A STUDY OF RELIGION, CULTURE, AND MEDICINAL PLANTS OF THREE SOUTH AMERICAN INDIGENOUS GROUPS

by

Danny Childs

A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the Degree in Biology and Anthropology with Distinction

Spring 2012

A STUDY OF RELIGION,

CULTURE, AND MEDICINAL PLANTS

OF THREE SOUTH AMERICAN

INDIGENOUS GROUPS

by

Danny Childs

Approved: _____
Peter G. Roe, Ph.D.
Professor in charge of thesis on behalf of the Advisory Committee

Approved: _____
Harsh Bais, Ph.D.
Professor in charge of thesis on behalf of the Advisory Committee

Approved: _____
Melissa Melby, Ph.D.
Committee member from the Department of Anthopology

Approved: _____
Diane Herson, Ph.D.
Committee member from the Department of Biological Sciences

Approved: _____
Rosalie Rolón-Dow, Ph.D.
Committee member from the Board of Senior Thesis Readers

Approved: _____
Donald Sparks, Ph.D
Chair of the University Committee on Student and Faculty Honors

TABLE OF CONTENTS

LIST OF TABLES vi
LIST OF FIGURES vii
ABSTRACT ix
PREFACE x

1 INTRODUCTION 1

Natural History of the Three Biomes 2
Peopling of the Continent 6
More Complex Social Organization Arises Prior to Spanish Arrival 11
South America After the Arrival of the Spanish 20
A Brief Note on Culture Change 22

2 ANIMISM—THE DOCTRINE OF THE SOULS 26

Tribal Religion 26
Animism 28
Origins of Animism—Inquiries About Human Existence 30
Animal and Plant Souls 32
Inanimate Souls 34
Governing Spirits 36
Conclusion 39

3 SHAMANISM—THE ART OF ECSTASY 41

Introduction to Shamanism 41
The Call to Shamanhood 43
Initiatory Sickness 45
Shamanic Flight 47
Apprenticeship of the Neophyte 59
Shamanic Curing 63

4 ETHNOBIOLOGY 76

Introduction to Ethnobiology 76
Ethnomedicine, Ethnobotany, and Ethnopharmacology 77

Benefits and Issues with Ethnobotanical, Ethnomedical, and Ethnopharmacological Research 80
Conclusion 84

5 THE SHIPIBO INDIANS 86

6 INHABITANTS OF THE UCAYALI OF EASTERN PERU 86

Introduction 86
Ethnohistorical Sketch 90
Population 96
Life Cycle 98
The Domestic Unit, the Village, and Socio-Political Organization 102
Subsistence and Technology 105
Religion 110
Conclusion 112

7 THE ATACAMEÑO INDIANS 114

8 INHABITANTS OF THE CHILEAN ATACAMA DESERT 114

Introduction 114
Ethnohistorical Sketch 117
Population 125
The Domestic Unit and the Village 126
Subsistence, Technology, and Trade 127
Art 130
Socio-Political Organization and Religion 131
Conclusion 132
Introduction 134
Ethnohistorical Sketch 137
Population 141
Life Cycle 143
The Domestic Unit, the Village, and Socio-Political Organization 146
Subsistence and Technology 152
Religion 156
Conclusion 159

9 ETHNOBOTANICAL FIELDWORK 160

Introduction 160
Lima 162
San Francisco de Yarinacocha—Round One 163
Callería 166

San Francisco de Yarinacocha—Round Two 173
San Pedro de Atacama and Chiu Chiu 176
Caspana and Toconao 179
Santiago 182
Temuco 183
Conclusion 185

10 MEDICINAL PLANT INVENTORY 187

11 CONCLUSION 227

Issues and Variables with the Data 227
Results 231
Discussion 234

12 REFERENCES CITED 240

LIST OF TABLES

Table 1: Inventory of Shipibo Medicinal Plants..... 193

Table 2: Inventory of Atacameño Medicinal Plants..... 220

Table 3: Inventory of Mapuche Medicinal Plants 223

Table 4: Number of Each Tribe's Plants Addressing Various Illnesses 232

LIST OF FIGURES

Figure 1 Tectonic subduction forming the two parallel Andean Ranges (Moseley, 2001: 25)..... 3

Figure 2 Cross-section of the Andes Mountains and the climatic zones that characterize them. Note the coastal desert receives no rainfall (Moseley, 2008: 30)..... 4

Figure 3 The Inca Empire, Tahuantinsuyu ("The Land of the Four Quarters"), at the height of the empire. 20

Figure 4 The two trajectories of consciousness (Lewis-Williams, 2002: 125)..... 49

Figure 5 A collection of phosphene patterns collected by Knoll (left) and a collection of phosphene patterns from the Tukano Indians collected by Reichel-Dolmatoff (right)(Reichel-Dolmatoff, Plate XXXI)..... 54

Figure 6 Depiction of the Amazonian cosmos (Roe, 1982: 128) 57

Figure 7 A Mapuche machi atop her rewe alter (Faron, 1986: 84)..... 62

Figure 8 The Mapuche shamanic drum, or kultrun (Bacigalupo, 1999: 24)..... 67

Figure 9 A Map of Eastern Peru showing the distribution of the Shipibo and their ancestors (Roe, 1982: 73)..... 87

Figure 10 A Shipibo man in traditional ceremonial regalia (Smithsonian Photograph Collection in Roe, 2011) 97

Figure 11 Some Shipibo ceramics from San Francisco de Yarinacocha (Photo by the author: 2010)..... 109

Figure 12 A map highlighting the intermediate zone of the Arid Area (Cortes & Santander, 2002: 21)..... 115

Figure 13 A snapshot of the vast Atacama Desert wilderness (Photo by the author, 2010)..... 116

Figure 14 Picture of an Atacameño ritualistic snuff tablet and snuff container (Schultes et al. 2011) 119

Figure 15 A Map of the Mapuche in the south-central valley of Chile (Bacigallupo, 2007: 3) 136

Figure 16 Traditional Mapuche communal house, or ruka (Chilean Postcard) 147

Figure 17 Mapuche machi playing the kultrun wearing a silver choker necklace (Chilean Postcard) 158

