industries: in a community-wide vote on whether or not they would entertain future offers from mining companies, about 5% of the community voted in favor. And a small number

of community members were quite interested in radically different uses for their lands: one young woman (a recent *qhachun* from a more pro-mining community down the valley) mentioned that she'd be interested in using dynamite to blow up the hillside behind her house in order to sell the rocks.

Despite this one young woman's opinion, the decision to privatize fell along starkly gendered lines. While most men were largely in favor, I found that outside of the assembly setting, a majority of women expressed opposition or ambivalence. Their reasons for opposing were based around the gendered division of labor in the community: many women expressed concern that their own labor burden would *increase* with the subdivision of land. One nineteen-year-old woman reasoned that disputes between herders would increase due to the difficulty of pasturing alpacas in smaller parcels, saying "I wouldn't want it, it would be difficult to contain [the animals], right? Alpacas would pass over from one *parcela* to another, it would be impossible to obstruct them." ("*Mana munaymanchu. Sasa hark'ay kanman, riki. Paqucha huq chayqa parcelchaman pasanman huq laduman pasakunman manchaq, sasa hark'ay kanman riki*"). Some women felt that the men were basing their decision to privatize on the decrease in conventionally male labor— specifically, agricultural labor and llama herd maintenance.

Unsurprisingly, besides women, those that privately expressed opposition were older men— in other words, people who were typically excluded from developmentalist narratives in Chillca.¹⁸⁴ Less likely to attend or be approached for participation in development workshops and initiatives, they often found themselves left out of aspirational future imaginaries of private land parcels, improved animals, and educated *profesionales*. Some feared that it would lead to

¹⁸⁴ For similar arguments regarding the exclusion of women in development projects in the Andes, see Mallon (1987); Babb (2018).

the disappearance of herding and agriculture entirely, and, as one older man in his 80s, Rogelio, articulated, raising animals and working the land were all the people of his generation knew:

I think it would be sad. Because we have lived this life, I don't know other types of work, I only know herding animals and farming potatoes in the *chakra*, that's all I know. I haven't studied either. If I had studied I would be living in a city, even just cleaning houses, but I don't know [this type of] work. I don't know how to read, only just a little... Parcelizing wouldn't be good, because people haven't thought through it. I don't want it.¹⁸⁵

For him, and others of his generation, subdividing the territory of Chillca into land parcels would mean the death of Chillca as a community—in the future, he told me, “I truly think this community will disappear” (“*siemprepunicha riki kay comunidad tukupullanqataqcha riki*”). And it was a *comunidad* for which he had fought so hard: he referenced in particular the *hacienda* period and the years afterwards in which he and other members of his generation had struggled to regain the territory from the *hacendados*. In arguing for the privatization of Chillca's territory, he argued, the younger generation was forgetting the land and its history: they've already forgotten the names of Chillca's mountains and significant places, and they had forgotten the labor of the older generation that went into the establishment of the community. As someone who had lived through the *hacienda* period and been involved in re-titling the land afterwards, he argued that the younger generation didn't recognize how good they had it:

We worked day and night, we suffered so much. Now it's so tranquil, now the animals reproduce. They should thank the community for the lands. But in the time of parcels it won't be like this. All the animals will die, all the land will disappear with the parcels.¹⁸⁶

¹⁸⁵ “Pinsaymantaqa tristi, porque uywallawan nuqayku vidata pasayku. Mana nuqa ima llank'aytapas yachanichu uywa michiyllata yachani, chakra papa ruwaytawan chayllata yachani, chayqa nitaq istudianipastaqchu chayqa, estudiante kayman chayqa llaqtapicha purimuyman riki ima wasillatapas pichapakuspa piru no sabis trabajar, no sabis liyir poquito sabis liyir... Parsilapaqqa manaya allinchi kashan, porque mana runakuna allintachu pinsanku chay parsilata. Nuqa mana munanichu.”

¹⁸⁶ “Tutantin p'unchaynintin puriq kayku. Nishuta sufrirayku. Kunanqa aswan llakhimá, kunanqa qhayna niraytama uywapas miran, comunidades hap'in chayqa grashash ninankuya. Piru parsila timpupita mana chaynachu kanqa. Llapan uywaqa wañupunqa, pidasu pidasutaq kanqa chayqa chay hallp'akuna tukukapunqa.”

As someone who had seen the land divided under private ownership before, he knew how the division of land led to human and animal suffering: “when the land is divided into pieces we won’t have animals like before, it will all end...the animals won’t reproduce like before” (*“pidasu pidasu hallp’a kaqtinga mana qhaynachu uywa kapunqa tukukapunqa... manaya qhaynatachu uywa mirapunqa”*). Dividing up the land and diminishing the alpaca herds was, to him, akin to getting rid of Chillca altogether. Given that plentiful reproduction has historically been the aspirational standard of the Andean herder, reducing their herds seemed counterintuitive, if not blatantly shameful, for herders of Rogelio’s generation. And indeed, despite the aspirational narratives of selling off animals and taking on different livelihood pursuits, the community as a whole struggled with getting rid of the community’s alpaca herd, the *majada*.



Figure 65: Checking alpacas for mange at the *karachi hampiy faina*

Many of the conversations I had about privatization occurred at the *karachi hampiy faina* (“mange-treatment-work-event”), a central site in which herders define human and animal relationships and futures. The *hampiy faina* is a locus for the discussion and negotiation of such

communal living in each sector, and evaluating and reconfiguring the reproductive futures of animals. It is always the site where concerns and disagreements are raised, where the tensions of communal living— often percolating in the hushed discussions between herders in the pastures, or around the hearth in the evenings— bubble to the surface and erupt. Every two months, over the course of a week, the Alpaca Committee traveled between each of the sectors where the *majada* animals are kept in order to administer medication. In the hour or two before the work begins, members of each household gather around the outside of the *kancha* to share the soda and cookies that the committee distributes, and to evaluate the animals in the enclosure. At one particular *hampiy faina* (in February in the sector of Quesiunu, with a herd of females and their young), José Luis explained the value of the *majada* in the following terms:

There are, like in other communities— like in the *selva* where their main product is coca or whatever grows in the region— that is how the community manages their *economía*. Since we're at high altitude, what is there? Just alpacas.¹⁸⁷

On one hand, the sale of *majada* fiber provides significant yearly earnings for the community, which are used for a variety of community administrative costs including travel for the community leaders to get paperwork done in Cusco and Lima, and to employ the help of lawyers and engineers with boundary management or water retention projects. However, the *majada* represents more than just the concentrated wealth of the community body: in many ways it is representative of the coherent identity of the community itself. The *hampiy faina* was a site in which herders invested their efforts and energies into the reproduction of the *majada*, and the reproduction of the community of Chillca more broadly. At the *faina* where I spoke with José Luis, for example, it was the height of the wet season, when the *faina* becomes a central site of animal reproduction: herders affectionately evaluated the newborn alpacas, and assessed which

¹⁸⁷ Hay, como en otras comunidades, como en la selva, no sé, como será de ellos, coca o sea, algo de la zona lo que crece, y de eso la comunidad maneja su economía. Como aquí somos de altura, que hay? Alpacas no más ya.

adults had given birth recently or had any complications. They selected an animal (in this case, an older female alpaca that was no longer reproductive) to be slaughtered and cooked to feed the participants, before, moments later, another alpaca was giving birth and an older woman hurriedly blew air into the tiny animal's lungs to prompt its breathing. The *hampiy faina*, as the site of birth and death of *majada* animals, is also the site in which herders contemplate, negotiate, and ultimately reproduce the future of the community as a whole.

In the community-wide debate over privatization in January of 2016, the issue of the *majada* nearly stalled the discussion entirely. On practical terms, it was difficult to imagine how to distribute the *majada* among a subdivided landscape: currently, there are nine herds of animals divided by color, age, and sex across the sectors, and this division is key to the current system of controlled breeding and wool production. Some *comuneros* suggested rotating the herds between individual parcels, but that didn't seem feasible given the distribution of *bofedales* in the various sectors. A handful of younger *comuneros* suggested selling the herd off entirely and dividing the earnings evenly among the community members, or using the money to purchase landholdings in Pitumarca. This suggestion caused much concern and consternation among the older generation, and the majority of herders agreed that the *majada* should remain. Ultimately, the issue of the *majada* was tabled as future concern, to be addressed at a later date if and when the process of privatization had been initiated. The delay in its discussion reflected a broader ambiguity about land tenure change in Chillca. In many ways, the dissolution of the *majada* brought the stakes of privatization into sharp relief: it would mean the end of the Chillca as a particular kind of social configuration, and some felt it meant the end of Chillca itself. While dividing up the land was less controversial, dividing up and selling off the *majada* herd hit on something more fundamental to life in Chillca: without animals, what would Chillca become?

Conclusion: Fragmented Futures

Examples of land fragmentation in other parts of the world reveal some of the potential outcomes of privatization in pastoralist systems. In some cases, researchers tout benefits including greater equality and access to land among pastoralists, greater access to wealth and integration into local economies and social services, improved protection of herds and crops from disease, and improved pasture management (Hobbs et al. 2008). However, land fragmentation has also led to a greater need of inputs to maintain the health of pasture, particularly in the form of infrastructure (irrigation and seeding), and governmental or developmental intervention (Galvin et al. 2007; Galvin 2009). This is especially the case in arid or semi-arid regions facing climatic changes, where increased inputs are needed specifically to counteract the impacts of reduced mobility and enclosure in drought-affected ecosystems.

Histories of land fragmentation in the communities surrounding Chillca provide a glimpse of some of the potential challenges herders would face under a privatized land tenure system. For example, I spoke with people in the neighboring communities of Ocongate—the same ones that Florentina presented as an example of the beneficial outcomes of privatization—and I met with a few in particular who expressed regret over their community's decision to subdivide the pasture in the decades prior. One man in his fifties, Fidel, noted that the decision originated in the desire to switch to dairy production, as well as some comuneros' wishes to rent or sell their landholdings and move to the city. "*No resultó bien,*" he told me—it didn't turn out well, as the reduction of herd sizes on smaller land parcels led to greater financial precarity, not less: "Before, when the land was communal, there was a large number of animals, alpacas, sheep. Everyone had [animals], and they multiplied more quickly. Because we had communal

land, there was always pasture. But now, some have tiny landholdings that aren't sufficient for raising many animals."¹⁸⁸ Instead of herds of 150 alpacas and 80 to 90 sheep, most families now have smaller herds of 30 to 50 alpacas and a handful of sheep, which Fidel explains is risky ("*Como es muy poco entonces, posiblemente viene la necesidad*"): with such few numbers, one bad weather event could wipe out the entire herd. He remembers a time when he was a child, when an intense yearlong drought took out their entire potato harvest. For a year, they subsisted by selling their animals, one-by-one every two weeks, to buy a *quinta* of rice, sugar, flour, and other staples at the market. Since they had so many animals, they were able to survive the year: "*no se rendía pe, teniendo.*" They didn't give up because they were able to subsist on their herd animals. Now, with small herds, a family can't merely sell an animal if they find themselves in a tough spot, and for him, this was the most concerning factor ("*éste es el factor más preocupante*").

At the very least, he and other *comuneros* had assumed that privatization would have been beneficial for the potato harvest— with smaller herds utilizing less pasture, families could devote more space to agriculture, and they could begin making money off of their potatoes by selling them in local markets. However, a side effect of fewer animals is, of course, less manure—and this turned out to be a major issue. With less available manure, people couldn't cultivate the extensive potato fields that they had envisioned. Potato cultivation continues to be largely for household consumption, while some *comuneros* have abandoned agriculture all together, given the riskiness of relying on agriculture in an area that experiences frequent drought and hail events. For those that have reduced their herds and abandoned agriculture all together, the only remaining viable option has been to sell their lands. This led to yet another

¹⁸⁸ "Más antes, cuando tenían en común, había bastante cantidad de animales, alpacas, ovejas. Todos tenían, y multiplicaban más rápido. Como teníamos terreno en común, entonces había pasto. Pero ahora, algunos pequeñitos terrenos tienen, entonces no es suficiente para crear bastante animal."

cascade of effects. As Fidel argues, given that the subdivision of land was not equitable in the first place, families ended up having different size landholdings with varying access to water or arable soil. When people in the community chose to sell off most of their land, they were left with tiny landholdings that couldn't even sustain a few cows. There has yet to be a consistent system of rotational pasture usage established in most areas of the community, and neighbors with ample pastures regularly demanded payment for animals that have wandered off of their small lots. People still hope that dairy production will be a viable future, but as Fidel notes, it has to be better planned.

Despite this outcome on the other side of the mountain, and despite the concerns over the loss of the *majada*, some people in Chillca remained optimistic about land privatization and saw it as the key to solving all of the community's problems. A month after the assembly in which Chillca's herders voted to privatize the commons, I talked to a community leader about the decision. The assembly was very much still on his mind, especially the lengthy debates that went well into the evening. Since no one is a *profesional*, he argued, people can't speak to the actual legality of things and the debate never goes anywhere. He elaborated:

In every assembly this problem of animals comes up. Which animal is getting into what, what has been done to me, this that and the other... I'm tired of all that, in every assembly. They don't talk about even one thing that is productive. They talk about their problems, that's it, or perhaps they make more problems. If there were productivity, [he voices a community member, in Spanish] "brothers, shoot, why don't we buy another landholding, let's expand more, we can have more life" or perhaps "what are we going to do about this or that, the production..." They don't consider the education we are going to have for our children... But now, if you'll excuse my language, for lack of education (*falta de educación*),¹⁸⁹ they don't even know how to produce solutions, [they don't know] the terminology. Look, if there were a lawyer there who knew the laws, he would say, "ya, it's this or that," or "this is what we're going to do, *punto*"... I always say, education should be first... if we produced children that were dedicated (*bien aplicados*) in everything, they could even get to govern, right? But if there isn't good education,

¹⁸⁹ Perhaps his apology for his "language" refers to the double meaning of *maleducados*, which can mean poorly educated, but also (when used pejoratively) ill-mannered or ill-bred. Although he didn't use this exact term, his hushed delivery of "*falta de educación*" hinted towards its harshest interpretation.

never, the population will always be sunk, lost (*hundida, perdida*). Always, no matter what... This community is the only one that is crawling (*arrastrándose*) in regard to education. For example, other communities, like Ausangate, Phinaya, they have their professionals, their doctors and lawyers and engineers, so in their assemblies they must have it right— *a su manera, a la regla*— they reach an agreement based on the laws. They're not doing any of this, [switches to Quechua, voicing a *comunero*] “one could, one should, let's see, ask a lawyer.” Here in Chillca, we don't have even one professional. This is the bad thing, this is why I always say, when are we going to improve education here? When? Why are we behind (*atrasado*)? Because of the lack of education. There aren't rapid solutions in the assembly, because people don't know anything about the laws, about the *normas del estado* with regards to land.¹⁹⁰

In his frustration, he articulated the entire trajectory of the *mejoramiento* narrative: from a community that is *hundido, perdido*, and *atrasado* due to a lack of education (which, notably, he voices as an equivocating, Quechua-speaking *comunero*) to one in which rational economic *profesionales* (voiced as a decisive, Spanish-speaking lawyer) pursue their aspirations in perfect articulation with the broader legal and governmental frameworks of the Peruvian state. As *profesionales*, people would be able to better align the future of the community along the neoliberal parameters established by international markets, development agencies, and the Peruvian state. In turn, in these aspirational narratives, they themselves would become ideal types of people.

¹⁹⁰ “En toda asamblea llega el problema de los animales. Que animal está entrando, que me ha hecho esto, que esta... me cansa de todo eso, en todas las asambleas. No hablan ni una cosa que es productiva. Hablan de sus problemas, punto, o de repente hacen los problemas que tienen. Si fuera una productividad: ‘hermanos, pucha, porque no compramos un terreno más, aumentamos más, podemos tener más vida,’ o de repente ‘como hacemos de esto, que vamos a hacer, que la producción...’ no toma en cuenta la educación que vamos a tener para nuestros hijos... Y ahora, disculpa la palabra, por la falta de educación, no saben ni solucionar de los términos, mira. Si había un abogado que sabe las leyes, derechos, el dice pe ‘ya esto sí o sí, o esto sí se va a hacer. Y punto.’ ... Yo siempre lo digo, el educación es primero. Si sacaría niños bien aplicados en todo todo todo, pueden llegar hasta gobernar. Pero si no hay buena educación, tampoco, nunca, jamás pe, la población siempre va a estar hundida pe, perdida. Y siempre, sí o sí... y está comunidad es la única que está arrastrándose así, de la educación. Por ejemplo, por otras comunidades, como por Ausangate, Phinaya también tienen sus profesionales, tienen también sus médicos, abogados, ingenieros, en su asambleas deben tener bien, a su manera, a la regla, de las leyes hay acuerdo llegan pe. Ya no hay ‘atinkumansi, ayna kanmansi, a ver, abogadosta tapukamunki.’ Por ejemplo esta zona de Chillca, no tenemos ni un profesional. Eso es lo malo, por eso yo lo digo, primero la educación, cuando vamos a mejorar la educación? Cuando? Por qué estamos atrasados? Por la falta de educación. En las asambleas no hay pe soluciones rápidos. Porque no saben nada pe las cosas acuerdo la ley, de los terrenos, las normas del estado pe.”

Ultimately, these discussions in Chillca never led to definitive action, and the issue of privatization remains an open question to this day. Many community members express skepticism as to whether or not it will actually be taken up, given the logistical difficulties of dividing up such a varied terrain in an equitable manner. However, such a transformative shift—even in its imagined state—yields insight into how people living in uncertain conditions envision viable futures for themselves and their community. Rather than a continuation of business-as-usual, herders in Chillca envision a transformative future populated by new forms of industry and new livelihoods, as well as new ways of being that require them and their children to become different types of subjects. In place of the current socioeconomic system, they envision something categorically different—thereby reenvisioning themselves in the process.

In this chapter, I've considered the prospect of land tenure change in Chillca through the analytic of imaginaries, as a way of investigating how these aspirational futures take shape and for whom. As Arun Agrawal has argued, “institutional arrangements for allocating resources are best viewed as an expression of an idealized status quo” (Agrawal 2003, 257). The process of establishing the rules of such institutional arrangements reflects the varied ideologies and assumptions about improvement that underpin that idealization. Critical attention to the narratives that emerge—and the types of people, animals, and futures that serve as their orienting figures—traces the threads through which certain values and ideals take precedence over others. Furthermore, eschewing an analytic that frames the decision to privatize as either externally-imposed or internally-driven, allows for greater attention to the complexities inherent in these decisions, and how the desires and motives of herders are in many ways shaped in both cooperation with and opposition to the broader aspirations of development programs, wool markets, and the state.

CHAPTER VII

Conclusion: “Will the Bells of Chillca Toll for Me?”

In the opening chapter, I asked two questions that motivated this research: (1) how do people encounter the traces of ecological and social change in the routine practices of daily life? And (2) in the face of those changes, how do people envision, plan, and bring about viable futures? In this final chapter, I’d like to address these questions directly. In revisiting the key insights from the previous chapters and bringing them together here, I articulate the ways in which particular forms of relationality are constitutive of life in the Andes, and their unraveling is indicative of the increased precarity of that life in an era of climate change. In these moments of precarity, people imagine futures that require new assemblages of humans, animals, and places, and these imaginaries are drawn from dominant discourses of improvement that—in their most extreme iterations—preclude the possibility of other forms of living. To explore the consequence of these speculative futures, I’ll return to the experiential anchor of this study—the lived experience of Consuelo—and suggest future directions for this research.

There is no doubt, for herders or for climate scientists, that people in the Andes are facing a precarious situation. The conditions of that precarity manifest in particular ways depending on the modes of identification and methods of evaluation through which they are made legible. For climate scientists, a clear trajectory of atmospheric temperature increase, glacial retreat, fluctuating precipitation, and shifting ecozones has altered the conditions of life in the Andes,

with stark implications for the future. By mid-century, the earth's climate will shift outside the historical range of variability, and the high tropical Andes is among the first places where the regionalized effects of this epochal shift have become palpably and terrifyingly legible.

Temperatures in the high tropical Andes are projected to increase substantially by the end of the 21st century, producing more frequent weather extremes, greater unpredictability in seasonal weather patterns, and the reduction and disappearance of most of the permanent ice cover. In the coming decades, water insecurity is all but inevitable throughout the Andes, and the loss of montane wetland environments would likely bring about the end of communities like Chillca who rely on the *bofedales* to sustain their alpacas and their livelihoods.

For herders, the conditions of precarity manifested in and through the daily and seasonal spatial practices of animal husbandry and pastoralism, through which they read the traces—the palpable, exposed, and observable *sut'i*—of change. As climatic shifts created disturbances in the grassland ecosystem of the high Andes, herders detected trouble in the breakdown of communicative practices between humans, animals, and landscapes. As the rain-fed grasses of the wet season sprouted later than usual, the animals became thinner and more agitated. While embarking on their daily herding routes, the animals were increasingly difficult to work with as predictable forms of cooperative labor broke down. Sheep scattered and alpacas and llamas wandered across sectoral boundaries and into reserved pastures, flaunting the established norms of the herders and the regulations of the broader community and leading to human conflict. As drought conditions increased in the southern Peruvian Andes, human-animal communication was a powerful form of knowledge production, and the failure of these interspecies communicative practices indexed the potential for chaotic futures.

There has also been a radical shift in the quality of relationships between people and place. Historically, people and places in Chillca engaged in reciprocal relationships, sustaining a network of reciprocal obligation that held the world together. In the wake of evangelical conversion efforts, these relationships were noted to be falling away, which for some explained the increased presence and intensity of phenomena like hail and wind. Phenomena such as wind, hail, rain, frost, and sun arrived with increased intensity and outside of their time: the sun burned with atypical strength and brightness, the wind blew faster and harder, and the hail beat down with increased ferocity. The rains came later than usual, or appeared in the depths of the dry season. The increased presence of other novel substances and essences—smoke, plastics, corrugated tin, and other forms of *kuntaminasiun*— further obscured contacts between humans and a variety of social beings with which they shared the landscape. *Kukuchis* disappeared in the melting snows, while glaciers shrank in the presence of corrugated tin, trash, and smoke. Along with shifts in practices of relationality, these shifts in the presence and quality of phenomena likewise indicated an overall instability of matter. All of these various forms of spatiotemporal unpredictability— in the presence or absence of phenomena and communicative signals— heralded new forms of rupture in the relational network of life in the Andes.

These impacts had implications for the ways in which people located themselves in relational ecologies. The various components of their world have become unruly and restless, no longer staying in their place and time or adhering to the former codes of conduct that made for predictable forms of relationality. These shifts indexed broader transformations in the social relations between herders and their communities and herds; neighboring communities, city-dwellers, development agencies, and the state; and the sentient beings that inhabit their landscapes—mountains, glaciers, rock outcrops, and other socially agentive places. In trying to

make sense of these changes, I have drawn from the Quechua concept of *k'ita* as a powerful analytic for understanding the world as it is shifting under the conditions of climate change. In particular, the concept of *k'ita* as a heuristic elucidates the spatiotemporal changes of climatic phenomena—as they become more intense and appear “out of their time”— as well as the changing communicative practices between humans, animals, and the landscape. Phenomena have come untethered from their expected positions in time and space, and predictable forms of relationality between beings and entities are becoming increasingly elusive. From rapidly melting permafrost in the arctic, ocean acidification, delayed and absent rains, to the shifting migratory patterns and life cycles of some animals and the extinction of others, the spatiotemporal shifts of various entities and phenomena mark the global breadth of these ruptured relationalities.

And yet, the notion of restlessness leaves the state of things rather open-ended, making room for the endurance of certain ties and the creation of others, specifically within historically situated ideologies and ontological presuppositions. It is not quite Donna Haraway’s “Chthulucene,” for example, which suggests an epochal shift in which all beings and entities on the planet become melded into a vast, literally monstrous compost pile of vibrant “intra-active entities-in-assemblages” (Haraway 2015, 160, 2016). We can’t assume complete disconnection, nor can we assume all-encompassing connectivity: some beings and entities will return from their restless wanderings (the sheep do eventually come home, for example), while other entities will continue to resist their entanglement with others (herders may move to privatize their lands after all). However, it is worth dwelling analytically in those moments where relationships are ruptured and remade, especially between humans and non-human others, as we all navigate a shifting climate. As Anna Tsing and colleagues suggest, the typification of our current time as

“the anthropocene” suggests the primacy of human actions as drivers of transformative change, acting upon the planet in a unidirectional force, and yet it is perhaps the untethering of sionatural relations (what she calls ferality, but I hold to be restlessness) that is the transformational nexus of our time (Tsing et al. 2019). As anthropologists, our work therefore requires an engagement not with “stable ecologies that stay still to let themselves be used and named,” but with those that are “unstable, undomesticated, and ‘on the move.’” (Bubandt and Tsing 2018, 6). Just as “[d]eer and fungi make landscapes alongside human foresters [and] parking lots and waste dumps turn out to be lively sites for interspecies engagements,” high Andean pastures are the site of revelatory processes of tracing through which the planet’s shifting climate becomes known (Bubandt and Tsing 2018, 6). These multimodal, multispecies encounters lay bare the ways in which Andean herders are tethered, through the bodies of their animals, into global processes of consumption that are at once productive and disruptive— while they shear their animals each year to produce wool for international markets, anthropogenic climate change steadily melts the glaciers that feed their pastures.

In the face of this changing landscape, herders in Chillca envision, plan, and bring about viable futures through a variety of methods, some of which have been in practice for generations: women circulate labor and substance between households; burn pumpkin seeds and human hair in order to transfer their qualities of groundedness and saneness to animals; invoke the mercy of more powerful beings (both place persons and God); sell, consume, or move weaker animals in *tullu kanchas* to feed on irrigated pastures; protect preferential grasses and restrict access to *bofedal* grasses to the dry season; and rotate their herd-households between pastures. As I expressed in Chapter Five, these migrations were neither reactive responses to ecological changes nor normative, planned yearly endeavors— they were messy, complicated, and

inherently flexible. The decision to move emerged out of a complex interplay of human and animal knowledges as well as broader networks of social obligation and exchange, and it was this quality of flexibility that was key to the herders' ability to adjust to changing conditions.

However, people in Chillca also imagined futures that are, in some cases, radically different from the present. These future imaginaries pointed to the fact that the forms of social obligation and exchange that existed between humans, animals, and landscapes in Chillca were not ideal for everyone, and especially as these relationships became increasingly strained, many people in Chillca expressed a desire to split and reassemble them in new ways—producing new kinds of beings in the process, themselves included. The dominant aspirations of better futures that circulated in Chillca were shaped within broader histories of power and neoliberal discourses of bettering oneself and one's circumstances through forms of bodily and social improvement. Herders imagined a future in which their animals produced finer wool that sold for a higher price on the international market, and their children were *profesionales* that would return to the community and lift everyone out of poverty. All of these idealized people and practices would be made possible, it was argued, through the reconfiguration of landholdings into individually-owned parcels. However, these imaginations also foreclosed the possibility of certain kinds of lives, as well as certain kinds of beings—and this was the most troubling for herders of the older generations, who didn't see a place for themselves, their animals, or indeed the community of Chillca as a cohesive unit in the future.

It is here, in contemplating the imagination and creation of viable futures, that I engage with some of the major critiques of the “ontological turn,” notably that its interest in a preferred *kind* of radical alterity—such that a world constituted by a snug relationality of humans, animals, and place persons is a conveniently good fit—tends to flatten the historically-situated

hierarchies inherent in those relations (Bessire and Bond 2014; Laidlaw 2012; Laidlaw and Heywood 2013; Roberts 2017). Humans, herd animals, and landscapes didn't co-exist in a harmonious network in Chillca, nor did they ever. There has always been a vital hierarchy through which animals, humans, and place persons maintained their relative positionalities—the reconfiguration of which would lead to apocalyptic consequences. Furthermore, there are crucial differences in power among animals, among place persons, and critically, among humans. This is one of the key points articulated in the critiques of the ontological turn: in pursuing radical alterity, we risk obscuring differences in opinion about the importance or viability of those relationships according to the people who ostensibly sustain them (Graeber 2015). Furthermore, we risk concretizing the differences in power between those who often seek out radical alterity (researchers) and those that supposedly practice it (indigenous peoples) (Bessire and Bond 2014; Neale and Vincent 2017). For some people in Chillca, a life without animals isn't ontologically feasible, while for others, it's the necessary way forward. While some lament the loss of communicative practice with place persons, others saw it as the devil's work. And while some mourn the future loss of ties to the landscape, others want to take dynamite to the hillsides and sell the rocks for cash. In the futures that people imagine for themselves in Chillca, current assemblages of humans-animals-landscapes are not always preferred—nor are they necessarily possible. This leads to another major critique of the ontological turn, which is that it neglects to attend to the fact that, while we may inhabit different worlds, we do not inhabit different planets—and when it comes to climate change, we are all very much in the same boat (Bessire & Bond 2014). It is likely that in the future, alpaca herding may not be a viable option for people in Chillca and their descendants.

This has profound implications for the people at the heart of this research—Andean women, particularly those of the older generation. Women in Chillca, and communities like it, have historically mitigated their vulnerability through the maintenance of relationships, and through related networks of exchange and enskillment. Climatic changes in the Andean highlands will likely produce new forms of mobility, including the out-migration of highland populations to urban centers (Orlove 2009). These migrations will untangle these relational webs between women, animals, and landscapes, and it has yet to be seen what kinds of opportunities will be afforded to them in the wake of this change. As I articulated in the previous chapter, for the older generation in Chillca, the practices of imagining the future are laden with fears about the loss of these ties that hold people, place, and animals together. This is especially true for those that see themselves as vulnerable to being forgotten or left behind. And yet, in the ways they express these fears, it is clear that their being left behind has relational implications for other beings, besides themselves. They fear for themselves, but themselves-as-relational: as nexuses of the vital social connections that sustain other significant beings.

Here I return to Consuelo. In mid-October of 2015, I spent a few days in the distant sector of Qampa and encountered Consuelo's mother, Asunta, as I was returning to Antapata. She was walking down the path to Chillca center to plant potatoes, a merino lamb strapped to her back. She urged me in the direction of Consuelo's house, informing me that Consuelo told her she is dying. I hurried up to find Consuelo in the doorway of her hut where she told me—quite nonchalantly—that yes, she was indeed dying. I asked how she knew, and she replied that she felt it in her sleep: a distinct wrenching that pulled her forcefully backwards into a free-fall. A cascade of concerns followed in the wake of this admission—the alpacas are sad for the lack of pasture, her son Luis' white-spotted-llama was missing, and her daughter Camila was working in

Puerto Maldonado, cooking for mine workers while her grandchildren cooked for themselves in Pitumarca. At this point she started to cry as she contemplated what would happen to her animals and her grandchildren if she died. In my shock at all this, I told her I didn't understand, asking hesitantly, "but what are you dying *from*?" ("*Piru imamanta wañushanki?*"). I hadn't noticed any symptoms of a fatal illness until this point, and I took her bounding strides alongside her animals as an indicator of overall good health. From her consultations with a healer in Pitumarca and the health worker at the *posta de salud* in Chillca, she had been told that she was suffering from *pisi yawar* ("lack of blood") and *gambiu vida* ("life change"). These illnesses were discerned from a cluster of symptoms that included fatigue, headaches, chills, sensations of heat, and the sudden onset of sweating and nausea. From her descriptions of both illnesses and their treatments, I realized what she was describing overlapped with what I recognized as anemia and menopause. However, I also realized that the sudden cascade of seemingly-unrelated concerns that followed her admission that she was dying were also constitutive of her ill-health—her sad alpacas, Luis' lost llama, her daughter's absence, and her grandchildren's abandonment. All of these events were wrapped up in the ways that she felt herself to be dying.

A future direction of this research is to consider the ways in which changes in the world manifest in changing bodies: how the bodily states that are diagnosed as malnutrition, anemia, or menopause signal a broader spatiotemporal displacement of people, animals, and landscapes in an era of climatic change. In Chillca, how do herders of the older generation think about their waning vitality or the end of their lives as processes embedded in broader ecologies? When animals and people start to wander— in pursuit of grasses or in pursuit of wage labor— how does the untethering of these relationships become felt in people's bodies and bodily practices? As I argued at the end of Chapter Three, new substances and remedies are required for

wandering animals and the illnesses that they produce— what remedies are there for the herders mourning their wandering *uywakuna*? More broadly, this question asks how climatic precarities root themselves in human bodies, especially as these bodies are immersed in new mobilities and navigate new networks of substance, essence, person, and place. The breakdown of the ties that bind people to each other and to other social beings, and the consequent ruptures in material, symbolic, and social being reflect the contours of precarity in the current era. As a condition of being vulnerable to another, precarity emerges in the very moments where relationships fail: when sheep fail to pay attention to herders, mothers and fathers fail to feed their children (both human and non-human), sons and daughters fail to visit their elders (both human and non-human), rains fail to appear in their time, and glaciers fail to irrigate the wetlands at their feet.



Figure 66: Consuelo in the evening

As I came to discover during my time in Chillca, older women talked often of death, and in Consuelo's case, it lingered in her as a constant, bothersome tug. More than anything, she worried about being forgotten. As Benjamin Orlove expressed in the opening chapter of his book, *Lines in the Water*, forgetting is a social act in the Andes, one that constitutes an

intentional denial of coexistence, shared history, and social equality (Orlove 2002). Upon parting, Andean people often plead the departing person not to forget them. In popular love songs, a lover's betrayal is expressed as their having forgotten their spurned partner. Towns that are overlooked and neglected by their government are likewise described as forgotten ("*pueblos olvidados*" [Orlove 2002, 13]). For rural Andean peasants, the fear of being forgotten is a fear of being intentionally forsaken and abandoned by those who might view them as inferior: a reflection of "their sense that they have been overlooked, that they are not merely at the bottom of an unequal and unjust social order, but have fallen out of this order altogether" (Orlove 2002, 13). Older, Quechua-speaking women herders like Consuelo often articulated their sense of vulnerability in a changing world through the idiom of forgetting. In the songs Consuelo sang for Chillca's town anniversary, she expressed her hope that her *waynus* would serve as a memento for her townspeople to remember her by ("may this little *waynu* that I sing be a memento for my town, when I've died, when I've gone" [*kay waynuchalla takiyusqaytaq/ llaqtay rikwirduchaypaq/ wañuqtiy ripuqtiy*]). In one iteration of a song she called "the Bells of Chillca," she rephrased the central theme as a question, asking "when I die, will the bells of Chillca toll for me?" The bells of Chillca were housed in the Catholic Church at the town's center, which had been in a state of disrepair for years. They were only rung in the event of a wedding or a funeral, but otherwise the structure remained bolted shut. Her question struck me as a simple, evocative encapsulation of the fears that rooted in her generation, as people moved on and disentangled themselves from the people, animals, and places of Chillca, abandoning the localities that used to serve as nexuses of its coherence. She asked the essential question about Chillca's future in a time of change— would the bells toll at all, and would anyone come?