ABSTRACT

This project is focused around an inventory of medicinal plants which I compiled after conducting ethnobotanical fieldwork with three South American indigenous populations. These groups were the Shipibo Indians, of the Peruvian montaña, the Atacameño Indians, native to the Chilean Atacama Desert, and the Mapuche Indians, inhabitants of the temperate valleys of southern Chile. This information is critical during a time when both the habitats and cultures of indigenous peoples are disappearing at an alarming rate. While the efficacy of indigenous medicinal plant use has just recently begun to receive recognition by the Western scientific community, these individuals have known the therapeutic worth of the phytochemicals for millennia. In order to depict this information that I collected as knowledge passed down from for thousands of years, I have decided to mainly focus on the traditional histories of these groups, supplementing information from modern times by drawing on what I saw during my time conducting research with them. In order to do this, I describe the natural origins of these biomes, and how the indigenous peoples existed in the biomes in both in pre- and post-Columbian times. Furthermore, traditional religious practices also necessitate discussion when talking about tribal use of medicinal plants. Therefore, I present the reader with an account of animism, the doctrine of the spirits, and the shaman, the magico-religious practitioner whose duty it is to ensure harmony between the natural and spiritual worlds through a technique of ecstasy. His effectiveness in doing so ensures both societal and individual health, which is most important for this thesis. I then discuss how one becomes a shaman, the psycho-evolutionary components involved with shamanism, and the symbolism and meaning involved in the shamanic healing of "sickness," which encompasses both illness (the psycho-social component) and disease (the biological component). It is the disease component that medicinal plants address, which leads me into my chapter on ethnoscience and ethnobotany. I offer the reader short ethnographies of the groups with whom I worked, followed by a reflexive account of my fieldwork for a modern perspective on the groups. I also include an inventory of the medicinal plants which I collected and a brief discussion of my results in my conclusion chapter. Finally, I try to bring everything together and show that there is something that the much more recent Western Biomedical system could learn from the millennia-old shamanistic healing practices. That is, that treating biological components of sickness is only half the battle. The other half is addressing the psychological factors of the individual. By attending to both, the mind-body connection can be addressed for an all encompassing treatment of a sick person.

PREFACE

The genesis of this research project was a complex one. I began my undergraduate studies at the University of Delaware as a biology major with a minor in Spanish, and I had the hopes of attending medical school. However, following a conversation with my roommate one night over my fascination with tribal healing methods and shamanic practices, he persuaded me to consider enrolling in an anthropology course. I briefly explored the field of anthropology, and the following semester I was enrolled in two anthropology courses.

At the time, I was shadowing Dr. Seth Torregiani, an osteopathic physician who heads a holistic medical office. The use of herbal remedies was commonplace in his office and it added to my previous interest of medicinal plants. This deep fascination caused me to approach my anthropology professor, Dr. Roe, one evening after a lecture on shamanism to discuss the possibility of studying Shipibo medicinal plants. After conversing with Dr. Roe over the course of the semester about how to prepare myself to do this, I have since changed my academic study to an interdepartmental major in biology and anthropology; the biology courses aimed at meeting my medical school requirements and my anthropological courses were mainly concerned with the study of South American tribal groups. I also continued my study of the Spanish language and began studying botany, in order to better prepare myself for this study.

During my time of academic change, I also heard about a university-associated scholarship known as the Plastino Scholars Program, which awards funding to

students with self-designed, off-campus learning experiences. I knew that I wanted to collect medicinal plants of tribal societies, but I had no way of scientifically testing them once back. So, I approached Dr. Harsh Bais, a plant biotechnologist of the Delaware Biotechnology Institute (DBI), to ask if I could test my plants under his supervision in the lab. He agreed and paired me up with Shail Kaushik, an Associate Researcher at DBI, who was studying antibiotic properties of different plant extracts against human pathogens. I was eventually awarded the scholarship and I began the fieldwork aspect of my research in June of 2010.

Since then I have worked very hard testing these plants for antibiotic properties, however, just prior to the publication of this piece, I discovered that I had not followed the proper guidelines to ensure the protection of intellectual property rights. Although I knew that intellectual property rights were an issue, I made the mistake of thinking that I could act as an agent to protect them, when, in fact, it is a much more complex issue than that. As an unfortunate result, the data collected in the lab will not be presented in this work, however, I will return to these populations in the future to obtain proper permission to publish my results retroactively.

I would like to acknowledge those individuals who have helped me so much in completing this project. I would first like to acknowledge Dr. Peter G. Roe for initially accepting my proposal and for serving as such a wonderful mentor and advisor ever since. I give Dr. Roe all of the credit for being the initial inspiration for me becoming an anthropologist in my future. Thank you so much for that. I would also like to acknowledge Dr. Harsh Bais for accepting my proposal, as well. Dr. Bais has allowed me to work under his grant from the National Institute of Health (NIH), which has allowed me to add an entirely different dimension to this project, and for

that I am very grateful. I offer much thanks to Dr. Melissa Melby who joined my committee almost immediately after being hired to the department. I think that I began bothering her before she even began to unpack her office. I would also like to acknowledge Shail Kaushik for not only teaching me all the laboratory methods that I needed to know for this project, but for working so closely and patiently with me throughout, as well. Thank you also to Dr. Herson for being an ongoing consultant for the laboratory aspect of my work.

I would like to thank Mr. David Plastino and the Plastino Scholars Program for generously funding the entirety of the fieldwork portion of my research. I admire Mr. Plastino's altruism and am inspired to do similar things someday, as well. I would also like to thank my friends for keeping me sane during this process, especially my colleague, roommate, and friend Nevin Lewand for originally inspiring me to study anthropology. It was such a pleasure to live with someone who I could also connect with on such an intellectual and personal level. I must also thank my parents and my family for always being so supportive of my goals and aspirations and for always believing in me. I would not be anywhere even close to where I am today if I had not had your unremitting support all along.

Last, but certainly not least, I would like to extend my thanks and affection to my informants. If there were a book to be written on how to be an informant and make an outsider feel at home, my Shipibo informant Manuel would be the author. Additional thanks goes to my good friend Pablo. Pablo was my key plant informant with the Shipibo, and he and his family treated me with such kindness that I will never forget. I would also like to give thanks to "El Anciano", Amelia, and Hildebrando for their minor, yet important identification of Shipibo plants. Further acknowledgement

goes to my Atacameño informants Cecilia and Luisa, thank you both very much for your willingness to help a curious young gringo. Special thanks go to my Mapuche informant Juanita for all her help and email consultation once I returned to the US. Finally, I would like to send an affectionate thank you to my main Mapuche plant informant, Miguel, and his hospitable family. Miguel truly embodies the Mapuche spirit that is so famous in Chile, and I will remember him forever.