APPENDIX

Consuelo's Waynus

I. Chillca

<i>Chillcapata llaqtayqa</i>	My town Chillca
<i>Ima munayta llanllashan</i>	How lovely it is sprouting
<i>Chillcapata llaqtayqa</i>	My town Chillca
<i>Ima munayta phallchishan</i>	How lovely it is blooming
<i>T'ikachahina llanllashan</i>	Like a little flower
<i>Ima munayta llanllashan</i>	How lovely it is sprouting
<i>T'ikachahina phallchishan</i>	Like a little flower
<i>Ima munayta phallchishan</i>	How lovely it is blooming
<i>Ima munayta llanllashan</i>	How lovely it is sprouting
<i>Chayhinallataq nuqapas</i>	Just like this
<i>T'ikachahina wiñani</i>	I also grow like a little flower
<i>Chayhinallataq nuqapas</i>	Just like this
<i>Llaqtay kikichan kashani</i>	I am identical to my town
<i>Ima munayta wiñani</i>	How lovely I grow
<i>T'ikachahina wiñani</i>	Like a little flower
<i>Llaqtay kikichan kashani</i>	I am identical to my town
<i>T'ikachahina wiñani</i>	I grow like a little flower
<i>T'ikachahina wiñani</i>	I grow like a little flower
<i>Chillca pampata qhawarispa</i>	Looking out over Chillca pampa
<i>Piru amamá waqankichu</i>	But don't you cry
<i>Llaqtachallayta rikuruspa</i>	Seeing my little town
<i>Piru amamá llakinkichu</i>	But don't you get sad
<i>Chillca pampata qhawariqtiyki</i>	When you look out over Chillca pampa
<i>Waqay waqayraq hap'isunki</i>	You will begin to cry
<i>Llaqtachallayta rikuruqtiyki</i>	Seeing my little town
<i>Sunquchaykaraq nananqa</i>	Your heart will hurt
<i>Waqay waqayraq hap'isunki</i>	You will begin to cry
<i>Uyachallayta rikuruspa</i>	Seeing my little face,

*Piru amama waqankichu
Karachallayta qhawarispa
Piru amama llakinkichu
Uyachallayta rikuruqtiyki
Sunquchaykaraq nanaqa
Karachallayta qhawariqtiyki
Waqay waqayraq hap'isunki
Sunquchaykaraq nananqa*

But don't you cry
Looking at my little face,
But don't you get sad
When you see my little face
Your heart will hurt
When you see my little face
You will begin to cry
Your heart will hurt

*Ausangati q'uchaman rumichalla chhanqasqay
Ausangati q'uchaman rumichalla wikch'usqay
Maytaq kunankamari kutiramusqankich
Maytaq kunankamari vueltaramusqankichu
Kutiramusqankichu*

Having thrown a pebble in Ausangate lake
Having tossed a pebble in Ausangate lake
And until now, to where have you come back?
And until now, to where have you returned?
Have you returned?

*Chayhinallataq
Taytamamay maytaq kutimushanchu
Chayhinallataq
Mamataytay maytaq wiltamushanchu
Sapachallay sulachallay
Kay llaqtapi tarikuni
Kay llaqtapi rikukuni
Kay llaqtapi rikukuni*

Just like this
To where are my parents coming back?
Just like this
Too where are my parents returning?
All alone, all on my own
I find myself this town
I find myself in this town
I find myself in this town

*Pipas kashachun
Maypis kashachun
Kay waynuypiraq tusuylla tusuyusaq
Pipas kashachun
Maypis kashachun
Kay waynuypiraq takiylla takiyusaq*

Whomever may be
Wherever may be
I will still dance this waynu
Whomever may be
Wherever may be
I will still sing this waynu

II. Agustu Wayrahina (Like August Winds)

*Yachayurankitaq, sabiyurankitaq
Yachayurankitaq, sabiyurankitaq
Agustu wayrachahina luku kasqaytaqa
Fibriru killachahina waq'a kasqaytaqa*

Perhaps you knew, perhaps you knew
Perhaps you knew, perhaps you knew
That I was crazy like August wind
That I was mad like the month of February

*Yachayushaspayki
Sabiyushaspayki
Yachayushaspayki
Sabiyushaspayki
Amacha urpischay waqachiwankimanchu
Amacha sambuschay llakichiwankimanchu*

In your having known this
In your having known this
In your having known this
In your having known this
My little dove don't make me cry
My *sambu* don't make me sad

*Taytayman mamayman willayapuwanki
Mamayman taytayman willayapuwanki
Warmi wawaykiqa ripushanmi, nispa
Warmi wawaykiqa pasashanmi, nispa*

*Hinaya ripuchun, nispa niwaqtinqa
Hinaya pasachun, nispa niwaqtinqa
Wichaypas uraypas ripukapunaypaq
Uraypas wichaypas pasakapunaypaq*

*Rasunta mamay niwaran
Rasunta taytay niwaran
Nuqaña mayta ripuqtiyqa
Maypiraq kallin kallincha
Maypiraq wasin wasincha*

*Rasunta taytay niwaran
Rasunta mamay niwaran
Nuqaña mana kallaqtiyqa
Maypiraq wasin wasincha
Maypiraq kallin kallincha*

To my dad and mom, you'd tell
To my mom and dad, you'd tell
Your daughter is leaving
Your daughter is going

Let her leave, they'd say
Let her go, they'd say
So that I'd leave, up and down
So that I'd go, down and up

My mom told me the reason
My dad told me the reason
Where must I go
Along whichever roads
Through whichever neighborhoods

My mom told me the reason
My dad told me the reason
Where I mustn't go
Through whichever neighborhoods
Along whichever roads

III. Ausangate

*Ausangatita qhawarinkichu
Llaqtay lumata qhawarinkichu
Yana-yarintaq yuraq-yarintaq
Wayrarimuntaq phuyurimuntaq*

*Chayhinallataq nuqapas kani
Asi lo mismo nuqapas kani
Ripusaq nini
Pasasaq nini
Karu llaqtata ripusaq nini*

*Ripushaniñan, pasashaniñan
Ripushaniñan, pasashaniñan
Llaqtamasiypa waqachiwasaqan
Llaqtamasiypa chiqnikuwasqan*

*Ripushaniñan, pasashaniñan
Ripushaniñan, pasashaniñan
Chillca llaqta dispidikuyki
Chillca llaqta saqirisayki*

Do you see Ausangate?
Do you see the hills of my town?
Through black and white
Through wind and cloud

Just like this, so am I
Just the same, so am I
I'll leave, I say
I'll go, I say
I'll leave to a faraway town, I say

I'm already leaving, I'm already going
I'm already leaving, I'm already going
My townspeople having made me cry
My townspeople having spited me

I'm already leaving, I'm already going
I'm already leaving, I'm already going
I say goodbye to you, Chillca town
I will leave you, Chillca town

Pitumarka pwintisitucha
Pitumarka pwintisitucha
Allillamanta pasarachiway
Allillamanta chinparachiway

Little Pitumarka bridge
Little Pitumarka bridge
Let me pass easily
Let me cross easily

Chinpachapiña willarukusayki
Chinpachapiña willarukusayki
Llaqtamasiypa waqachiwasqanta
Llaqtamasiypa sufrichiwasqanta

Upon having crossed, I'll tell you
Upon having crossed, I'll tell you
Of how my townspeople made me cry
Of how my townspeople made me suffer

Pitumarquiñu sultiritucha
Pitumarquiñu sultiritucha
Llikllachaytapas hap'ikushaspas
Amurchallayta kutichipway

Little Pitumarka bachelor
Little Pitumarka bachelor
Tugging on my little shawl
Return my little affections

Qaparit'i mayutari qhunchuntintachu tumarani
Ripuy pasay nishaspapas
Manalla ripuy atinaypaq
Manalla pasay atinaypaq

Did I drink from the ice of Qaparit'i river?
So that, while saying "leave, go"
I just couldn't leave
So that I couldn't go

Qaparit'i unutari laq'intintachu uharani

Did I drink from the spring of Qaparit'i's
waters?

Pasay ripuy nishaspapas
Manalla pasay atinaypaq
Manalla ripuy atinaypaq

So that, while saying "leave, go"
I just couldn't go
So that I couldn't leave

IV. Ausangatiman Phuyu Tiyayun (Clouds Dwell on Ausangate)

Ausangatiman
Phuyu tiyayun qunqaylla
Llaqtay urquta
Phuyu muyumun wayrantin
Chaypa chawpinpi puriyushani nuqaqa
Así es mi vida, así es mi suerte soltero

On Ausangate
Clouds dwell
On my town's mountain
Clouds circle in the wind
I am walking between them
That is my life, that is my lonely luck

Haqay chinpa Ausangatiman phuyu tiyayamun
Imaraq viday? Hayk'araq swirtiy?

Over there, clouds dwell on Ausangate
What of my life? What of my luck?

Haqay urquta
Kuntur muyumun phuyuntin
Llaqtay urquta
Kuntur muyumun wayrantin
Chayllatapis qhawawaqmá chulitu
Chayllatapis qhawawaqmá ingratu

On yonder mountain
Condors circle in the clouds
On my town's mountain
Condors circle in the wind
Just like that you'd watch me, *cholino*
Just like that you'd watch me, ungrateful

*Imallamantaq purishanri, nirani
Hayk'allamantaq hamushanri, nirani
Alpacaytaña mikhuruspa hamusqa
Uwihaytaña mikhuruspa hamusqa*

*Yanqallanpaqcha ganadira karani
Yanqallanpaqcha alpakira karani
Imanasaqtaq kunanpachari chulitu
Hayk'anasaqtaq kunanpachari ingratu*

*Imanasaqtaq kunanpachari turachay
Hayk'anasaqtaq kunanpachari ñañachay
Mamataytaycha ripuy, niwanqa turachay*

Taytamamaycha pasay, niwanqa ñañachay

Where, oh where is he walking, I said
When, oh when is he coming, I said
Only my alpaca, grazing, has come
Only my sheep, grazing, has come

Perhaps in vain I was a herder
Perhaps in vain I was an alpaquera
Whatever will I do now, cholito
However will I be now, ungrateful

Whatever will I do now, little brother
However will I be now, little sister
Go home to mom and dad, my little brother
will tell me
Get home to mom and dad, my little sister will
tell me

V. Chillca Q'inqu Mayu

*Chillca pampaschallay
Q'inqu mayuschallay
Chillca pampaschallay
Q'inqu mayuschallay
Maytataq apanki warmayanallayta
Maytataq apanki warmayanallayta*

*Uranpas qaqataq
Hawanpas mayutag
Uranpas qaqataq
Hawanpas mayutag
Mayninta pasaspan
Yanaywan tupayman
Mayninta pasaspan
Yanaywan tupasaq*

*Siyilupi quyllurcha
K'anchaykamullaway
Siyilupi ch'askascha
K'anchaykamullaway
Mamataytallayman chayrapunaypaq
Taytamamallayman chayrapunaypaq*

*Taytayri mamayri
Imanawanqataq
Mamayri taytayri
Hayk'aniwanqataq*

My little pampas of Chillca
My little Q'inqu river
My little pampas of Chillca
My little Q'inqu river
Where do you take my young beloved?
Where do you take my young beloved?

Down by the cliffs
Up by the river
Down by the cliffs
Up by the river
Where, wandering
Would I find my beloved?
Where, wandering
Will I find my beloved?

Little Venus in the sky
Shine down on me
Little star in the sky
Shine down on me
So that I can arrive to my mom and dad
So that I can arrive to my dad and mom

My dad and my mom
What will they do to me
My mom and dad
What will they do to me

Kay runaq llaqtanpin tutayachikuni
Kay runaq llantanpin sapay rikukuni

I spend the night in a stranger's town
I find myself alone in a stranger's town

Suyayki suyayki
Bandurriayta tukaspa
Suyayki suyayki
Wifanuchayta tukaspa
Manaña chayamuqtiyki
Wawqichaykiwan ripuni
Manaña chayamuqtiyki
Runaq llaqtanta ripuni

I wait for you, I wait for you
Playing my *bandurria*
I wait for you, I wait for you
Playing my *wifanu*
If you don't come
I'll leave with your brother
If you don't come
I'll leave to another town

Manaña chayamuqtiyki
runaq llaqtanta ripuni.

If you don't come
I'll leave to another town

VI. Bandurriay (My Bandurria)

Bandurriay waqayamuya
Chay kunkaykiwan waqayamuya
Phinaya llaqtaq anivirsariunpaq
Chillca llaqtaq fiyistachallanpaq

My *bandurria*, cry to me
With your throat, cry to me
For Phinaya town's anniversary
For Chillca town's birthday

Bandurriay waqayamuya
Chay kunkaykiwan waqayamuya
Phinaya llaqtaq anivirsariunpaq
Chillca llaqtaq fiyistachallanpaq

My *bandurria*, cry to me
With your throat, cry to me
For Phinaya town's anniversary
For Chillca town's birthday

Waqayusqayki tukayusqayki
Waqayusqayki tukayusqayki
Llaqtaypa rikwirduchanpaq
Challukuqtiyki ñut'ukuqtiyki
Waqayusqayki tukayusqayki
Waqayusqayki tukayusqayki
Llaqtaypa rikwirduchanpaq
Challukuqtiyki ñut'ukuqtiyki

What you've cried, what you've played
What you've cried, what you've played
To be a little memory for my town
What you've broken, what you've smashed
What you've cried, what you've played
What you've cried, what you've played
To be a little memento for my town
What you've broken, what you've smashed

Kay waynuchalla takiyusqaytaq
Kay qinachalla takiyusqaytaq
Llaqtaypa rikwirduchaypaq
Wañuqtiy ripukapuqtiy

Perhaps this little *waynu* that I've sung
Perhaps this little *gina* that I've sung
Will be my little memento for my town
When I've died, when I've left

Tukayusqayqa takiyusqayqa
Tukayusqayqa takiyusqayqa
Llaqtaypa rikwirduchanpaq
Wañuqtiy ripukapuqtiy

What I've play, what I've sung
What I've play, what I've sung
To be a little memento for my town
When I've died, when I've left

Carrituy suyayullaway

Car of mine, wait for me

Carrituy suyayullaway
Llaqtayman aparapullaway
Llaqtayman aparapullaway
Carrituy suyayullaway
Carrituy suyayullaway
Llaqtayman aparapullaway
Llaqtayman aparapullaway

Car of mine, wait for me
Take me back to my town
Take me back to my town
Car of mine, wait for me
Car of mine, wait for me
Take me back to my town
Take me back to me town

VII. Chillca Canpanita

Kay waynuchallata tukayaramusaq
Kay waynuchallata takiyaramusaq
Wañuqtiy ripuqtiy waqashanankupaq

I'll play this little *wayno*
I'll sing this little *wayno*
So that they'll cry when I've died, when I've
left
So people in my town will be crying

Llaqtaypi runalla waqayushananpaq

Nuqa ripuqtiyqa
Nuqa wañuqtiyqa
Nuqa ripuqtiyqa
Nuqa wañuqtiyqa
Chillca turrichacha waqayamushanqa
Tukaqqa takiqqa wañukunmi, nispa

When I've left
When I've died
When I've left
When I've died
Chillca's tower will be crying out
Saying the musician, the singer has died

Nuqa wañuqtiyqa
Nuqa ripuqtiyqa
Nuqa wañuqtiyqa
Nuqa ripuqtiyqa
Chillca canpanita waqayamushanqa
Tukaqqa takiqqa wañukunmi, nispa

When I've died
When I've left
When I've died
When I've left
Chillca's bells will be crying out
Saying the musician, the singer has died

Adius niway sanbu
Dispidiway ninru
Adius niway sanbu
Dispidiway ninru
Manañas ichaqa kutimusaqñachu
Manañas ichaqa chayamusaqñachu

Tell me goodbye, *sambu*
Bid me farewell, *negro*
Tell me goodbye, *sambu*
Bid me farewell, *negro*
But I'll never come back again
But I'll never again return

Imas kutimuyman
Hayk'as chayamuyman
Imas kutimuyman
Hayk'as chayamuyman
Hallp'aq uhunmanta imas kutimuyman

How could I come back
When would I return
How could I come back
When would I return
From the depths of the earth, how could I
come back?
From between the soils, when would I
return?

Hallp'aq chawpinmanta hayk'aq chayamuyman

VIII. Palumani Urqu (Palumanu Hill)

*Palumani urqutaqa
Warmi saya q'asataqa
Yana phuyu wasayamun
Aqarapi chakichayug
Iphu para chakichayug*

On Palumani mountain
On Warmi Saya pass
Dark clouds pass over
Walking in the frozen dew
Walking in the mist

*Chay phuyuq chawpichallanpi
Chay rit'iq k'anchallapi
Maris, maris waqayunay
Waqayuspa puriyunay*

In the midst of those clouds
In the brightness of that snow
Why oh my must I cry
Crying, I must go on

*Taytamamay uywawasqa
Mamataytay uywawasqa
Waqaspalla purinaypaq
Sufirimintu pasanaypaq*

My parents having raised me
My folks having raised me
So that I must go on, crying
So that I must carry on my suffering

*Hinapaqcha swirtiy karan
Aqnapaqcha swirtiy karan
Waqaspalla purinaypaq
Sufirimintu pasanaypaq*

Like that, just my luck
Like that, just my luck
So that I must go on, crying
So that I must carry on my suffering

*Sultiruchus kayushayman
Sapallaychus kayushayman
Wichaypas uraycha kanman
Uraypas wichaycha kanman*

Would I be single?
Would I be alone?
Above and below
Below and above

*Mayuq chinpanpi rikushawaspa
Unuq chinpanpi qhawashawaspa
Imapaq munayumaranki
Hayk'apaq parlayumaranki*

Seeing me at the river bank
Watching me at the water's edge
Why did you love me?
Why did you talk to me?

*Mayuq chinpanpi rikushawaspa
Unuq chinpanpi qhawashawaspa
Imapaq munayumaranki
Hayk'apaq parlayumaranki*

Seeing me at the river bank
Watching me at the water's edge
Why did you love me?
Why did you talk to me?

*Bandurriaschay nuqa waqachiq
Charanguituschay nuqa llakichiq
Pillaraq aparikapunman
Mayllaraq aparikapunman*

My little *bandurria* that makes me cry
My little *charango* that makes me sad
Whoever will pick it up?
Wherever will it be picked up?

BIBLIOGRAPHY

- Adger, W. Neil. 2000. "Social and Ecological Resilience: Are They Related?" *Progress in Human Geography* 24 (3): 347–64.
- . 2006. "Vulnerability." *Global Environmental Change* 16 (3): 268–81.
- Adger, W. Neil, Jon Barnett, Katrina Brown, Nadine Marshall, and Karen O'Brien. 2013. "Cultural Dimensions of Climate Change Impacts and Adaptation." *Nature Climate Change* 3 (2): 112–17.
- Adriansen, Hanne Kirstine. 2008. "Understanding Pastoral Mobility: The Case of Senegalese Fulani." *The Geographical Journal* 174 (3): 207–22.
- Agrawal, Arun. 1999. *Greener Pastures: Politics, Markets, and Community Among a Migrant Pastoral People*. Durham: Duke University Press.
- . 2003. "Sustainable Governance of Common-Pool Resources: Context, Methods, and Politics." *Annual Review of Anthropology* 32 (1): 243–62.
- Agrawal, Arun, Maria Carmen Lemos, Ben Orlove, and Jesse Ribot. 2012. "Cool Heads for a Hot World – Social Sciences under a Changing Sky." *Global Environmental Change* 22 (2): 329–31.
- Aguilar-Lome, Jaime, Raúl Espinoza-Villar, Jhan-Carlo Espinoza, Joel Rojas-Acuña, Bram Leo Willems, and Walter-Martín Leyva-Molina. 2019. "Elevation-Dependent Warming of Land Surface Temperatures in the Andes Assessed Using MODIS LST Time Series (2000–2017)." *International Journal of Applied Earth Observation and Geoinformation* 77 (May): 119–28.
- Alberti, Giorgio, and Enrique Mayer. 1974. *Reciprocidad e Intercambio En Los Andes Peruanos*. Lima: Instituto de Estudios Peruanos.
- Allen, Catherine. 1988. *The Hold Life Has : Coca and Cultural Identity in an Andean Community*. Washington: Smithsonian Institution Press.
- . 1997. "When Pebbles Move Mountains: Iconicity and Symbolism in Quechua Ritual." In *Creating Context in Andean Cultures*, edited by Rosaleen Howard-Malverde. New York: Oxford University Press.
- . 1998. "When Utensils Revolt: Mind, Matter, and Modes of Being in the Pre-Columbian Andes." *RES: Anthropology and Aesthetics*, no. 33: 18–27.
- . 2009. "'Let's Drink Together, My Dear!': Persistent Ceremonies in a Changing Community." In *Drink, Power, and Society in the Andes*, edited by Justin Jennings and Brenda J. Bowser, 28–48. Gainesville: University Press of Florida.
- Allison, Anne. 2013. *Precarious Japan*. Durham: Duke University Press.
- Anderson, David G. 2017. "Humans and Animals in Northern Regions." *Annual Review of Anthropology* 46 (1): 133–49.
- Anderson, Elizabeth, José Marengo, Ricardo Villalba, Stephan Halloy, Bruce Young, Doris Cordero, Fernando Gast, Ena Jaimes, and Daniel Ruiz. 2011. "Consequences of Climate Change for Ecosystems and Ecosystem Services in the Tropical Andes." In *Climate*

- Change and Biodiversity in the Tropical Andes*, edited by Sebastian Herzog, Rodney Martínez, Peter M. Jørgensen, and Holm Tiessen, 1–18. San Jose dos Campos; Paris: Inter-American Institute for Global Change Research (IAI) and Scientific Committee on Problems of the Environment (SCOPE).
- Anderson, Kay. 1997. “A Walk on the Wild Side: A Critical Geography of Domestication.” *Progress in Human Geography* 21 (4): 463–85.
- Apaza, Norberto. 2006. “Rol de La Mujer En La Crianza de Alpacas En El Departamento de Puno.” Quimsachata, Puno: Instituto Nacional de Innovación Agraria (INIA).
- Appadurai, Arjun. 1996. *Modernity at Large: Cultural Dimensions of Globalization*. Minneapolis: University of Minnesota Press.
- Arnold, Denise Y. 1997. *Más allá del silencio: las fronteras de género en los Andes*. La Paz; St. Andrews: ILCA, Instituto de Lengua y Cultura Aymara ; CIASE, Centre for Indigenous American Studies and Exchange.
- Arnold, Denise Y., and Juan de Dios Yapita. 2001. *River of Fleece, River of Song: Singing to the Animals, an Andean Poetics of Creation*. Markt Schwaben: Anton Saurwein.
- Babb, Florence E. 1998. *Between Field and Cooking Pot: The Political Economy of Marketwomen in Peru*. Austin: University of Texas Press.
- . 2018. *Women’s Place in the Andes: Engaging Decolonial Feminist Anthropology*. 1st edition. Oakland: University of California Press.
- Babel, Anna. 2016. *Awareness and Control in Sociolinguistic Research*. xxii, 281 pages. Cambridge: Cambridge University Press.
- Barnes, Jessica, Michael Dove, Myanna Lahsen, Andrew Mathews, Pamela McElwee, Roderick McIntosh, Frances Moore, et al. 2013. “Contribution of Anthropology to the Study of Climate Change.” *Nature Climate Change* 3 (6): 541–44.
- Basso, Keith H. 1996. *Wisdom Sits in Places: Landscape and Language Among the Western Apache*. Albuquerque: University of New Mexico Press.
- Bebbington, Anthony, and Jeffrey T. Bury. 2009. “Institutional Challenges for Mining and Sustainability in Peru.” *Proceedings of the National Academy of Sciences* 106 (41): 17296–301.
- Bebbington, Anthony, and Mark Williams. 2008. “Water and Mining Conflicts in Peru.” *Mountain Research and Development* 28 (3/4): 190–95.
- Behnke, Roy, María E. Fernández-Giménez, Matthew D. Turner, and Florian Stammer. 2011. “Pastoral Migration: Mobile Systems of Livestock Husbandry.” In *Animal Migration: A Synthesis*, by E.J. Milner-Gulland, John M. Fryxell, and Anthony R.E. Sinclair. New York: Oxford University Press.
- Behnke, Roy, and Ian Scoones. 1993. “Rethinking Range Ecology Implications for Rangeland Management in Africa.” *Rangeland Ecology at Disequilibrium: New Models of Natural Variability and Pastoral Adaptation in African Savannas*, January, 1–30.
- Bennett, Jane. 2009. *Vibrant Matter: A Political Ecology of Things*. Durham: Duke University Press.
- Berg, Hans van den. 1989. “La tierra no da así no más”: los ritos agrícolas en la religión de los aymara-cristianos de los Andes. Amsterdam: Centro de Estudios y Documentación Latinoamericanos.
- Berkes, Fikret. 2009. “Indigenous Ways of Knowing and the Study of Environmental Change.” *Journal of the Royal Society of New Zealand* 39 (4): 151–56.

- Berkes, Fikret, David Feeny, Bonnie J. McCay, and James M. Acheson. 1989. "The Benefits of the Commons." *Nature* 340: 91–93.
- Berkes, Fikret, and Dyanna Jolly. 2002. "Adapting to Climate Change: Social-Ecological Resilience in a Canadian Western Arctic Community." *Conservation Ecology* 5 (2): 18.
- Berlant, Lauren. 2011. *Cruel Optimism*. Durham: Duke University Press.
- Bessire, Lucas, and David Bond. 2014. "Ontological Anthropology and the Deferral of Critique: Ontological Anthropology and the Deferral of Critique." *American Ethnologist* 41 (3): 440–56.
- Bhattarai, Basundhara, Ruth Beilin, and Rebecca Ford. 2015. "Gender, Agrobiodiversity, and Climate Change: A Study of Adaptation Practices in the Nepal Himalayas." *World Development* 70 (June): 122–32.
- Bird-David, Nurit. 1999. "'Animism' Revisited: Personhood, Environment, and Relational Epistemology." *Current Anthropology* 40 (S1): S67–91.
- Boelens, Rutgerd. 2014. "Cultural Politics and the Hydrosocial Cycle: Water, Power and Identity in the Andean Highlands." *Geoforum* 57 (November): 234–47.
- Boillat, Sébastien, and Fikret Berkes. 2013. "Perception and Interpretation of Climate Change among Quechua Farmers of Bolivia: Indigenous Knowledge as a Resource for Adaptive Capacity." *Ecology and Society* 18 (4).
- Boillat, Sébastien, Elvira Serrano, Stephan Rist, and Fikret Berkes. 2012. "The Importance of Place Names in the Search for Ecosystem-Like Concepts in Indigenous Societies: An Example from the Bolivian Andes." *Environmental Management* 51 (3): 663–78.
- Bolin, Inge. 1998. *Rituals of Respect : The Secret of Survival in the High Peruvian Andes*. Austin: University of Texas Press.
- . 1999. "Survival in Marginal Lands: Climate Change in the High Peruvian Andes." *Development and Cooperation* 5: 25–26.
- . 2001. "When Apus Are Losing Their White Ponchos: Environmental Dilemmas and Restoration Efforts in Peru." *Development and Cooperation* 6: 25–26.
- . 2006. *Growing Up in a Culture of Respect: Child Rearing in Highland Peru*. Austin: University of Texas Press.
- Bolton, Charlene, Ralph Bolton, Lorraine Gross, Amy Koel, Carol Michelson, Robert L. Munroe, and Ruth H. Munroe. 1976. "Pastoralism and Personality." *Ethos* 4 (4): 463–81.
- Bolton, Maggie. 2006. "Genetic Defects or Generative Prototypes? Competing Models for Livestock Improvement in Southern Bolivia." *The Journal of the Royal Anthropological Institute* 12 (3): 531–49.
- Bourdieu, Pierre. 1977. *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.
- Bourque, Susan, and Kay Barbara Warren. 1981. *Women of the Andes : Patriarchy and Social Change in Two Peruvian Towns*. Ann Arbor: University of Michigan Press.
- Boyd, Brian. 2017. "Archaeology and Human–Animal Relations: Thinking Through Anthropocentrism." *Annual Review of Anthropology* 46 (1): 299–316.
- Bradley, Raymond S., Frank T. Keimig, Henry F. Diaz, and Douglas R. Hardy. 2009. "Recent Changes in Freezing Level Heights in the Tropics with Implications for the Deglaciation of High Mountain Regions." *Geophysical Research Letters* 36 (17).
- Bray, Tamara L., ed. 2015. *The Archaeology of Wak'as: Explorations of the Sacred in the Pre-Columbian Andes*. 1st edition. Boulder: University Press of Colorado.

- Brottem, Leif, Matthew D. Turner, Bilal Butt, and Aditya Singh. 2014. "Biophysical Variability and Pastoral Rights to Resources: West African Transhumance Revisited." *Human Ecology* 42 (3): 351–65.
- Browman, David. 1974. "Pastoral Nomadism in the Andes." *Current Anthropology* 15 (2): 188–96.
- . 1983. "Andean Arid Land Pastoralism and Development." *Mountain Research and Development* 3 (3): 241–52.
- . 1987. *Arid Land Use Strategies and Risk Management in the Andes: A Regional Anthropological Perspective*. Boulder: Westview Press.
- . 1990. "High Altitude Camelid Pastoralism of the Andes." In *The World of Pastoralism: Herding Systems in Comparative Perspective.*, edited by John G. Galaty and Douglas Johnson, 323–52. New York: Guilford Press.
- Brush, Stephen B. 1977. *Mountain, Field, and Family: The Economy and Human Ecology of an Andean Valley*. Philadelphia: University of Pennsylvania Press.
- Bryant, F. C., and R. D. Farfan. 1984. "Dry Season Forage Selection by Alpaca [Lama Pacos] in Southern Peru." *Journal of Range Management* 37 (4): 330–33.
- Bubandt, Nils, and Anna Tsing. 2018. "Feral Dynamics of Post-Industrial Ruin: An Introduction." *Journal of Ethnobiology* 38 (1): 1–7.
- Bunster, Ximena, and Ellan Young. 1988. *Sellers and Servants: Working Women in Lima, Peru*. New York: Praeger.
- Bury, Jeffrey, Bryan G. Mark, Mark Carey, Kenneth R. Young, Jeffrey M. McKenzie, Michel Baraer, Adam French, and Molly H. Polk. 2013. "New Geographies of Water and Climate Change in Peru: Coupled Natural and Social Transformations in the Santa River Watershed." *Annals of the Association of American Geographers* 103 (2): 363–74.
- Butler, Judith. 1988. "Performative Acts and Gender Constitution: An Essay in Phenomenology and Feminist Theory." *Theatre Journal* 40 (4): 519–31.
- . 2006. *Precarious Life: The Powers of Mourning and Violence*. London; New York: Verso.
- . 2009. "Performativity, Precarity and Sexual Politics." *AIBR. Revista de Antropología Iberoamericana* 04 (03): I–XIII.
- Butt, Bilal. 2016. "Ecology, Mobility and Labour: Dynamic Pastoral Herd Management in an Uncertain World." *Revue Scientifique et Technique de l'OIE* 35 (2): 461–72.
- Buttolph, Lita P., and D. Layne Coppock. 2001. "Project Alpaca." *Rangelands* 23 (2): 10–13.
- Buytaert, Wouter, Simon Moulds, Luis Acosta, Bert De Bièvre, Carlos Olmos, Marcos Villacis, Carolina Tovar, and Koen M. J. Verbist. 2017. "Glacial Melt Content of Water Use in the Tropical Andes." *Environmental Research Letters* 12 (11): 114014.
- Buytaert, Wouter, Zed Zulkafli, Sam Grainger, Luis Acosta, Tilashwork C. Alemie, Johan Bastiaensen, Bert De Bièvre, et al. 2014. "Citizen Science in Hydrology and Water Resources: Opportunities for Knowledge Generation, Ecosystem Service Management, and Sustainable Development." *Frontiers in Earth Science* 2: 1–21.
- Cadena, Marisol de la. 1991. "'Las Mujeres Son Más Indias': Etnicidad y Género En Una Comunidad Del Cusco." *Revista Andina* 9 (1): 7–47.
- . 1998. "Silent Racism and Intellectual Superiority in Peru." *Bulletin of Latin American Research* 17 (2): 143–64.
- . 2000. *Indigenous Mestizos: The Politics of Race and Culture in Cuzco, Peru, 1919–1991*. Durham: Duke University Press Books.