-Danny Childs

Newark, DE, 2012

Chapter 1

INTRODUCTION

The goal of this project was to compile an inventory of the medicinal plants of three indigenous groups from three vastly different environments in South America. There are three main reasons why I chose to do my fieldwork in South America as opposed to somewhere else in the world. The first reason was that the amount of biological diversity in South America is unparalleled, the second was because of the wide range of environments found on the continent, and the third was due to the high amounts of cultural diversity found there. These factors have resulted in a rich ethnobotanical knowledge possessed by the inhabitants of the continent. This knowledge of plants is largely enmeshed in a complex religious tradition, which will be discussed in following chapters. However, before any further discussion of animism, shamanism, ethnobotany, and the groups worked with, it is first important to establish a framework to better orient the reader for the rest of this work, with particular emphasis on the cultures with whom I conducted fieldwork. These were the Shipibo Indians, a tropical forest tribe of the Peruvian Montaña (a tropical zone located at a slightly higher elevation than the Amazon River Basin proper), the Atacameño Indians of the Chilean Atacama Desert, and the Mapuche Indians, who live in the temperate, mountainous Araucanía zone of central and southern Chile. In

order to establish this framework, I will offer a short discussion on the natural history of these three South American biomes in which I worked, a brief history of the peopling of the continent, and what life was like in both pre- and post-Colombian times.

Natural History of the Three Biomes

The origins of the complex ecology of the South American continent are largely a result of the geophysical processes that the continent has undergone. 225 million years ago, the South American continent was attached to the continents of North America, Africa, and Antartica, in the supercontinent of Pangaea (Christopherson, 1999). Around 105 million years ago, the plates began to drift apart, which resulted in a closed evolutionary environment on the island continent of South America for 100 million years. This isolation lasted until just five million years ago when the Panamanian Land Bridge formed and connected North and South America, as they are found today. It was also during this time that the oceanic Nazca Plate to the west began to push into and subduct under the South American Continental Plate, causing the South American plate to rise up and create the Andes Mountains, the second tallest chain in the world. This subduction is the reason for the high seismic activity felt along the Andes in the form of earthquakes and volcanoes. Another consequence of this subduction is the deep Peru-Chile trench, found of the coast of the two countries. This trench, coupled with the northwesterly-moving Humboldt

Current, which upwells nutrients from the Benthic Depths of the trench, is home to one of the richest fisheries in the world (Moseley, 2001; Roe, 2011: Pers. Comm.).

The Andes Mountains, known as the backbone of South America, are an extension of the North American Rocky Mountains and one of the most noteworthy features of the continent of South America. The range rises out of the Caribbean Sea and forms a wall along the western side of the continent from Colombia to the south of Chile. The Andes are composed of two parallel ranges. The western range is known as the Cordillera Negra, which faces the Atacama Desert and the Pacific Ocean, and the taller, eastern range is known as the Cordillera Blanca, which adjoins the Amazon. The high plateau between the two ranges is known as the Altiplano (Moseley, 2001: 26). The eastern slopes of the Cordillera Blanca are so tall that they actually block the moist clouds carried from the Atlantic across the Amazon from passing them. The rainshadow thus formed from the Cordillera Blanca is the cause of two of the most extreme environments in the world, the Atacama Desert and the Amazon Rainforest.

The Atacama Desert is the driest desert in the world, according to NASA

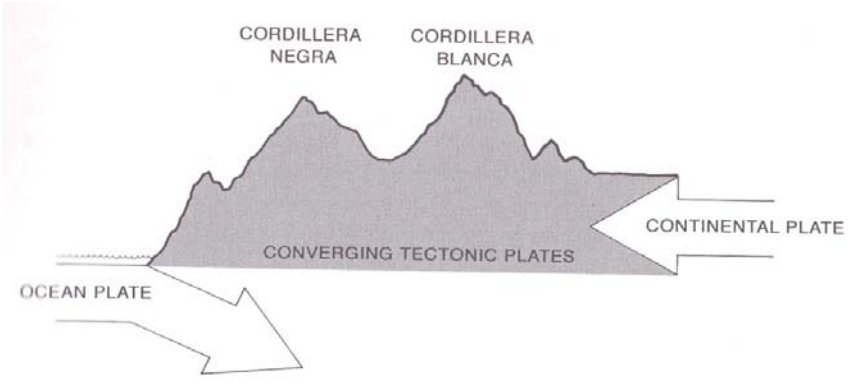

Figure 1 Tectonic subduction forming the two parallel Andean Ranges (Moseley, 2001: 25)

(http://astrobiology.nasa.gov/articles/the-driest-place-on-earth/), with many places having never recorded rainfall in historical times. The conditions in the Atacama are a product of two main factors. The first is due to the fact that the upwelling Humboldt Current in the Pacific Ocean to the west cools the marine air, which is not favorable for the generation of precipitation. The second factor is because of the aforementioned rainshadow from the Cordillera Blanca, which does not allow the passing of the rain clouds from the Atlantic. As a result, all human habitation in the area was located around small streams of glacial melt water and desert oases.

To the east, the other extreme byproduct of the Andes' rainshadow is the lushest rainforest in the entire world, the Amazon Rainforest. The moisture from the clouds buffered by the Cordillera Blanca produces rainfall that forms streams which cut through the eastern ranges. These streams eventually join together to form the Amazon River. Although the Amazon is slightly shorter than other major river systems, like the Nile and Mississippi, in terms of sheer volume the Amazon puts