- . 2005. “Are Mestizos Hybrids? The Conceptual Politics of Andean Identities.” *Journal of Latin American Studies* 37 (2): 259–84.
- . 2008. “Alternative Indigeneities: Conceptual Proposals.” *Latin American and Caribbean Ethnic Studies* 3 (3): 341–49.
- . 2010. “Indigenous Cosmopolitics in the Andes: Conceptual Reflections beyond ‘Politics.’” *Cultural Anthropology* 25 (2): 334–70.
- . 2015. *Earth Beings: Ecologies of Practice Across Andean Worlds*. Durham: Duke University Press.
- Callañaupa Alvarez, Nilda, Christine Franquemont, and Joe Coca. 2013. *Faces of Tradition: Weaving Elders of the Andes*. Loveland: Thrums Books.
- Callon, Michel. 1986. “Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay.” In *Power, Action and Belief: A New Sociology of Knowledge*, edited by John Law, 196–233. London: Routledge & Kegan Paul.
- Candea, Matei. 2011. “ENDO/EXO.” *Common Knowledge* 17 (1): 146–50.
- Canessa, Andrew. 2012. *Intimate Indigeneities: Race, Sex, and History in the Small Spaces of Andean Life*. Durham: Duke University Press Books.
- Carey, Mark, Lincoln C. James, and Hannah A. Fuller. 2014. “A New Social Contract for the IPCC.” *Nature Climate Change; London* 4 (12): 1038–39.
- Carey, Mark, Olivia C. Molden, Mattias Borg Rasmussen, M. Jackson, Anne W. Nolin, and Bryan G. Mark. 2017. “Impacts of Glacier Recession and Declining Meltwater on Mountain Societies.” *Annals of the American Association of Geographers* 107 (2): 350–59.
- Caro, Debarah A. 1985. “‘Those Who Divide Us’: Resistance and Change Among Pastoral Ayllus in Ulla Ulla, Bolivia.” Ph.D. Dissertation, Baltimore: Johns Hopkins University.
- Carr, Summerson. 2010. “Enactments of Expertise.” *Annual Review of Anthropology* 39 (1): 17–32.
- Casey, Edward S. 2013. *The Fate of Place: A Philosophical History*. Berkeley: University of California Press.
- Cassidy, Rebecca. 2012. “Lives With Others: Climate Change and Human-Animal Relations.” *Annual Review of Anthropology* 41 (1): 21–36.
- Castellaro, Giorgio, Tamara Ullrich R., Birgit Wackwitz, and Alberto Raggi S. 2004. “Composición Botánica de La Dieta de Alpacas (*Lama Pacos* L.) y Llamas (*Lama Glama* L.) En Dos Estaciones Del Año, En Praderas Altiplánicas de Un Sector de La Provincia de Parinacota, Chile.” *Agricultura Técnica* 64 (4): 353–63.
- Castree, Noel. 2015a. “Changing the Anthro(s)Cene: Geographers, Global Environmental Change and the Politics of Knowledge.” *Dialogues in Human Geography* 5 (3): 301–16.
- . 2015b. “Coproducting Global Change Research and Geography: The Means and Ends of Engagement.” *Dialogues in Human Geography* 5 (3): 343–48.
- Castree, Noel, William M. Adams, John Barry, Daniel Brockington, Bram Büscher, Esteve Corbera, David Demeritt, et al. 2014. “Changing the Intellectual Climate.” *Nature Climate Change* 4 (9): 763–68.
- Certeau, Michel de. 1984. *The Practice of Everyday Life*. Berkeley: University of California Press.
- Choy, Timothy. 2011. *Ecologies of Comparison: An Ethnography of Endangerment in Hong Kong*. Durham: Duke University Press Books.

- Collins, Harry. 2004. "Interactional Expertise as a Third Kind of Knowledge." *Phenomenology and the Cognitive Sciences* 3 (2): 125–43.
- Colloredo-Mansfeld, Rudi. 1998. "'Dirty Indians', Radical Indígenas, and the Political Economy of Social Difference in Modern Ecuador." *Bulletin of Latin American Research* 17 (2): 185–205.
- Comaroff, Jean, and John Comaroff, eds. 1999. *Civil Society and the Political Imagination in Africa*. Chicago: University Of Chicago Press.
- Cooper, David J., Evan C. Wolf, Christopher Colson, Walter Vering, Arturo Granda, and Michael Meyer. 2010. "Alpine Peatlands of the Andes, Cajamarca, Peru." *Arctic, Antarctic, and Alpine Research* 42 (1): 19–33.
- Crapanzano, Vincent. 2004. *Imaginative Horizons*. Chicago: University Of Chicago Press.
- Crate, Susan. 2011. "Climate and Culture: Anthropology in the Era of Contemporary Climate Change." *Annual Review of Anthropology* 40 (1): 175–94.
- Crate, Susan, and Mark Nuttall. 2009. *Anthropology and Climate Change : From Encounters to Actions*. Walnut Creek: Left Coast Press.
- Cruikshank, Julie. 1992. *Life Lived Like a Story: Life Stories of Three Yukon Native Elders*. Lincoln: University of Nebraska Press.
- . 2005. *Do Glaciers Listen? : Local Knowledge, Colonial Encounters, and Social Imagination*. Vancouver; Seattle: UBC Press ; University of Washington Press.
- Crutzen, Paul J., and Eugene F. Stoermer. 2000. "The 'Anthropocene.'" *Global Change Newsletter*, no. 41: 17.
- Custred, Glynn. 1977. "Las Punas de Los Andes Centrales." In *Pastores de Puna. Uywamichiq Punarunakuna*, edited by Jorge Flores Ochoa, 55–85. Lima: Instituto de Estudios Peruanos.
- Dahl, Gudrun. 1987. "Women in Pastoral Production: Some Theoretical Notes on Roles and Resources." *Ethnos* 52 (1–2): 246–79.
- Damonte, Gerardo, Manuel Glave, Sandra Rodríguez, and Andrea Ramos. 2016. "The Evolution of Collective Land Tenure Regimes in Pastoralist Societies: Lessons from Andean Countries."
- Dangles, Olivier, Carlos Carpio, Álvaro Barragán, J. L. Zeddám, and J. F. Silvain. 2008. "Temperature as a Key Driver of Ecological Sorting among Invasive Pest Species in the Tropical Andes." *Ecological Applications* 18 (7): 1795–1809.
- Dangles, Olivier, Antoine Rabatel, Martin Kraemer, Gabriel Zeballos, Alvaro Soruco, Dean Jacobsen, and Fabien Anthelme. 2017. "Ecosystem Sentinels for Climate Change? Evidence of Wetland Cover Changes over the Last 30 Years in the Tropical Andes." *PLOS ONE* 12 (5): e0175814.
- Davidson-Hunt, Iain, and Fikret Berkes. 2003. "Learning as You Journey: Anishinaabe Perception of Social-Ecological Environments and Adaptive Learning." *Conservation Ecology* 8 (1).
- Deacon, Terrence. 2003. "The Hierarchic Logic of Emergence: Untangling the Interdependence of Evolution and Self-Organization." In *Evolution and Learning: The Baldwin Effect Reconsidered*, edited by Bruce H. Weber and David J. Depew, 273–308. Cambridge, Mass.: MIT Press.
- Deere, Carmen Diana. 1983. "The Allocation of Familial Labor and the Formation of Peasant Household Income in the Peruvian Sierra." In *Women and Poverty in the Third World*,

- edited by Mayra Buvinic, Margaret A Lycette, and William Paul McGreevey. Baltimore: Johns Hopkins University Press.
- Degen, Cathrine. 2009. "On Vegetable Love: Gardening, Plants, and People in the North of England." *Journal of the Royal Anthropological Institute* 15 (1): 151–67.
- Descola, Philippe. 1994. *In the Society of Nature: A Native Ecology in Amazonia*. Cambridge: Cambridge University Press.
- . 2013a. *Beyond Nature and Culture*. Translated by Janet Lloyd. Chicago: The University of Chicago Press.
- . 2013b. *The Ecology of Others*. Chicago: Prickly Paradigm Press.
- Dong, Shikui, Lu Wen, Shiliang Liu, Xiangfeng Zhang, James P. Lassoie, Shaoliang Yi, Xiaoyan Li, Jinpeng Li, and Yuanyuan Li. 2011. "Vulnerability of Worldwide Pastoralism to Global Changes and Interdisciplinary Strategies for Sustainable Pastoralism." *Ecology and Society* 16 (2): 10.
- Douglas, Mary. 1957. "Animals in Lele Religious Symbolism." *Africa* 27 (1): 46–59.
- Dransart, Penny. 2003. *Earth, Water, Fleece and Fabric: An Ethnography and Archaeology of Andean Camelid Herding*. London: Routledge.
- Drenkhan, Fabian, Mark Carey, Christian Huggel, Jochen Seidel, and María Teresa Oré. 2015. "The Changing Water Cycle: Climatic and Socioeconomic Drivers of Water-Related Changes in the Andes of Peru." *Wiley Interdisciplinary Reviews: Water* 2 (6): 715–33.
- DuBois, John. 2007. "The Stance Triangle." In *Stancetaking in Discourse*, edited by Robert Englebretson, 139–82. Amsterdam: John Benjamins.
- Dyson-Hudson, Rada, and Neville Dyson-Hudson. 1980. "Nomadic Pastoralism." *Annual Review of Anthropology* 9 (January): 15–61.
- Eakin, Hallie, and Amy Lynd Luers. 2006. "Assessing the Vulnerability of Social-Environmental Systems." *Annual Review of Environment and Resources* 31 (1): 365–94.
- Ellen, Roy, and Simon Platten. 2011. "The Social Life of Seeds: The Role of Networks of Relationships in the Dispersal and Cultural Selection of Plant Germplasm." *Journal of the Royal Anthropological Institute* 17 (3): 563–584.
- Epstein, Steven. 1996. *Impure Science: AIDS, Activism, and the Politics of Knowledge*. 1st edition. Berkeley, CA: University of California Press.
- Escobar, Arturo. 2011. *Encountering Development: The Making and Unmaking of the Third World*. Princeton: Princeton University Press.
- Evans-Pritchard, E. E. 1940. *The Nuer, a Description of the Modes of Livelihood and Political Institutions of a Nilotic People*. Oxford: Oxford University Press.
- Fairhead, James, and Melissa Leach. 1996. *Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic*. Cambridge: Cambridge University Press.
- Farquharson, Louise M., Vladimir E. Romanovsky, William L. Cable, Donald A. Walker, Steven Kokelj, and Dimitry Nicolsky. 2019. "Climate Change Drives Widespread and Rapid Thermokarst Development in Very Cold Permafrost in the Canadian High Arctic." *Geophysical Research Letters*, June.
- Feeley, Kenneth J., and Miles R. Silman. 2010. "Land-Use and Climate Change Effects on Population Size and Extinction Risk of Andean Plants." *Global Change Biology* 16 (12): 3215–22.
- Feeley, Kenneth J., Miles R. Silman, Mark B. Bush, William Farfan, Karina Garcia Cabrera, Yadvinder Malhi, Patrick Meir, Norma Salinas Revilla, Mireya Natividad Raurau

- Quisiyupanqui, and Sassan Saatchi. 2011. "Upslope Migration of Andean Trees." *Journal of Biogeography* 38 (4): 783–91.
- Feeley-Harnik, Gillian. 1999. "'Communities of Blood': The Natural History of Kinship in Nineteenth-Century America." *Comparative Studies in Society and History* 41 (2): 215–62.
- . 2004. "The Geography of Descent." *Proceedings of the British Academy* 125: 311–64.
- Feeny, David, Fikret Berkes, Bonnie J. McCay, and James M. Acheson. 1990. "The Tragedy of the Commons: Twenty-Two Years Later." *Human Ecology* 18 (1): 1–19.
- Feld, Steven, and Keith H. Basso. 1996. *Senses of Place*. Santa Fe: School of American Research Press.
- Ferguson, James. 1994. *The Anti-Politics Machine: Development, Depoliticization, and Bureaucratic Power in Lesotho*. Minneapolis: University of Minnesota Press.
- Fernández-Giménez, Maria E. 2000. "The Role of Mongolian Nomadic Pastoralists' Ecological Knowledge in Rangeland Management." *Ecological Applications* 10 (5): 1318–26.
- Finer, Matt, and Clinton N. Jenkins. 2012. "Proliferation of Hydroelectric Dams in the Andean Amazon and Implications for Andes-Amazon Connectivity." *PLoS ONE* 7 (4): e35126.
- Fiske, Shirley J., Susan Crate, Carole L. Crumley, Kathleen A. Galvin, Heather Lazrus, Lisa J. Lucero, Anthony Oliver-Smith, Benjamin S. Orlove, Sarah Strauss, and Richard Wilk. 2014. "Changing the Atmosphere: Anthropology and Climate Change. Final Report of the AAA Global Climate Change Task Force." Arlington: American Anthropological Association.
- Flannery, Kent V., Joyce Marcus, and Robert G. Reynolds. 1989. *The Flocks of the Wamani: A Study of Llama Herders on the Punas of Ayacucho, Peru*. Walnut Creek: Left Coast Press.
- Flintan, Fiona. 2010. "Sitting at the Table: Securing Benefits for Pastoral Women from Land Tenure Reform in Ethiopia." *Journal of Eastern African Studies* 4 (1): 153–78.
- Flores Martínez, Arturo. 2005. "Manual de Pastos y Forrajes Altoandinos." Lima, Peru: Intermediate Technology Development Group (ITDG-Peru), OIKOS.
- Flores Moreno, A. 2014. "La Reciprocidad Puesta a Prueba. Hacia Una Fenomenología Social Del Cambio Climático En Sociedades Pastoriles Del Sur Andino Peruano." *Estudios de Filosofía* 13: 55–82.
- Flores Ochoa, Jorge. 1968. *Los Pastores de Paratía; Una Introducción a Su Estudio*. México: Instituto Indigenista Interamericano.
- . 1974. "Enqa, Enqaychu Illa y Khuya Rumi: Aspectos Mágico-Religiosos Entre Pastores." *Journal de La Société Des Américanistes* 63 (1): 245–62.
- . 1977. *Pastores de Puna: Uywamichiq Punarunakuna*. Lima: Instituto de Estudios Peruanos.
- . 1986. "The Classification and Naming of South American Camelids." In *Anthropological History of Andean Politics*, edited by John V. Murra, Nathan Wachtel, and Jacques Revel, 137–48. Cambridge: Cambridge University Press.
- Flores Ochoa, Jorge, and Yoshiki Kobayashi, eds. 2000. *Pastoreo altoandino: realidad, sacralidad y posibilidades*. La Paz: Plural Ed.
- Ford, James D., Laura Cameron, Jennifer Rubis, Michelle Maillet, Douglas Nakashima, Ashlee Cunsolo Willox, and Tristan Pearce. 2016. "Including Indigenous Knowledge and Experience in IPCC Assessment Reports." *Nature Climate Change* 6 (4): 349–53.

- Fortun, Kim, and Mike Fortun. 2005. "Scientific Imaginaries and Ethical Plateaus in Contemporary U.S. Toxicology." *American Anthropologist* 107 (1): 43–54.
- Foucault, Michel. 1990. *The History of Sexuality*. New York: Random House.
- . 2010. *The Birth of Biopolitics: Lectures at the Collège de France, 1978-1979*. First edition. New York: Picador.
- Franklin, Sarah. 2007. *Dolly Mixtures: The Remaking of Genealogy*. Durham: Duke University Press Books.
- Fratkin, Elliot. 1997. "Pastoralism: Governance and Development Issues." *Annual Review of Anthropology* 26 (January): 235–61.
- Fratkin, Elliot, and Kevin Smith. 1995. "Women's Changing Economic Roles with Pastoral Sedentarization: Varying Strategies in Alternate Rendille Communities." *Human Ecology* 23 (4): 433–54.
- Furusa, Zanele, and Munashe Furusa. 2014. "Women's Coping and Adaptation Capacities in Pastoralist Communities in Africa: Dealing with Climate Variability and Change." *Agenda* 28 (3): 65–72.
- Fust, Pascal, and Eva Schlecht. 2018. "Integrating Spatio-Temporal Variation in Resource Availability and Herbivore Movements into Rangeland Management: RaMDry—An Agent-Based Model on Livestock Feeding Ecology in a Dynamic, Heterogeneous, Semi-Arid Environment." *Ecological Modelling* 369 (C): 13–41.
- Galaty, John G., and Douglas L. Johnson. 1990. *The World of Pastoralism: Herding Systems in Comparative Perspective*. New York: Guilford Press.
- Gallopín, Gilberto C. 2006. "Linkages between Vulnerability, Resilience, and Adaptive Capacity." *Global Environmental Change* 16 (3): 293–303.
- Galvin, Kathleen A. 2009. "Transitions: Pastoralists Living with Change." *Annual Review of Anthropology* 38 (1): 185–98.
- Galvin, Kathleen A., Jim Ellis, Roy Behnke, N. Thompson Hobbs, and Robin S. Reid. 2007. *Fragmentation in Semi-Arid and Arid Landscapes: Consequences for Human and Natural Systems*. Dordrecht: Springer.
- Gammeltoft, Tine M. 2014. "Toward an Anthropology of the Imaginary: Specters of Disability in Vietnam." *Ethos* 42 (2): 153–74.
- Geertz, Clifford. 1973. *The Interpretation of Cultures: Selected Essays*. New York: Basic Books.
- . 1983. "'From the Native's Point of View': On the Nature of Anthropological Understanding." In *Local Knowledge: Further Essays in Interpretive Anthropology*, 55–72. New York: Basic Books.
- Gell, Alfred. 1998. *Art and Agency: An Anthropological Theory*. Oxford: Clarendon Press.
- Gershon, Ilana. 2011. "'Neoliberal Agency.'" *Current Anthropology* 52 (4): 537–55.
- Gil Montero, Raquel. 2009. "Mountain Pastoralism in the Andes during Colonial Times." *Nomadic Peoples* 13 (2): 36–50.
- Global Drylands Imperative. 2003. "Pastoralism and Mobility in the Drylands. Challenge Paper Series." New York: United Nations Development Program (UNDP).
- Göbel, Barbara. 2002. "La Arquitectura Del Pastoreo: Uso Del Espacio y Sistema de Asentamientos En La Puna de Atacama (Susques)." *Estudios Atacameños*, no. 23 (January): 53–76.
- Goffman, Erving. 1981. *Forms of Talk*. Philadelphia: University of Pennsylvania Press.
- . 1983. "The Interaction Order: American Sociological Association, 1982 Presidential Address." *American Sociological Review* 48: 1–17.

- Govindrajan, Radhika. 2018. *Animal Intimacies: Interspecies Relatedness in India's Central Himalayas*. Chicago: University of Chicago Press.
- Graeber, David. 2015. "Radical Alterity Is Just Another Way of Saying 'Reality': A Reply to Eduardo Viveiros de Castro." *HAU: Journal of Ethnographic Theory* 5 (2): 1–41.
- Grasseni, Cristina. 2009a. *Developing Skill, Developing Vision: Practices of Locality at the Foot of the Alps*. Oxford: Berghahn Books.
- , ed. 2009b. *Skilled Visions: Between Apprenticeship and Standards*. 1st edition. Oxford: Berghahn Books.
- Gupta, Akhil. 1998. *Postcolonial Developments: Agriculture in the Making of Modern India*. Writing in Book edition. Durham: Duke University Press Books.
- Hallowell, A. Irving. 1960. "Ojibwa Ontology, Behavior, and World View." In *Culture in History: Essays in Honor of Paul Radin*, edited by Stanley Diamond, 19–52. New York: Columbia University Press.
- Han, Clara. 2018. "Precarity, Precariousness, and Vulnerability." *Annual Review of Anthropology* 47 (1): 331–43.
- Hansen, Thomas Blom, and Finn Stepputat. 2001. *States of Imagination: Ethnographic Explorations of the Postcolonial State*. Duke University Press.
- Hanshaw, Maiana N., and Bodo Bookhagen. 2014. "Glacial Areas, Lake Areas, and Snow Lines from 1975 to 2012: Status of the Cordillera Vilcanota, Including the Quelccaya Ice Cap, Northern Central Andes, Peru." *The Cryosphere; Katlenburg-Lindau* 8 (2): 359.
- Haraway, Donna. 1988. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14 (3): 575–99.
- . 1997. *Modest-Witness@Second-Millennium.FemaleMan-Meets-OncoMouse: Feminism and Technoscience*. London: Psychology Press.
- . 2008. *When Species Meet*. Minneapolis: University of Minnesota Press.
- . 2015. "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin." *Environmental Humanities* 6 (1): 159–65.
- . 2016. *Staying with the Trouble: Making Kin in the Chthulucene*. First Edition edition. Durham: Duke University Press Books.
- Hardin, Garrett. 1968. "The Tragedy of the Commons." *Science* 162 (3859): 1243–48.
- Harris, Marvin. 1966. "The Cultural Ecology of India's Sacred Cattle." *Current Anthropology* 33 (1): 261–76.
- Harris, Olivia. 2000. *To Make the Earth Bear Fruit: Essays on Fertility, Work and Gender in Highland Bolivia*. London: Institute of Latin American Studies.
- . 2009. "Alterities: Kinship and Gender." In *A Companion to Latin American Anthropology*, edited by Deborah Poole, 276–302. Oxford: Blackwell Publishing Ltd.
- Harvey, David. 2005. *A Brief History of Neoliberalism*. Oxford: Oxford University Press.
- Harvey, Penelope. 2007. "Arresting Mobility or Locating Expertise: 'Globalisation' and the 'Knowledge Society.'" In *Holding Worlds Together: Ethnographies of Knowing and Belonging*. New York: Berghahn Books.
- Harvey, Penelope, and Hannah Knox. 2015. *Roads: An Anthropology of Infrastructure and Expertise*. Expertise: Cultures and Technologies of Knowledge. Ithaca; London: Cornell University Press.
- Haylock, Malcolm R., Thomas C. Peterson, Lincoln M. Alves, Tércio Ambrizzi, Y. M. T. Anunciação, J. Baez, V. R. Barros, et al. 2006. "Trends in Total and Extreme South

- American Rainfall in 1960-2000 and Links with Sea Surface Temperature.” *Journal of Climate*; Boston 19 (8): 1490–1512.
- Heckman, Andrea M. 2003. *Woven Stories: Andean Textiles and Rituals*. 1st edition. Albuquerque: University of New Mexico Press.
- Helmreich, Stefan. 2009. *Alien Ocean: Anthropological Voyages in Microbial Seas*. Berkeley: University of California Press.
- Henare, Amiria, Martin Holbraad, and Sari Wastell, eds. 2006. *Thinking Through Things*. London; New York: Routledge.
- Hill, Michael Douglas. 2013. “Growing up Quechua: Ethnic Identity, Narrative, and the Cultural Politics of Childhood Migration in Cusco, Peru.” *Childhood* 20 (3): 383–97.
- Hinkson, Melinda. 2017. “Precarious Placemaking.” *Annual Review of Anthropology* 46 (1): 49–64.
- Hobbs, N. Thompson, Kathleen A. Galvin, Chris J. Stokes, Jill M. Lockett, Andrew J. Ash, Randall B. Boone, Robin S. Reid, and Philip K. Thornton. 2008. “Fragmentation of Rangelands: Implications for Humans, Animals, and Landscapes.” *Global Environmental Change*, Local evidence on vulnerabilities and adaptations to global environmental change, 18 (4): 776–85.
- Hodgson, Dorothy L. 2001. *Rethinking Pastoralism In Africa: Gender, Culture, and the Myth of the Patriarchal Pastoralist*. 1st edition. Oxford; Kampala; Nairobi: Ohio University Press.
- . 2004. *Once Intrepid Warriors: Gender, Ethnicity, and the Cultural Politics of Maasai Development*. Bloomington: Indiana University Press.
- Hoffman, Lisa, Monica DeHart, and Stephen J. Collier. 2006. “Notes on the Anthropology of Neoliberalism.” *Anthropology News* 47 (6): 9–10.
- Hole, David, Kenneth Young, Anton Seimon, Carla Gomez Wichtendal, Dirk Hoffmann, Klaus Schutze Paez, Silvia Sanchez, Douglas Muchoney, H. Ricardo Grau, and Edson Ramirez. 2011. “Adaptive Management for Biodiversity Conservation under Climate Change—A Tropical Andean Perspective.” In *Climate Change and Biodiversity in the Tropical Andes*, edited by Sebastian Herzog, Rodney Martínez, Peter M. Jørgensen, and Holm Tiessen. San Jose dos Campos; Paris: Inter-American Institute for Global Change Research (IAI) and Scientific Committee on Problems of the Environment (SCOPE).
- Huggel, Christian, Marlene Scheel, Franziska Albrecht, Norina Andres, Pierluigi Calanca, Christine Jurt, Nikolay Khabarov, et al. 2015. “A Framework for the Science Contribution in Climate Adaptation: Experiences from Science-Policy Processes in the Andes.” *Environmental Science & Policy* 47 (March): 80–94.
- Huss, Matthias, Bodo Bookhagen, Christian Huggel, Dean Jacobsen, R.S. Bradley, J.J. Clague, M. Vuille, et al. 2017. “Toward Mountains without Permanent Snow and Ice.” *Earth’s Future* 5 (5): 418–35.
- Infoalpacas. n.d. “Mujeres alpaqueras.” *Infoalpacas* (blog). Accessed January 2, 2019. <http://infoalpacas.com.pe/mujeres-alpaqueras/>.
- Ingold, Tim. 1994. “From Trust to Domination: An Alternative History of Human-Animal Relations.” In *Animals and Human Society*, edited by Aubrey Manning and James Serpell, 1–22. London; New York: Routledge.
- . 2000. *The Perception of the Environment Essays on Livelihood, Dwelling and Skill*. London; New York: Routledge.

- Irwin, Alan. 1995. *Citizen Science: A Study of People, Expertise and Sustainable Development*. London: Psychology Press.
- Isbell, Billie Jean. 1985. *To Defend Ourselves: Ecology and Ritual in an Andean Village*. Prospect Heights: Waveland Press.
- Jaffe, Alexandra. 2009. *Stance: Sociolinguistic Perspectives*. Oxford: Oxford University Press.
- Jasanoff, Sheila. 2010. "A New Climate for Society." *Theory, Culture & Society* 27 (2–3): 233–53.
- Kadwell, Miranda, Matilde Fernandez, Helen F. Stanley, Ricardo Baldi, Jane C. Wheeler, Raul Rosadio, and Michael W. Bruford. 2001. "Genetic Analysis Reveals the Wild Ancestors of the Llama and the Alpaca." *Proceedings of the Royal Society B: Biological Sciences* 268 (1485): 2575–84.
- Kerke, Simon van de, and Pieter Muysken. 1990. "Quechua Mu and the Perspective of the Speaker." In *Unity in Diversity: Papers Presented to Simon C. Dik on His 50th Birthday*, 151–63. Berlin: Walter de Gruyter.
- Khazanov, Anatoly M. 1994. *Nomads and the Outside World*. Madison: University of Wisconsin Press.
- Kingfisher, Catherine, and Jeff Maskovsky. 2008. "Introduction: The Limits of Neoliberalism." *Critique of Anthropology* 28 (2): 115–26.
- Kirksey, S. Eben, and Stefan Helmreich. 2010. "The Emergence of Multispecies Ethnography." *Cultural Anthropology* 25 (4): 545–76.
- Kirsch, Stuart. 2004. "Changing Views of Place and Time Along the Ok Tedi." In *Mining and Indigenous Lifeworlds in Australia and Papua New Guinea*, edited by Alan Rumsey and James Weiner, 182–207. Oxon: Sean Kingston Publishing.
- . 2006. *Reverse Anthropology: Indigenous Analysis of Social and Environmental Relations in New Guinea*. 1st edition. Stanford: Stanford University Press.
- Kohn, Eduardo. 2007. "How Dogs Dream: Amazonian Natures and the Politics of Transspecies Engagement." *American Ethnologist* 34 (1): 3–24.
- . 2013. *How Forests Think: Toward an Anthropology Beyond the Human*. Oakland: University of California Press.
- Kosek, Jake. 2006. *Understories: The Political Life of Forests in Northern New Mexico*. Durham: Duke University Press Books.
- . 2010. "Ecologies of Empire: On the New Uses of the Honeybee." *Cultural Anthropology* 25 (4): 650–78.
- Krause, Franz. 2017. "Rhythms of Wet and Dry: Temporalising the Land-Water Nexus." *Geoforum*, December.
- Kronenberg, Marlene, Simone Schauwecker, Christian Huggel, Nadine Salzmann, Fabian Drenkhan, Holger Frey, Claudia Giraáldez, et al. 2016. "The Projected Precipitation Reduction over the Central Andes May Severely Affect Peruvian Glaciers and Hydropower Production." *Energy Procedia* 97 (November): 270–77.
- Kuper, Adam. 1982. *Wives for Cattle: Bridewealth and Marriage in Southern Africa*. International Library of Anthropology. London; Boston: Routledge & Kegan Paul.
- La Freniere, Jeff, and Bryan G. Mark. 2014. "A Review of Methods for Estimating the Contribution of Glacial Meltwater to Total Watershed Discharge." *Progress in Physical Geography* 38 (2): 173–200.
- Laidlaw, James. 2012. "Ontologically Challenged." *Anthropology of This Century*, no. 4.

- Laidlaw, James, and Paolo Heywood. 2013. "One More Turn and You're There." *Anthropology of This Century*, no. 7.
- Larsen, Trond, Gunnar Brehm, Hugo Navarrete, Padu Franco, Gomez Gomez, José Luis Mena, Victor Morales, Jaime Argollo, Luis Blacutt, and Vanderlei Canhos. 2011. "Range Shifts and Extinctions Driven by Climate Change in the Tropical Andes: Synthesis and Directions." In *Climate Change and Biodiversity in the Tropical Andes*, edited by Sebastian Herzog, Rodney Martínez, Peter M. Jørgensen, and Holm Tiessen, 47–67. Inter-American Institute for Global Change Research (IAI) and Scientific Committee on Problems of the Environment (SCOPE).
- Latour, Bruno. 1993. *We Have Never Been Modern*. Cambridge: Harvard University Press.
- . 1998. "Essays on Science and Society: From the World of Science to the World of Research?" *Science* 280 (5361): 208–9.
- . 2009. "Perspectivism: 'Type' or 'Bomb'?" *Anthropology Today* 25 (2): 1–2.
- Latour, Bruno, and Steve Woolgar. 1986. *Laboratory Life: The Construction of Scientific Facts, 2nd Edition*. 2nd edition. Princeton: Princeton University Press.
- Law, John, and Marianne Elisabeth Lien. 2013. "Slippery: Field Notes in Empirical Ontology." *Social Studies of Science* 43 (3): 363–78.
- Leinawever, Jessaca. 2005. "Familiar Ways: Child Circulation in Andean Peru." Ph.D. Dissertation, Ann Arbor: University of Michigan.
- . 2008. "Improving Oneself: Young People Getting Ahead in the Peruvian Andes." *Latin American Perspectives* 35 (4): 60–78.
- . 2009. "Raising the Roof in the Transnational Andes: Building Houses, Forging Kinship." *Journal of the Royal Anthropological Institute* 15 (4): 777–96.
- Lemos, Maria Carmen, Emily Boyd, Emma Tompkins, Henny Osbahr, and Diana Liverman. 2007. "Developing Adaptation and Adapting Development." *Ecology and Society* 12 (2).
- Leonard, Sonia, Meg Parsons, Knut Olawsky, and Frances Kofod. 2013. "The Role of Culture and Traditional Knowledge in Climate Change Adaptation: Insights from East Kimberley, Australia." *Global Environmental Change* 23 (3): 623–32.
- Livingston, Julie, and Jasbir K. Puar. 2011. "Interspecies." *Social Text* 29 (1): 3–14.
- Low, Setha M., and Denise Lawrence-Zúñiga. 2003. *Anthropology of Space and Place: Locating Culture*. Hoboken: Wiley.
- Lowe, Celia. 2010. "Viral Clouds: Becoming H5N1 in Indonesia." *Cultural Anthropology* 25 (4): 625–49.
- Loza Herrera, Susi, Rosa Meneses, and Fabien Anthelme. 2015. "Comunidades Vegetales de Los Bofedales de La Cordillera Real (Bolivia) Bajo El Calentamiento Global." *Ecología En Bolivia* 50 (1): 39–56.
- Lutz, David A., Rebecca L. Powell, and Miles R. Silman. 2013. "Four Decades of Andean Timberline Migration and Implications for Biodiversity Loss with Climate Change." *PloS One* 8 (9): e74496.
- Maldonado Fonkén, Mónica Sofía. 2014. "An Introduction to the Bofedales of the Peruvian High Andes." *Mires and Peat* 15 (5): 1–13.
- Maldonado, Julie Koppel, Christine Shearer, Robin Bronen, Kristina Peterson, and Heather Lazrus. 2013. "The Impact of Climate Change on Tribal Communities in the US: Displacement, Relocation, and Human Rights." *Climatic Change* 120 (3): 601–14.
- Mallon, Florencia E. 1987. "Patriarchy in the Transition to Capitalism: Central Peru, 1830-1950." *Feminist Studies* 13 (2): 379–407.

- Mannheim, Bruce. Forthcoming. "Southern Quechua Ontology." In *Sacred Matter: Animism and Authority in the Americas*, edited by Steven Kosiba, Thomas Cummins, and John Janusek. Cambridge: Harvard University Press for Dumbarton Oaks.
- . 1986. "The Language of Reciprocity in Southern Peruvian Quechua." *Anthropological Linguistics* 28 (3): 267–273.
- . 1991. *The Language of the Inka since the European Invasion*. Texas Linguistics Series. Austin: University of Texas Press.
- Mannheim, Bruce, and Guillermo Salas Carreño. 2014. "Wak'as: Entifications of the Andean Sacred." In *The Archeology of Wak'as: Explorations of the Sacred in the Pre-Columbian Andes*, edited by Tamara Bray, 47–74. Boulder: University Press of Colorado.
- Mark, Bryan G., Geoffrey O. Seltzer, Donald T. Rodbell, and Adam Y. Goodman. 2002. "Rates of Deglaciation during the Last Glaciation and Holocene in the Cordillera Vilcanota-Quelccaya Ice Cap Region, Southeastern Perú." *Quaternary Research* 57 (3): 287–98.
- Maxwell, Keely. 2011. "Beyond Verticality: Fuelscape Politics and Practices in the Andes." *Human Ecology* 39 (4): 465–78.
- Mayer, Enrique. 2002. *The Articulated Peasant : Household Economies in the Andes*. Boulder: Westview Press.
- McCay, Bonnie J., and James M. Acheson. 1990. *The Question of the Commons: The Culture and Ecology of Communal Resources*. Tucson: University of Arizona Press.
- McConnell, Patricia B., and Jeffrey R. Baylis. 1985. "Interspecific Communication in Cooperative Herding: Acoustic and Visual Signals from Human Shepherds and Herding Dogs." *Zeitschrift Für Tierpsychologie* 67 (1–4): 302–28.
- Mengoni Goñalons, Guillermo Luis. 2008. "Camelids in Ancient Andean Societies: A Review of the Zooarchaeological Evidence." *Quaternary International*, Contributions to Latin American Zooarchaeology in Honour of Oscar J. Polaco, Fryxell Award recipient for Interdisciplinary Research, 185 (1): 59–68.
- Mitchell, Timothy. 2002. *Rule of Experts: Egypt, Techno-Politics, Modernity*. Berkeley: University of California Press.
- Mol, Annemarie. 2003. *The Body Multiple: Ontology in Medical Practice*. Durham: Duke University Press.
- Moran-Thomas, Amy. 2016. "Animate Thresholds: Metabolic Disarray and Planetary Health in a Small Place." presented at the Food's Entanglements with Life Workshop, Oslo, Norway, September 5.
- Moritz, Mark, Ian M. Hamilton, Andrew J. Yoak, Paul Scholte, Jeff Cronley, Paul Maddock, and Hongyang Pi. 2015. "Simple Movement Rules Result in Ideal Free Distribution of Mobile Pastoralists." *Ecological Modelling* 305 (June): 54–63.
- Moritz, Mark, Paul Scholte, Ian M. Hamilton, and Saïdou Kari. 2013. "Open Access, Open Systems: Pastoral Management of Common-Pool Resources in the Chad Basin." *Human Ecology* 41 (3): 351–65.
- Moritz, Mark, Eric Soma, Paul Scholte, Ningchuan Xiao, Leah Taylor, Todd Juran, and Saïdou Kari. 2010. "An Integrated Approach to Modeling Grazing Pressure in Pastoral Systems: The Case of the Logone Floodplain (Cameroon)." *Human Ecology* 38 (6): 775–89.
- Morueta-Holme, Naia, Kristine Engemann, Pablo Sandoval-Acuña, Jeremy D. Jonas, R. Max Segnitz, and Jens-Christian Svenning. 2015. "Strong Upslope Shifts in Chimborazo's Vegetation over Two Centuries since Humboldt." *Proceedings of the National Academy of Sciences* 112 (41): 12741.