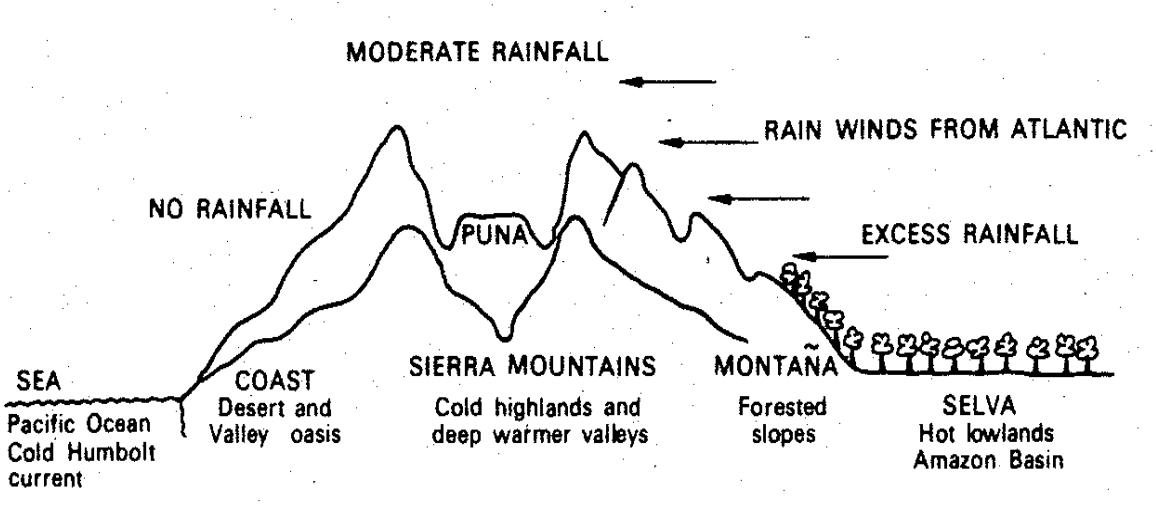

Figure 2 Cross-section of the Andes Mountains and the climatic zones that characterize them. Note the coastal desert receives no rainfall (Moseley, 2008: 30).

these other two to shame. The annual discharge of the Amazon is twelve times that of the Mississippi and five times that of the Congo (Lathrap, 1970: 22). According to Dillehay (2000), the Amazon is the richest biome on the planet being home to some 80,000 species of vascular plants and perhaps as many as 30 million species of animals. Today, the Amazonian Lowlands occupy about 5,000,000 square kilometers from its headwaters at the base of the Andes in the west to the where the river enters the Atlantic Ocean in its estuary to the east (Dillehay, 2000: 56). The Amazon is connected to the second major river system of South America, the Orinoco by the Casiquiare Canal, which drains into both the Upper Orinoco and the Upper Río Negro (Lathrap, 1970: 24). The Orinoco drains into the central interior plains of Venezuela and flows into the Caribbean Sea.

In addition to the Andes, there are two older mountain ranges in South America, the Eastern Brazilian Highlands, located just a short distance from the Atlantic Ocean, and the Guianan Highlands, which border the Caribbean Sea. These two mountain ranges are petrologically very similar to one another. Whether speaking of the newer Andes Cordillera or the Brazilian and Guianan Highlands, both of these mountain ranges erode into the river systems in the Amazon Basin and the agricultural potential of the soil surrounding these rivers is heavily influenced by which type of sediment is carried by the streams. Lathrap (1970) emphasizes the difference between black-water and white-water river systems, with the former carrying sediment from the Andes, and the latter carrying what little sediment there is from the very ancient Brazilian and Guianan Highlands. The Amazon River proper is a white-water river, as are its major tributaries, while its minor tributaries more closely resemble black-water

streams. It is the white-water streams that carry rich minerals needed for soils to sustain crops for human agriculture.

I chose to conduct my fieldwork in these three vastly different environments in order to compare and contrast human adaptations, specifically their interactions with plants, between them. I worked with groups that represented such human adaptation in the two most extreme environments in the world in the Amazon Rainforest, the place with the most precipitation on the planet, and the Atacama Desert, the place with the least amount of precipitation on the planet. In addition, I chose to work with a group that lived in a temperate zone that fell somewhere in the middle of this environmental spectrum. For a temperate group, I chose to go to the = zone in the south of Chile, to work with a tribe described by Steward (ed., 1946) as Andean, although they mainly live in the valleys between the Andes Mountains. Before talking about these tribes, it is first important to discuss how the members of these societies came about living in their respective environments.

Peopling of the Continent

There was a theory that reigned supreme in archaeology for decades concerning how the first Americans arrived in the continent. It was known as the "Clovis First Theory." The proponents of the Clovis First model thought that the first Americans were a group of nomadic people who crossed the Bering Land Bridge from northeast Asia to Alaska around 11,300 B.P (Dillehay, 2000). The popularization of the theory was due largely in part to Junius Bird's excavation of fishtail projectile points, extinct animal bones, and human remains in Fell's Cave and Palli Aike Cave

(both located in Patagonia, at the very tip of South America) during the 1930s (Dillehay, 2000). At this time, it was thought that the excavated bones and artifacts dated to around 5,500 B.P, however, in the 1950s radiocarbon dating and further excavations showed that people were living in Patagonia as early as 11,000 to 10,800 B.P. This caused big complications for the Clovis First model, as it would have meant that people would have traveled nearly 10,000 miles (assuming the route was a coastal migration) in 300-500 years. Therefore, the theory had to be altered to account for this anomaly (Dillehay, 2000). One attempted explanation was from Paul Martin, an ecologist from the University of Arizona, who introduced the concept that the nomadic big-game hunters spread across the New World in a "wave of advance" to pursue game in a hunting "blitzkrieg", known as the "Paleo-Indian" lifeway. It was also hypothesized that this blitzkrieg lifeway could account for the extinction of the Late Pleistocene megafauna (Dillehay, 2000). Although seemingly possible, the model lost its simplistic elegance with the addition of the blitzkrieg hypothesis. This complication of the theory caused many people in the archaeological community to become skeptical and to begin to question the model's validity.

A growing view began to emerge that there must be earlier archaeological sites and that the first Americans were not the nomadic big game hunters that the Clovis model made them out to be. Instead, the new model envisioned that they consisted of small bands of foragers and scavengers who followed what is known as the "Proto-Archaic" lifeway, in which they ate whatever they could get from the environment (Dillehay, 2000). It was speculated that these small bands eventually developed into more specialized groups who followed an "Archaic" subsistence pattern; that is, a lifeway that consists of generalized hunting and gathering supplemented with

occasional big-game hunting. Such a model could account for the kill sites and large fluted points (Dillehay, 2000). The first person to articulate a theory against the Clovis First model was Alex Kreiger in the 1960s. The foundation of his theory was that there were numerous examples of percussion-flaked tools (in contrast to pressure-flaked), choppers, and pebble tools that constituted a pre-projectile point, and thus pre-hunting, horizon. Kreiger's views were not widely accepted because the sites that he proposed fell short in many of the requirements that archaeologists assign to potential sites. Eventually, Alan Bryan joined Kreiger in pointing out the shortcomings of the Clovis First model. Bryan's argument was that the Clovis model should not be imposed on the South American archaeological record. His theory was that pre-Clovis South Americans were broad spectrum hunters and gatherers who possessed a basic unifacial stone tool technology, which changed over time (Dillehay, 2000). Bryan and his wife, Ruth Gruhn, both from the University of Alberta, began excavating sites in order to find evidence to support their Pre-Clovis theory. They excavated the sites of Taima-Taima in Venezuela and the Wilson Butte Cave in Idaho, both of which seemed promising, but they failed to pass the stringent criteria of the archaeological community. However, in 1975 a site in the south of Chile was discovered that is accepted today by most scholars in the archeological community as definitive proof of pre-Clovis people. This site was excavated by an American archaeologist named Thomas Dillehay and it is known as Monte Verde, located just outside the city of Puerto Mont, Chile, where the Mapuche people, whom I studied with, live today. Dillehay determined the site to be at least 12,500 years old, with one level dating to as old as 30,000 years (Dillehay, 2000: 167); however, Dillehay explains that he is hesitant to accept such a level until more evidence is found to help support human

settlement in the Americas that long ago. Dillehay and other pre-Clovis advocates believe that for a site in southern Chile to date to the younger upper strata, then the first Americans would have arrived in the New World 15,000-20,000 years (assuming coastal migration). The excavation team found remains of medicinal plants for lung and skin ailments, aquatic food plants, mastodon bones, paleo-llama remains, freshwater mollusks, the posts of their living spaces, and chewed seaweed cud. They additionally found tools such as projectile points called Monte Verde points, bola stones, percussion tools, and wooden and bone tools. This wide variety of foods and tools points to the Monte Verdeans being generalized hunters and gatherers (Dillehay, 2000).

In addition to these early pre-Clovis sites, there is also non-artifactual support that points to pre-Clovis habitation in the New World including linguistic evidence, genetic evidence, and osteological evidence. Joseph Greenberg developed a linguistic hypothesis based on the three-wave migration model where all languages found in the New World evolved from three initial languages: Amerind, Na-Dene, and Eskimo-Aleut. However, in recent years linguists have began to speculate that all the Native American indigenous languages evolved from one maternal language (Dillehay, 2000). Joannah Nichols from the University of California Berkley thinks that a minimum of 60,000 years was needed in order to account the diversity found today in the Americas, assuming the 1,000 indigenous languages thought to be present in the New World before European conquest all came from one language. She says that even if there were multiple migrations still a minimum of 30,000 years would be needed (Dillehay, 2000). There is also substantial evidence to be found from the mitochondrial DNA (mtDNA) differences found in the Americas that points to the

first Americans arriving at least 30,000 years ago. Mitochondrial DNA can serve as a molecular clock, as geneticists can calculate how much time would be needed for random mutations to occur if a single population split into isolated groups. This would help account for the physiological diversity seen in groups such as the people of the high Andes who have 30% greater lung capacity than people at sea-level, or people such as the Ona and Yahgan of Tierra del Fuego whose body plans became shorter and stouter in accordance with Alan and Bergman's Rules in order to adapt to their cold climate (Dillehay, 2000). Another physical adaptation which has occurred is the change from a long, narrow, doliocephalic face, like the one seen in the "Lucia" skeleton found in Brazil, to the more round, brachycephalic faces dated to later times. These changes could have been a result of genetic changes, or possibly a result of different subsistence patterns (Dillehay, 2000).

With the case of the Mapuche and the Atacameños, their arrival in their biomes is a case of simple explanation. Their ancestors arrived in Chile via a coastal migration down the Pacific coastline perhaps as early as 20,000 years ago, possibly even before. The ancestors of the Mapuche inhabited the Monte Verde site and the ancestors of the Atacameños inhabited sites such as Tilviche, Las Conchas Quebrada, and the Huentelafquén sites dated between 11,000 and 9.650 BP (Dillehay, 2000). However, the ancestors of the Atacameños most likely arrived in their environment first. Both of these groups initially drew their subsistence largely from the rich waters off of the Pacific Coast, and they eventually developed sedentary lifestyles that were better adapted for survival in their respective environments. With respect to the Shipibo, however, the arrival of their ancestors is a more complex matter. According to Dillehay (2000), the most widely accepted hypothesis is that the first explorers into

the Amazon would have utilized its landscape to follow what are known as "residentially mobile foraging groups." This pattern consisted of people foraging the landscape and moving onward once the resources were tapped. Another potential explanation is that they followed the "collector strategy," in which they radiated outwards from central base camps, stayed in temporary camps, and then returned home once they had their newly obtained resources. One of the earliest sites in the Amazon Basin, located in southern Brazil, is called Pedra Furada and both human tools and cave paintings were found here. It is difficult, though, to determine whether these people were collectors or foragers, due to the fact that it is very hard to differentiate between the two given the poor preservation of the tropical archaeological record. The first ancestors of what would later develop into the Tropical Forest Culture followed this nomadic band-level way of life for a few millennia until some began to settle down into more complex societies, as we will see in the next section.

More Complex Social Organization Arises Prior to Spanish Arrival

When Francisco Pizarro arrived in South America, he encountered the largest and most powerful state that ever arose in the New World, the Inca Empire. At that time, the Inca Empire was very likely the largest nation on the planet; larger than the Ottoman Empire, the Ming Dynasty, and any European nation (Moseley, 2001). The Inca called their realm *Tahuantinsuyu*, which translates to "The Land of the Four Quarters." *Tahuantinsuyu* stretched 5,500 km down the jagged Andes Mountain Range, the longest mountain range in the world, second tallest only to the Himalayas.

The empire encompassed the Sechura Desert to the west, the Atacama Desert to the South and part of the Amazon Rainforest to the east. At its pinnacle the empire's capital city of Cuzco exercised reign over northern Chile, northern Argentina, Bolivia, Peru, Ecuador, and southern Colombia (Moseley, 2001). However, when discussing the Inca Empire, it is important to remember that its origin was the product of thousands of years of Andean formative civilizations, beginning with Chavín de Huantar, then moving forward through states such as the Moche, the Huari, and the Tiwanaku Empire, which was the last major predecessor of the Inca (Moseley, 2001). All of these Andean civilizations were able to thrive as a result of their agrarian-based economies. However, as Donald Lathrap (1970) pointed out, any discussion of Andean civilization must recognize the contribution of food crops first cultivated in the greater Amazon River Basin, and, therefore, the cultural developments that took place in the Amazon.