- Mullin, Molly. 2002. "Animals and Anthropology." *Society and Animals* 10 (4): 387–394.
- Murra, John V. 1972. "El 'Control Vertical' de Un Máximo de Pisos Ecológicos En La Economía de Las Sociedades Andina." In *Visita de La Provincia de León de Huánuco En 1562*, edited by J. V. Murra, 427–76. Huánuco: Universidad Nacional Hermilio Valdizán.
- Nachtigall, Horst. 1965. "Beiträge Zur Kultur Der Indianischen Lamazüchter Der Puna de Atacama (Nordwest-Argentinien)." *Zeitschrift Für Ethnologie* Bd. 90, H. 2: 184–218.
- Nadasdy, Paul. 2007. "The Gift in the Animal: The Ontology of Hunting and Human?Animal Sociality." *American Ethnologist* 34 (1): 25–43.
- Nading, Alex M. 2012. "Dengue Mosquitoes Are Single Mothers: Biopolitics Meets Ecological Aesthetics in Nicaraguan Community Health Work." *Cultural Anthropology* 27 (4): 572–96.
- . 2013. "Humans, Animals, and Health: From Ecology to Entanglement." *Environment and Society: Advances in Research* 4 (1): 60–78.
- Neale, Timothy, and Eve Vincent. 2017. "Mining, Indigeneity, Alterity: Or, Mining Indigenous Alterity?" *Cultural Studies* 31 (2–3): 417–39.
- Neukom, Raphael, Mario Rohrer, Pierluigi Calanca, Nadine Salzmänn, Christian Huggel, Delia Acuña, Duncan Christie, and Mariano Morales. 2015. "Facing Unprecedented Drying of the Central Andes? Precipitation Variability over the Period AD 1000–2100." *Environmental Research Letters* 10 (8): 084017.
- Nozières, M O, C H Moulin, and B Dedieu. 2011. "The Herd, a Source of Flexibility for Livestock Farming Systems Faced with Uncertainties?" *Animal* 5 (09): 1442–57.
- Nuckolls, Janis B. 1996. *Sounds Like Life: Sound-Symbolic Grammar, Performance, and Cognition in Pastaza Quechua*. 1st edition. New York: Oxford University Press.
- . 2010. "The Sound-Symbolic Expression of Animacy in Amazonian Ecuador." *Diversity* 2 (3): 353–69.
- Ochs, Elinor. 2018. "The Biopolitics of Baby Talk." presented at the The Michigan Anthropology Colloquia, The University of Michigan, October 18.
- Ogden, Laura A. 2011. *Swamplife: People, Gators, and Mangroves Entangled in the Everglades*. Minneapolis: University Of Minnesota Press.
- Orlove, Benjamin. 1977a. *Alpacas, Sheep, and Men : The Wool Export Economy and Regional Society of Southern Peru*. New York: Academic Press.
- . 1977b. "Integration through Production: The Use of Zonation in Espinar1." *American Ethnologist* 4 (1): 84–101.
- . 1982. "Native Andean Pastoralists: Traditional Adaptations and Recent Changes." In *Contemporary Nomadic and Pastoral Peoples: Africa and Latin America.*, edited by Philip Carl Salzman, Studies in Third World Societies No. 17. Williamsburg: Department of Anthropology, College of William and Mary.
- . 1985. "The History of the Andes: A Brief Overview." *Mountain Research and Development* 5 (1): 45–60.
- . 1993. "Putting Race in Its Place: Order in Colonial and Postcolonial Peruvian Geography." *Social Research*, 301–336.
- . 1998. "Down to Earth: Race and Substance in the Andes." *Bulletin of Latin American Research* 17 (2): 207–222.
- . 2002. *Lines in the Water: Nature and Culture at Lake Titicaca*. Berkeley: University of California Press.

- . 2005. “Human Adaptation to Climate Change: A Review of Three Historical Cases and Some General Perspectives.” *Environmental Science & Policy* 8 (6): 589–600.
- . 2009. “The Past, the Present and Some Possible Futures of Adaptation.” In *Adapting to Climate Change: Thresholds, Values, Governance*, edited by W. Neil Adger, I. Lorenzoni, and K. O’Brien, 131–63. Cambridge: Cambridge University Press.
- Orlove, Benjamin, John Chiang, and Mark Cane. 2002. “Ethnoclimatology in the Andes A Cross-Disciplinary Study Uncovers a Scientific Basis for the Scheme Andean Potato Farmers Traditionally Use to Predict the Coming Rains.” *American Scientist* 90 (5): 428–35.
- Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. 1st edition. Cambridge; New York: Cambridge University Press.
- . 1999a. “Coping with Tragedies of the Commons.” *Annual Review of Political Science* 2 (1): 493–535.
- . 1999b. “Revisiting the Commons: Local Lessons, Global Challenges.” *Science* 284 (5412): 278–82.
- Paerregaard, Karsten. 2012. “Commodifying Intimacy: Women, Work, and Care in Peruvian Migration.” *The Journal of Latin American and Caribbean Anthropology* 17 (3): 493–511.
- . 2013. “Bare Rocks and Fallen Angels: Environmental Change, Climate Perceptions and Ritual Practice in the Peruvian Andes.” *Religions* 4 (2): 290–305.
- . 2017. “Ayni Unbounded: Cooperation, Inequality, and Migration in the Peruvian Andes.” *The Journal of Latin American and Caribbean Anthropology* 22 (3): 459–74.
- Palacios Ríos, Félix. 1977. “... *Hiwasaha Uywa Uywataña, Uka Uywaha Hiwasaru Uyusitu*”: *Los Pastores Aymara de Chichillapi*. Lima: Pontificia Universidad Católica del Perú, Programa de Perfeccionamiento en Ciencias Sociales.
- Palacios Ríos, Felix. 1981. “Tecnología Del Pastoreo.” In *La Tecnología En El Mundo Andino*, edited by Heather Lechtman and Ana María Soldi, 217–32. México: UNAM.
- . 1982. “El Simbolismo Aymara de La Casa.Doc.” *Boletín Del Instituto de Estudios Aymaras* 2 (12): 37–57.
- Palomino Flores, Salvador. 1984. *El Sistema de Oposiciones En La Comunidad de Sarhua*. Lima: Editorial Pueblo Indio.
- Paulson, Susan. 2003. “Gendered Practices and Landscapes in the Andes: The Shape of Asymmetrical Exchanges.” *Human Organization* 62 (3): 242–54.
- Paxson, Heather. 2008. “Post-Pasteurian Culture: The Microbiopolitics of Raw-Milk Cheese in the United States.” *Cultural Anthropology* 23 (1): 15–47.
- Peloquin, Claude, and Fikret Berkes. 2009. “Local Knowledge, Subsistence Harvests, and Social–Ecological Complexity in James Bay.” *Human Ecology* 37 (5): 533–45.
- Pepin, Nicolas, Raymond S. Bradley, H. F. Diaz, M. Baraer, E. B. Caceres, N. Forsythe, H. Fowler, et al. 2015. “Elevation-Dependent Warming in Mountain Regions of the World.” *Nature Climate Change* 5 (5): 424–30.
- Perry, Baker, Anton Seimon, Marcos F. Andrade-Flores, Jason L. Endries, Sandra E. Yuter, Fernando Velarde, Sandro Arias, et al. 2017. “Characteristics of Precipitating Storms in Glacierized Tropical Andean Cordilleras of Peru and Bolivia.” *Annals of the American Association of Geographers* 107 (2): 309–22.

- Perry, Baker, Anton Seimon, and Ginger Kelly. 2014. "Precipitation Delivery in the Tropical High Andes of Southern Peru: New Findings and Paleoclimatic Implications." *International Journal of Climatology* 34 (1): 197–215.
- Polk, Molly H., Kenneth R. Young, Michel Baraer, Bryan G. Mark, Jeffrey M. McKenzie, Jeffrey Bury, and Mark Carey. 2017. "Exploring Hydrologic Connections between Tropical Mountain Wetlands and Glacier Recession in Peru's Cordillera Blanca." *Applied Geography* 78 (January): 94–103.
- Poole, Deborah. 1997. *Vision, Race, and Modernity: A Visual Economy of the Andean World*. Princeton: Princeton University Press.
- Poremba, Richard, Baker Perry, Anton Seimon, Daniel Martin, and Alfredo Tupayachi. 2015. "Meteorological Characteristics of Heavy Snowfall in the Cordillera Vilcanota, Peru." In . 72nd Eastern Snow Conference, Sherbrooke, Québec, Canada.
- Porter, Natalie, and Ilana Gershon. 2018. *Living with Animals, Bonds across Species*. Ithaca: Cornell University Press.
- Postigo, Julio. 2012. "Responses of Plants, Pastoralists, and Governments to Social Environmental Changes in the Peruvian Southern Andes." Ph.D. Dissertation, University of Texas, Austin.
- . 2013. "Adaptation of Andean Herders to Political and Climatic Changes." In *Continuity and Change in Cultural Adaptation to Mountain Environments*, edited by Ludomir Lozny, 229–58. Studies in Human Ecology and Adaptation 7. New York: Springer.
- Postigo, Julio, Kenneth Young, and Kelley Crews. 2008. "Change and Continuity in a Pastoralist Community in the High Peruvian Andes." *Human Ecology* 36 (4): 535–51.
- Povinelli, Elizabeth A. 1995. "Do Rocks Listen?" *American Anthropologist* 97 (3): 505–518.
- . 2001. "Radical Worlds: The Anthropology of Incommensurability and Inconceivability." *Annual Review of Anthropology*, 319–334.
- Premack, David, and Guy Woodruff. 1978. "Does the Chimpanzee Have a Theory of Mind?" *Behavioral and Brain Sciences* 1 (4): 515–26.
- Pribilsky, Jason. 2007. *La Chulla Vida: Gender, Migration, and the Family in Andean Ecuador and New York City*. Gender and Globalization, xxi, 336 p. Syracuse: Syracuse University Press.
- Pyhälä, Aili, Álvaro Fernández-Llamazares, Hertta Lehvävirta, Anja Byg, Isabel Ruiz-Mallén, Matthieu Salpeteur, and Thomas F. Thornton. 2016. "Global Environmental Change: Local Perceptions, Understandings, and Explanations." *Ecology & Society* 21 (3): 676–704.
- Rabatel, Antoine, Bernard Francou, Álvaro Soruco, J. Gomez, B. Cáceres, J. L. Ceballos, R. Basantes, et al. 2013. "Current State of Glaciers in the Tropical Andes: A Multi-Century Perspective on Glacier Evolution and Climate Change." *The Cryosphere* 7 (1): 81–102.
- Rabey, Mario A. 1989. "Are Llama-Herders in the South Central Andes True Pastoralists?" In *The Walking Larder: Patterns of Domestication, Pastoralism, and Predation*, edited by Juliet Clutton-Brock, 269–75. London: Unwin Hyman.
- Rader, Karen Ann. 2004. *Making Mice: Standardizing Animals for American Biomedical Research, 1900-1955*. Princeton: Princeton University Press.
- Rado Janzic, Bryan Edmundo. 2011. "Etnobotánica Del Distrito de Ocongate - Quispicanchi - Cusco." Cusco: Universidad Nacional de San Antonio Abad del Cusco.
- Raffles, Hugh. 1999. "'Local Theory': Nature and the Making of an Amazonian Place." *Cultural Anthropology* 14 (3): 323–60.

- . 2002. *In Amazonia: A Natural History*. Princeton: Princeton University Press.
- Rangwala, Imtiaz, and James R. Miller. 2012. "Climate Change in Mountains: A Review of Elevation-Dependent Warming and Its Possible Causes." *Climatic Change* 114 (3): 527–47.
- Rappaport, Roy A. 1968. *Pigs for the Ancestors: Ritual in the Ecology of a New Guinea People*. New Haven: Yale University Press.
- Reider, Kelsey. 2018. "Survival at the Summits: Amphibian Responses to Thermal Extremes, Disease, and Rapid Climate Change in the High Tropical Andes." Florida International University.
- Rhoades, Robert. 2000. "Integrating Local Voices and Visions into the Global Mountain Agenda." *Mountain Research and Development* 20 (1): 4–9.
- . 2008. "Desaparición Del Glaciar Mama Cotacachi: Investigación Etnoecológica y Cambio Climático En Los Andes de Ecuador." *Pirineos* 163: 37–50.
- Rhoades, Robert, and Stephen Thompson. 1975. "Adaptive Strategies in Alpine Environments: Beyond Ecological Particularism." *American Ethnologist* 2 (3): 535–51.
- Ricard Lanata, Xavier. 2007. *Ladrones de Sombra: El Universo Religioso de Los Pastores Del Ausangate (Andes Surperuanos)*. Lima; Cuzco: Instituto Francés de Estudios Andinos (IFEA); Centro de Estudios Regionales Andinos Bartolomé de Las Casas.
- Rivera Cusicanqui, Silvia. 2010. "The Notion of 'Rights' and the Paradoxes of Postcolonial Modernity: Indigenous Peoples and Women in Bolivia." *Qui Parle* 18 (2): 29–54.
- Rivière, G. 2002. "Temps, Pouvoir et Société Dans Les Communautés Aymaras de l'altiplano (Bolivie)." In *Entre Ciel et Terre: Climat et Sociétés*, edited by Esther Katz, Annamária Lammel, and Marina Goloubinoff, 357–73. Paris: IRD-IBIS.
- Roberts, Elizabeth. 2012. *God's Laboratory: Assisted Reproduction in the Andes*. Oakland: University of California Press.
- . 2013. "Assisted Existence: An Ethnography of Being in Ecuador." *Journal of the Royal Anthropological Institute* 19 (3): 562–580.
- . 2017. "What Gets Inside: Violent Entanglements and Toxic Boundaries in Mexico City." *Cultural Anthropology* 32 (4): 592–619.
- Rose, Deborah Bird. 2009. "Introduction: Writing in the Anthropocene." *Australian Humanities Review* 49 (87).
- Rose, Nikolas. 1999. *Governing the Soul: The Shaping of the Private Self*. 2nd edition. London: Free Association Books.
- Salas Carreño, Guillermo. 2012. "Negotiating Evangelicalism and New Age Tourism Through Quechua Ontologies in Cuzco, Peru." Ph.D. Dissertation, University of Michigan.
- . 2016. "Places Are Kin: Food, Cohabitation, and Sociality in the Southern Peruvian Andes." *Anthropological Quarterly* 89 (3): 813–840.
- . 2018. "Evangelicalism in the Rural Andes." In *The Andean World*, edited by Linda J. Seligmann and Kathleen S. Fine-Dare, 280–96. New York: Routledge.
- . 2019. *Lugares Parientes: Comida, Cohabitación y Mundos Andinos*. Lima: Pontificia Universidad Católica del Perú.
- Salomon, Frank, and Mercedes Niño-Murcia. 2011. *The Lettered Mountain: A Peruvian Village's Way with Writing*. Durham: Duke University Press.
- Salzman, Philip Carl, and John G. Galaty. 1990. *Nomads in a Changing World*. Istituto universitario orientale.