As mentioned earlier in this chapter, the first inhabitants of the Amazonian lowlands followed either a forager or collector lifeway. With time, this gave rise to a sedentary pattern of life in the basin, sometime around 8,000 BP in the early Holocene (Pearsall *in* Silverman & Isbell eds., 2008: 105). There are two broad categories of human adaptation that are followed in the lowland river basin. The first of these is that of the Foot Indians, who either follow a nomadic way of life, or use an extensive form of slash-and-burn horticulture (Roe, 1995: 17). These Indians live in villages in the interfluvial old alluvial deposits in the rainforest, which is heavily leached and well-drained. It is this poor soil, known as *terra firme*, which limits them from having high agricultural yields, except in the case of long-term occupation and the production of the anthropogenic *terra pretta*, or Amazonian Dark Earths (ADE), which I will

return to later in this chapter. Instead, these Foot Indians are at their element in the backwoods, and are excellent hunters of arboreal game like monkeys and birds. The second broad pattern of human adaptation is the Canoe Indians, who are found along broad river systems in the Amazon and adjacent basins, such as the Orinoco to the north and the Ucayali to the south (Roe, 1995: 17). These Indians are able to practice agriculture and reap the benefits of the rich fisheries offered by these rivers. However, agricultural potential is highly variable in riverine groups. Those groups which live along the banks of the white-water streams carrying sediment from the Andes are able to enjoy a high crop yield, while those living along the black-water streams darkened by the sediment of the Brazilian and Guianan Shields do not have the same luxury, and thus cannot produce high yielding agricultural plots.

Prior to the 1970s, the thoughts surrounding cultural development in the Amazon were largely influenced by the paradigm, introduced by Betty Meggers in 1971, that the jungle was a "False Paradise", unable to support any type of complex civilization. Meggers posited that social life in the tropical rainforest, rather, was limited to small tribal- and band-level societies following a rudimentary slash-and-burn horticulture subsistence pattern and that any population growth was limited due to the lack of large game. Any societies which possessed complex characteristics, she thought, were the result of influx from the complex civilizations of the Andes, and she even presented one farfetched notion that displaced Japanese fishermen from the Jomon Culture introduced a ceramic tradition to the Valdivia Culture on the Ecuadorian Coast that was too complex to be explained by her model. She further stated that if complex highland cultures were to descend down the Andes into the jungle then they would "devolve" upon their arrival in the Amazon.

The basis for this mistaken theory was largely due to two reasons. The first was Meggers' own personal bias due to her time with the Waiwai Indians, a culture of Foot Indians from the Guianan highlands, who do in fact live in small communities (less than fifty people per village) (Roe, 1995). The second is the preservational bias of the Amazon where all organic traces of human habitation decay and are totally effaced within thirty years (Roe, 2011: Pers. Comm.). In comparison, the remains from the Andean civilizations are preserved excellently due to the more arid conditions found there. This ethnographic bias which only focused on the Foot Indians and the preservational bias present in the rainforest painted an erroneous picture of life in the Amazon.

Another notable problem with only focusing on the Foot Indians is the fact that due to their small village size and their placement in the isolated backwoods, they were able to avoid the two major consequences of European arrival: disease and warfare (Roe, 1995: 18). Those Indians living on the river systems, however, could not. Evidence that major riverine populations did in fact exist can be seen in the accounts of the chronicler and Dominican friar Gaspar de Caravajal, who accompanied the Spanish explorer, Francisco de Orellana, on the first ever trip down the entire Amazon by a European (Medina ed., 1988). The accounts tell of how, as the party traveled down the Amazon, there were complex, warlike human societies living along the banks that would shower arrows down upon them as they traveled through their territory. Roe (1995: 18) says that these numerous groups "ranged from the large-scale chiefdoms of the Omagua on the Upper Amazon, near its western tributaries, to what was very probably the emergent mini-state of the Tapajós on the Lower Amazon." These riverine populations were highly engaged in warfare and

wife-raiding in pre-contact times, quite unlike the pacified depiction of Indians that we have today. Since the Europeans took the same waterways that these societies inhabited, these were the first Indians to perish from the diseases that wiped out so many Amerindians.

Meggers' environmentally deterministic depiction of South America as a Green Hell, which reigned supreme in the archaeological community, eventually began to change, especially after the publication of *The Upper Amazon* by Donald Lathrap (1970). In this work, Lathrap argued that thanks to the annually renewable deposits of new alluvium in the *várzea* floodplains of white-rivers, like the Amazon and its major tributaries, lowland South America was a perfect locale for highly complex cultures to evolve. In contrast to Lathrap (1970), who tended to view *terra firme* interfluves as zones unable to support high population densities, scholars such as Denevan (1996; 2001) have proposed that patches of intensive agricultural plots that can also support large numbers of people can develop in the *terra firme*, in the case that the black and brown anthropogenic Amazonian Dark Earth has developed.

These fertile soils were rich enough to yield high protein crops like corn and beans, and the carbohydrate rich tubers like the bitter and sweet varieties of manioc (*Manihot esculenta*). Bitter manioc, although it seems somewhat counterintuitive, was domesticated from the sweet variety due to the small amounts of Prussic acid that would keep insects, bacteria, and fungi at bay after the root was processed and made into flat disks of unleavened bread (Lathrap, 1970). Additionally, the Amazon and its tributaries were able to complement the slash-and-burn agricultural techniques with the abundance of animal protein found in its rivers.

It was from these highly complex chiefdom and early-level state societies located in the lowland Amazon basin and the forested slopes of the montaña that the vast majority of South American cultigens were developed. The only major exceptions to this rule lie in the domestication of cereals, like quinoa (*Chenopodium quinoa*), and some species of potatoes (*Solanum* sp.), which were domesticated in semi-arid and higher elevations, respectively (Pearsall *in* Silverman & Isbell eds., 2008). The spread of domesticated plants in the archaeological record tells a lot about intra-Amazonian migration and trade and is actually very useful in trying to explain cultural changes and developments over time. This intra-Amazonian diaspora of domesticated plants is an exploitation pattern known as "horizontality", and it is largely responsible for the spread of complex civilizations in the basin (Lathrap, 1970; Moseley, 2001). Just as horizontality was responsible for the spread of complex lowland civilizations, it is very likely that highland civilizations would never have arisen if not for the movement of lowland cultigens upward, from valley bottoms to mountain slopes, in an exploitation pattern known as "verticality" (Moseley, 2001). In addition to the presence of lowland domesticated plants, the impact of the lowland chiefdoms and mini-states on Andean Civilizations is also evidenced in their religious iconography and the high prevalence of the use of lowland hallucinogens (Torres in Conklin, ed., et al. 2008).

Seasonal variation increases with elevation, which in turn drastically affects plant-growth cycles. In the jagged peaks of the tallest mountain chains in the world, like the Andes, ecological zones are squished together and stacked on top of one another. As Moseley (2001: 30) puts it "Andean people can trek 100 km as the crow flies and go from hilly jungle to alpine tundra, crossing counterparts of the major

continental life zones." Furthermore, after reaching the eastern alpine tundra (Cordillera Blanca), one can continue over the Altiplano, the western alpine tundra (Cordillera Negra), and then descend into the Atacama Desert, ending at the shores of the Pacific Ocean and one of the richest fisheries in the entire world. It was the shear proximity to all of these resources that allowed the Inca and their predecessors to utilize these ecological zones, following the verticality pattern (Moseley, 2001: 30). Those individuals living in the Altiplano, then, found themselves in the middle of one of the most productive and diverse regions in the entire world. Their location in this cradle of South American civilization made it almost inevitable that they would evolve in social complexity.

One thing standing in the way for cultural development in the Altiplano was chronic stress associated with the semi-arid mountain ecosystem, with some main problems including difficulty feeding people, altitude-associated physiological problems, and the cold climate. The difficulty in feeding people is a result of the "fragile topography, steep slopes, poor soils, limited farm land, short growing seasons, high winds, aridity, elevated solar radiation, erratic rainfall, precarious nutrition, cold, and hypoxia" (Moseley, 2001: 26-27). The Inca did adapt an overcome these problems, however. There were two main types of domesticated animals that the Inca used for nourishment in addition to the goods that they received in vertical trade. They domesticated the guinea pig (*Cavia porcellus*) (often referred to by the Quechua name "*cuy*"), which was used both for food and for magical purposes, such as healing. The Inca also domesticated two species of camelids: the llama (*Lama glama*) and the alpaca (*Vicugna pacos*), with llamas coming from its wild cousin the guanaco (*Lama guanicoe*) and alpacas being domesticated from their wild cousin the vicuña (*Vicugna*

vicugna). The llama and the alpaca were used both for their wool, as well as for their meat (Stahl *in* Silverman & Isbell eds., 2008). They also helped travelers to carry bags, but they were not draft animals capable of pulling plows. Surpluses were able to be stored to help with the winter months by freeze-drying potatoes to produce *chuño*, and by freeze-drying llama and alpaca meat to make *charqui*, the South American form of jerky. The llamas and alpacas also helped the Inca brave the cold weather of the area, since they have some of the warmest and finest wool of any animal on earth.

Hypoxia is a term which refers to low amounts of oxygen due to the elevational decrease in barometric pressure. Arterial blood oxygen saturation decreases 30% between sea-level and 5,000 m.a.s.l. (Moseley, 2001: 27). In addition to the use of coca leaves (*Erythroxyluum* sp.), the Inca also evolved physiologically in order to help them deal with the cold weather and altitude sickness, or *soroche*. They have larger chests, lungs, hearts, more subcutaneous fat, and blood with a higher amount of red blood cells than their European counterparts. Also, the placentas of Andean women are of a different size, weight, and configuration than Europeans, which is capable of diffusing more oxygen to the fetus. This is why the first European settlers tell stories of giving birth to "blue babies" and why, today, above a certain altitude, the population in Peru is still predominantly indigenous (Coon, 1963: 70; Moseley, 2001: 27). It is uncertain how the first lowlanders who moved upwards fared, but Moselely (2001: 27) attributes the distinct genetic, economic, and cultural differences between Arid Montane (i.e. Inca), Maritime-Oasis (i.e. Atacameños) and Tropical Forest (i.e. Shipibo) adaptations to the threat of hypoxia and anoxia.

Once subsistence and survival was insured, the Inca embarked on an explosion of cultural development never before paralleled in the new world, and they never

looked back until arrival of the Spanish. The term "Inca" refers to a small ethnic body, which began with a small group of kindred, less than 40,000 people, who built their kingdom in the city of Cuzco sometime in the beginning of the 15th century. The Inca Empire grew to almost 10,000,000 people, but these people were Inca *subjects*, not technically Inca (Moseley, 2001). This growth occurred by the amalgamation of numerous different tribes, chiefdoms, and polities, which were all governed under Quechua, the *lingua franca*. Due to the "ethnic separatism" of the conquered groups, conquest was very easy, but consolidation was very hard (Moseley, 2001: 10). Each group lived in their own respective *ayllus*, which were the basic socio-political units of the Inca (Moseley, 2001). The entire empire was united by a roadway system that rivaled all others up until the advent of the automobile. The Inca continued to grow until the civilization began to unwind from a deadly, yet invisible force. Unbeknownst to them, this was the spread of epidemic diseases as the result of the arrival of the Spanish, just a few thousand miles north of Cuzco in Panama and Mexico (Moseley, 2001).

Of the groups with whom I worked, the Shipibo, Atacameños, and Mapuche, the degree to which each culture was affected by the Inca varied tremendously. Although never fully conquered by the Inca, the Shipibo still venerate them and they have even deified the Inca in a dualistic manner, with their two gods the Good and Bad Inca. The Good Inca is thought to be a generous, benevolent god and is viewed as a culture hero, while the Bad Inca is thought to be a miserable and stingy forest ogre (Roe, 1982). With respect to the Atacameños, although they were heavily influenced by the Tiwanaku culture, the Inca reign over them only lasted about 100 years so they do not have many lasting effects still apparent today. They did, however, slightly alter

the local political structure due to the imposition of the empire's three-fold taxation system. Moreover, some Atacameños did adopt the Inca Sun Cult (Llagostera, 2008). The Mapuche were the least affected of the three groups. The Mapuche were able to

successfully resist invasion from the Inca through warfare, a very impressive feat, indeed, considering that the Mapuche were a tribal-level society and the Inca were perhaps the largest nation in the world at that time.

Figure 3 The Inca Empire, Tahuantinsuyu ("The Land of the Four Quarters"), at the height of the empire.