- Salzmann, N., C. Huggel, M. Rohrer, W. Silverio, B. G. Mark, P. Burns, and C. Portocarrero. 2013. "Glacier Changes and Climate Trends Derived from Multiple Sources in the Data Scarce Cordillera Vilcanota Region, Southern Peruvian Andes." *The Cryosphere* 7 (1): 103–18.
- Salzmann, Nadine, Christian Huggel, M. Rohrer, W. Silverio, B. G. Mark, P. Burns, and C. Portocarrero. 2013. "Glacier Changes and Climate Trends Derived from Multiple Sources in the Data Scarce Cordillera Vilcanota Region, Southern Peruvian Andes." *The Cryosphere* 7 (1): 103–18.
- San Martin, F., and F. C. Bryant. 1989. "Nutrition of Domesticated South American Llamas and Alpacas." *Small Ruminant Research* 2 (3): 191–216.
- Schauwecker, Simone, Mario Rohrer, Christian Huggel, Jason Endries, Nilton Montoya, Raphael Neukom, Baker Perry, Nadine Salzmann, Manfred Schwarb, and Wilson Suarez. 2017. "The Freezing Level in the Tropical Andes, Peru: An Indicator for Present and Future Glacier Extents." *Journal of Geophysical Research: Atmospheres* 122 (10): 5172–89.
- Schlager, Edella, and Elinor Ostrom. 1992. "Property-Rights Regimes and Natural Resources: A Conceptual Analysis." *Land Economics* 68 (3): 249–62.
- Schulz, Karsten A. 2017. "Decolonizing Political Ecology: Ontology, Technology and 'critical' Enchantment." *Journal of Political Ecology* 24 (1): 125.
- Scoones, Ian. 1995. "Exploiting Heterogeneity: Habitat Use by Cattle in Dryland Zimbabwe." *Journal of Arid Environments* 29 (2): 221–37.
- Scoville-Simonds, Morgan. 2018. "Climate, the Earth, and God – Entangled Narratives of Cultural and Climatic Change in the Peruvian Andes." *World Development* 110 (October): 345–59.
- Seiler, Christian, Ronald W. A. Hutjes, and Pavel Kabat. 2012. "Climate Variability and Trends in Bolivia." *Journal of Applied Meteorology and Climatology* 52 (1): 130–46.
- Seimon, Tracie A., Anton Seimon, Peter Daszak, Stephan Halloy, Lisa M. Schloegel, César A. Aguilar, Preston Sowell, Alex D. Hyatt, Bronwen Konecky, and John E. Simmons. 2007. "Upward Range Extension of Andean Anurans and Chytridiomycosis to Extreme Elevations in Response to Tropical Deglaciation." *Global Change Biology* 13 (1): 288–99.
- Seimon, Tracie A., Anton Seimon, Karina Yager, Kelsey Reider, Amanda Delgado, Preston Sowell, Alfredo Tupayachi, Bronwen Konecky, Denise McAloose, and Stephan Halloy. 2017. "Long-Term Monitoring of Tropical Alpine Habitat Change, Andean Anurans, and Chytrid Fungus in the Cordillera Vilcanota, Peru: Results from a Decade of Study." *Ecology and Evolution* 7 (5): 1527–40.
- Seligmann, Linda J. 1993. "Between Worlds of Exchange: Ethnicity among Peruvian Market Women." *Cultural Anthropology* 8 (2): 187–213.
- . 2000. "Market Places, Social Spaces In Cuzco, Peru." *Urban Anthropology and Studies of Cultural Systems and World Economic Development* 29 (1): 1–68.
- Sendón, Pablo F. 2009. "Mountain Pastoralism and Spatial Mobility in the South-Peruvian Andes in the Age of State Formation (1880-1969 and Beyond)." *Nomadic Peoples* 13 (2): 51–64.
- . 2016. *Ayllus Del Ausangate: Parentesco y Organización Social En Los Andes Del Sur Peruano*. Lima: Centro de Estudios Regionales Andinos Bartolome de Las Casas; Instituto de Estudios Peruanos; Pontificia Universidad Católica del Perú.

- Seth, Anji, Jeanne Thibeault, Magali Garcia, and Corinne Valdivia. 2010. "Making Sense of Twenty-First-Century Climate Change in the Altiplano: Observed Trends and CMIP3 Projections." *Annals of the Association of American Geographers* 100 (4): 835–47.
- Silverblatt, Irene. 1987. *Moon, Sun, and Witches: Gender Ideologies and Class in Inca and Colonial Peru*. Princeton: Princeton University Press.
- Silverman, Gail P. 2008. *A Woven Book of Knowledge: Textile Iconography of Cuzco, Peru*. Salt Lake City: University of Utah Press.
- Siraj, A. S., M. Santos-Vega, M. J. Bouma, D. Yadeta, D. Ruiz Carrascal, and M. Pascual. 2014. "Altitudinal Changes in Malaria Incidence in Highlands of Ethiopia and Colombia." *Science* 343 (6175): 1154–58.
- Smart, Alan. 2014. "Critical Perspectives on Multispecies Ethnography." *Critique of Anthropology* 34 (1): 3–7.
- Smith, Benjamin. 2012. "Language and the Frontiers of the Human: Aymara Animal-Oriented Interjections and the Mediation of Mind." *American Ethnologist* 39 (2): 313–24.
- Smith, Roger, and Brian Wynne. 1989. *Expert Evidence: Interpreting Science in the Law*. London: Routledge.
- Smuts, Barbara. 1999. "Reflections." In *The Lives of Animals*, by J.M. Coetzee, 107–120. Princeton: Princeton University Press.
- Squeo, Francisco A., Barry G. Warner, Ramón Aravena, and Diana Espinoza. 2006. "Bofedales: High Altitude Peatlands of the Central Andes." *Revista Chilena de Historia Natural* 79 (2): 245–55.
- Standing, Guy. 2011. *The Precariat: The New Dangerous Class*. New York: Bloomsbury Academic.
- Steele, Paul R., and Catherine Allen. 2004. *Handbook of Inca Mythology (Camelids)*. Handbooks of World Mythology. Santa Barbara: ABC-CLIO.
- Stepan, Nancy. 1991. *The Hour of Eugenics: Race, Gender, and Nation in Latin America*. Ithaca: Cornell University Press.
- Stépanoff, Charles, Charlotte Marchina, Camille Fossier, and Nicolas Bureau. 2017. "Animal Autonomy and Intermittent Coexistences: North Asian Modes of Herding." *Current Anthropology* 58 (1): 57–81.
- Strathern, Marilyn. 1980. "No Nature, No Culture : The Hagen Case." In *Nature, Culture and Gender*, edited by Carol MacCormack and Marilyn Strathern. Cambridge: Cambridge University Press.
- Svoray, Tal, R. Shafran-Nathan, E.D. Ungar, A. Arnon, and A. Perevolotsky. 2009. "Integrating GPS Technologies in Dynamic Spatio-Temporal Models to Monitor Grazing Habits in Dry Rangelands." In *Recent Advances in Remote Sensing and Geoinformation Processing for Land Degradation Assessment*, edited by Achim Roeder and Joachim Hill, 1st edition, 301–312. Boca Raton; London: CRC Press, Taylor & Francis Group.
- Swallow, Brent. 1994. "The Role of Mobility within the Risk Management Strategies of Pastoralists and Agro-Pastoralists." Gatekeeper Series No. SA47. International Institute for Environment and Development: Sustainable Agriculture and Rural Livelihoods Programme.
- Talk, Aud. 1987. "Women as Heads of Houses: The Organization of Production and the Role of Women among Pastoral Maasai in Kenya." *Ethnos* 52 (1–2): 50–80.

- Thébaud, Brigitte, and Simon Batterbury. 2001. "Sahel Pastoralists: Opportunism, Struggle, Conflict and Negotiation. A Case Study from Eastern Niger." *Global Environmental Change*, The African Sahel, 11 (1): 69–78.
- Thibeault, Jeanne, Anji Seth, and Magali García. 2010. "Changing Climate in the Bolivian Altiplano: CMIP3 Projections for Temperature and Precipitation Extremes." *Journal of Geophysical Research: Atmospheres* 115 (D8).
- Thompson, Lonnie, M. E. Davis, E. Mosley-Thompson, E. Beaudon, S. E. Porter, S. Kutuzov, P.-N. Lin, V. N. Mikhaleiko, and K. R. Mountain. 2017. "Impacts of Recent Warming and the 2015/2016 El Niño on Tropical Peruvian Ice Fields." *Journal of Geophysical Research: Atmospheres* 122 (23): 12,688–12,701.
- Thompson, Lonnie, E. Mosley-Thompson, M. E. Davis, V. S. Zagorodnov, I. M. Howat, V. N. Mikhaleiko, and P. N. Lin. 2013. "Annually Resolved Ice Core Records of Tropical Climate Variability over the Past 1800 Years." *Science* 340 (6135): 945–50.
- Thompson, Lonnie, Ellen Mosley-Thompson, Mary E. Davis, and Henry H. Brecher. 2011. "Tropical Glaciers, Records and Indicators of Climate Change, Are Disappearing Globally." *Annals of Glaciology* 52 (59): 23–34.
- Tichit, Muriel, and Didier Genin. 1997. "Factors Affecting Herd Structure in a Mixed Camelid–Sheep Pastoral System in the Arid Puna of Bolivia." *Journal of Arid Environments* 36 (1): 167–80.
- Tilley, Helen. 2011. *Africa as a Living Laboratory: Empire, Development, and the Problem of Scientific Knowledge, 1870-1950*. Chicago: University of Chicago Press.
- Trawick, Paul. 2002. "Comedy and Tragedy in the Andean Commons." *Journal of Political Ecology* 9 (1): 35–68.
- Tsing, Anna. 2012. "Unruly Edges: Mushrooms as Companion Species." *Environmental Humanities* 1 (1): 141–54.
- . 2015. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton: Princeton University Press.
- Tsing, Anna, Jennifer Deger, Alder Keleman Saxena, and Elaine Gan. 2019. "Feral Atlas." An online/interactive platform for scientific research into and research dissemination about feral species and feral dynamics in the anthropocene. 2019. <http://anthropocene.au.dk/feral-atlas/>.
- Tuan, Yi-Fu. 1984. *Dominance and Affection: The Making of Pets*. New Haven: Yale University Press.
- Turin, Cecilia, and Corinne Valdivia. 2012. "Off-Farm Work in the Peruvian Altiplano: Seasonal and Geographic Considerations for Agricultural and Development." In *Seasonality, Rural Livelihoods and Development*, edited by Stephen Devereux, Rachel Sabates-Wheeler, Richard Longhurst, and Robert Chambers, 143–60. New York: Routledge.
- Turner, Matthew D. 2011. "The New Pastoral Development Paradigm: Engaging the Realities of Property Institutions and Livestock Mobility in Dryland Africa." *Society & Natural Resources* 24 (5): 469–84.
- UNFCCC. 2014. "Peru's Glaciers Shrink 40%." UNFCCC. October 16, 2014. <http://newsroom.unfccc.int/action-to-adapt/perus-glaciers-shrink-40-in-40-years/>.
- Urrutia, Rocío, and Mathias Vuille. 2009. "Climate Change Projections for the Tropical Andes Using a Regional Climate Model: Temperature and Precipitation Simulations for the End of the 21st Century." *Journal of Geophysical Research: Atmospheres* 114 (D02108).

- Urton, Gary, ed. 1985. *Animal Myths and Metaphors in South America*. 1st edition. Salt Lake City: University of Utah Press.
- Valdivia, Corinne. 2001. "Gender, Livestock Assets, Resource Management, and Food Security: Lessons from the SR-CRSP." *Agriculture and Human Values* 18 (1): 27–39.
- Valdivia, Corinne, Jere L. Gilles, and Cecilia Turin. 2013. "Andean Pastoral Women in a Changing World: Opportunities and Challenges." *Rangelands* 35 (6): 75–81.
- Valdivia, Corinne, Anji Seth, Jere L. Gilles, Magali García, Elizabeth Jiménez, Jorge Cusicanqui, Fredy Navia, and Edwin Yucra. 2010. "Adapting to Climate Change in Andean Ecosystems: Landscapes, Capitals, and Perceptions Shaping Rural Livelihood Strategies and Linking Knowledge Systems." *Annals of the Association of American Geographers* 100 (4): 818–34.
- Valdivia Corrales, Gustavo. 2013. "El Neoliberalismo y Las Sociedades Pastoriles Del Sur Andino. Un Caso de Extrema Exclusión y Pobreza En Los Andes Peruanos." In *La Construcción Social de La Pobreza En América Latina y El Caribe: Perspectivas, Alternativas y Criticas*, 283–316. Buenos Aires: CLACSO.
- Van Vleet, Krista. 2003. "Partial Theories: On Gossip, Envy and Ethnography in the Andes." *Ethnography* 4 (4): 491–519.
- . 2008a. *Performing Kinship*. Austin: University of Texas Press.
- . 2008b. "The Intimacies of Power: Rethinking Violence and Affinity in the Bolivian Andes." *American Ethnologist* 29 (3): 567–601.
- Verzijl, Andres, and Silvano Guerrero Quispe. 2013. "The System Nobody Sees: Irrigated Wetland Management and Alpaca Herding in the Peruvian Andes." *Mountain Research and Development* 33 (3): 280–93.
- Villarroel, Elena Katia, Paula Lady Pacheco Mollinedo, Alejandra I. Domic, José M. Capriles, and Carlos Espinoza. 2014. "Local Management of Andean Wetlands in Sajama National Park, Bolivia: Persistence of the Collective System in Increasingly Family-Oriented Arrangements." *Mountain Research and Development* 34 (4): 356–68.
- Vining, Benjamin. 2011. "Ruralism, Land Use History, and Holocene Climate in the Suches Highlands, Southern Peru." Ph.D. Dissertation, Boston: Boston University.
- Viveiros de Castro, Eduardo. 1998. "Cosmological Deixis and Amerindian Perspectivism." *Journal of the Royal Anthropological Institute* 4 (3): 469–88.
- . 2004. "Perspectival Anthropology and the Method of Controlled Equivocation." *Tipiti: Journal of the Society for the Anthropology of Lowland South America* 2 (1): 1–22.
- . 2011. "Zeno and the Art of Anthropology: Of Lies, Beliefs, Paradoxes, and Other Truths." Translated by Antonia Walford. *Common Knowledge* 17 (1): 128–45.
- Vuille, Mathias, Raymond S. Bradley, Martin Werner, and Frank Keimig. 2003. "20th Century Climate Change in the Tropical Andes: Observations and Model Results." *Climatic Change* 59 (1): 75–99.
- Vuille, Mathias, Mark Carey, Christian Huggel, Wouter Buytaert, Antoine Rabatel, Dean Jacobsen, Alvaro Soruco, et al. 2018. "Rapid Decline of Snow and Ice in the Tropical Andes – Impacts, Uncertainties and Challenges Ahead." *Earth-Science Reviews* 176 (January): 195–213.
- Vuille, Mathias, Bernard Francou, Patrick Wagnon, Irmgard Juen, Georg Kaser, Bryan G. Mark, and Raymond S. Bradley. 2008. "Climate Change and Tropical Andean GGaciers: Past, Present and Future." *Earth-Science Reviews* 89 (3): 79–96.

- Wade, Peter. 2009. "Race in Latin America." In *A Companion to Latin American Anthropology*, edited by Deborah Poole, 175–92. Oxford: Blackwell Publishing Ltd.
- Webley, Lita. 1997. "Wives and Sisters: Changing Gender Relations among Khoe Pastoralists in Mamqaland." In *Our Gendered Past: Archaeological Studies of Gender in Southern Africa*, by Lyn Wadley, 167–208. Johannesburg: Witwatersrand University Press.
- Webster, Steven. 1973. "Native Pastoralism in the South Andes." *Ethnology* 12 (2): 115–33.
- Weismantel, Mary. 1988. *Food, Gender, and Poverty in the Ecuadorian Andes*. Philadelphia: University of Pennsylvania Press.
- . 1995. "Making Kin: Kinship Theory and Zumbagua Adoptions." *American Ethnologist* 22 (4): 685–704.
- . 1997. "White Cannibals: Fantasies of Racial Violence in the Andes." *Identities* 4 (1): 9–43.
- Wheeler, Jane C. 2012a. "South American Camelids: Past, Present and Future." *Journal of Camelid Science* 5: 1–24.
- . 2012b. "South American Camelids: Past, Present and Future." *Journal of Camelid Science* 5: 1–24.
- Wheeler, Jane C., A. J. F. Russel, and Hilary Redden. 1995. "Llamas and Alpacas: Pre-Conquest Breeds and Post-Conquest Hybrids." *Journal of Archaeological Science* 22 (6): 833–40.
- Whittington, Jerome. 2016. "What Does Climate Change Demand of Anthropology?" *PoLAR: Political and Legal Anthropology Review* 39 (1): 7–15.
- Whitten, Norman E. 1981. *Cultural Transformations and Ethnicity in Modern Ecuador*. Champaign: University of Illinois Press.
- Wilhoit, Mary Elena. 2017. "'Un Favorzote': Gender and Reciprocity in the Andes: Gender and Reciprocity in the Andes." *The Journal of Latin American and Caribbean Anthropology* 22 (1): 438–58.
- Yager, Karina. 2009. "A Herder's Landscape: Deglaciation, Desiccation and Managing Green Pastures in the Andean Puna." Ph.D. Dissertation, New Haven: Yale University.
- . 2015. "Satellite Imagery and Community Perceptions of Climate Change Impacts and Landscape Change." In *Climate Cultures: Anthropological Perspectives on Climate Change*, edited by Jessica Barnes and Michael Dove, 146–168. New Haven: Yale University Press.
- Yager, Karina, Corinne Valdivia, Daniel Slayback, Elizabeth Jimenez, Rosa Isela Meneses, Arely Palabral, Mary Bracho, et al. 2019. "Socio-Ecological Dimensions of Andean Pastoral Landscape Change: Bridging Traditional Ecological Knowledge and Satellite Image Analysis in Sajama National Park, Bolivia." *Regional Environmental Change*, February.
- Yarleque, Christian, Mathias Vuille, Douglas R. Hardy, Oliver Elison Timm, Jorge De la Cruz, Hugo Ramos, and Antoine Rabatel. 2018. "Projections of the Future Disappearance of the Quelccaya Ice Cap in the Central Andes." *Scientific Reports* 8 (1): 15564.
- Zimmer, Anaïs, Rosa I. Meneses, Antoine Rabatel, Alvaro Soruco, Olivier Dangles, and Fabien Anthelme. 2017. "Time Lag between Glacial Retreat and Upward Migration Alters Tropical Alpine Communities." *Perspectives in Plant Ecology, Evolution and Systematics*.