South America After the Arrival of the Spanish

The entire fate of every single indigenous person in the New World changed in 1492 when Christopher Columbus "discovered" the Caribbean Islands, home of the Taíno Indians. It wasn't long before Spanish forces arrived in Panama and Colombia

that the smallpox, which they had unintentionally brought along with them on their ships, began to spread like a wave throughout the two continents. The Spanish sent the conquistador Francisco Pizarro on a mission to search for gold in what is today Peru, but at that time it was the heart of the largest nation in the New World, the Inca Empire. However, even before the arrival of Pizarro in Peru, the Inca Empire had already begun to implode due to a civil war that left the Incas vulnerable and divided (Diamond, 1999: 77). The reason for this civil war was that the smallpox endemic was spreading throughout Amerindian populations, and one of the casualties was the Inca emperor, Wayna Capac, who thus died suddenly without naming an heir, along with an innumerable number of his subjects. Two of Wayna Capac's sons, Huascar and Atahualpa, each led an army and proceeded to engage in a civil war over who would inherit their father's crown. This bloody conflict lasted a little more than half a decade. In November of 1532, after just defeating his brother, Atahualpa went to the city of Cajamarca, located in the Peruvian highlands north of Lima. On November 16th, 1532, Pizarro reached Cajamarca with 62 horseman and 198 foot soldiers and proceeded to topple one of the largest empires of human history (Moseley, 2001: 11).

The indigenous peoples of the Americas stood no chance against the Spanish armed forces and foreign diseases, and thus began one of the largest human extinctions of all time. From smallpox alone, it is estimated that mortality rates were as high as two-thirds or more of the population (Moseley, 2001: 11). Countless others died from armed conflict against the superior Spanish guns, swords, and horses. What happened as a result was the loss of numerous cultures, and even those cultures that

did survive lost a disturbing amount of traditional cultural knowledge in a process that is still continuing today.

A Brief Note on Culture Change

It is with this bleak picture in mind that I will begin to talk about what I saw during my fieldwork in South America. Before proceeding, however, I would like to mention a few things. As I hope to have portrayed in this introductory chapter, although things have changed with regard to the indigenous peoples of South America, those who survive today are still the descendents of rich cultures and many cultural traditions. Because these traditions are still present in the societies today, no matter to how small a degree, I found it both necessary and important to discuss some of the aspects of their culture that have contributed to the knowledge possessed by them today. First, I will begin by talking about the origins of their animistic religious belief systems and their shamanic practices. These belief systems are vastly different today from how they were in the past for two main reasons. The first reason is due to Christian influence from centuries of missionary efforts. The second reason is due to socio-political changes both on the level of the internal structure of the tribe and, on a grander scale, their absorption into the country in which they live. The reason that socio-political changes influence religious belief is because religion is a reflection of society; therefore, as a society undergoes changes, so does the religious ideology (Swanson, 1996).

All three of the groups that I conducted fieldwork with have a large amount of Christian influence, and many individuals who hadn't been converted to Christianity appeared to be agnostic, at most. That being said, I saw varying degrees of acculturation between all three groups, some maintaining their cultural identity much better than others. Although my sample was small and of limited duration, the Mapuche appeared to have maintained their traditional religious beliefs the best, as they were the only group that I conducted fieldwork with where I saw practitioners of the traditional religion, many of whom were appalled at the idea of their fellow tribe members converting to Christianity. This is most likely a reflection of the Mapuche existing on a grander scale and having a greater complexity in comparison with the other two groups. With the Shipibo, I saw a sort of syncretism of the local practices and Western concepts; although I did not encounter anyone during my time there who spoke about traditional religious beliefs, I do know that it still exists there. From what I can tell with respect to the Atacameños, they never possessed a really strong religious belief system of their own, but rather adopted the beliefs of other groups. Prior to the Spanish, the last doctrine that they adopted was that of the Inca Sun God Cult, but due to the Inca only occupying the area for around 100 years, this faded and Christianity has converted most people who consider themselves as Atacameños in modern day Chile.

The next factor which has undoubtedly influenced the ideologies of indigenous peoples is the change in the political organization of these groups in modern times. These changes have occurred in several ways since the arrival of the Spanish. First,

when the Spanish were exploring their new land, they often appointed a chief to serve as a leader in what were previously acephalous societies. This happened under the tenets of the *encomienda* system (Simpson, 1966). According to the decrees of this system, a colonist, known as the *encomendero*, received a set of rights over Indian labor, and the *encomendero* could, in turn, extract tribute from the Indians. Additionally, the *encomendero* would provide the Indians protection and instruct them in the Catholic faith. To facilitate cooperation, the *encomendero* would have one "superior" Indian who he would choose to help him to administer justice to the "inferior" indigenous peoples under him. In a way, this New World form of organization was very similar to the feudal system imposed in Europe during the Middle Ages (Simpson, 1966). Although the three groups with whom I worked all had headmen during traditional times, their power was consultative, not coercive. Here, the power of the indigenous man placed in charge by the *encomendero* was not coercive, but rather authoritative. Another way that the socio-political structure has changed is that after indigenous civil rights issues were addressed, all three tribal groups with whom I worked were permitted to form tribal government councils that would speak on the behalf of the society to the government of the nation in which they live. These two factors, plus a number of other outside influences from living in a globalized world, have changed the internal structure of the villages in each group, but to varying degrees. For instance, my Shipibo informant, Manuel, had to speak to the chief of the village of Callería to make sure it was alright if I lived there and conducted research on their medicinal plants. With the Atacameños and Mapuche I

did not need to receive permission from a chief or person of authority in order to conduct my research because the household is the main political unit, however, I do know that Mapuche and Atacameño chiefs do still exist.

I will elaborate more on each group's respective relations with the Spanish since contact times and the degree to which their societies have been acculturated in the brief ethnographies that I offer in later chapters, but I will illustrate these differences for an important reason. When talking about the animistic religious beliefs, shamanistic practices, and cultural institutions of the Shipibo, Atacameño, and Mapuche Indians, I will be drawing mainly on early accounts, while also supplementing information on how they exist today. Although these cultures are by no means static, and much of the information that I will offer on religion and cultural customs has changed, the traditional knowledge of the medicinal plants of these groups has persisted from traditional times, with the occasional occurrence of an exotic plant which has been adopted into their medicine cabinet, so to speak. Although the term "traditional" is a complicated one, often used by anthropologists too freely, for the purpose of this work, it will refer to how these groups were documented in early ethnographic accounts. Another thing worth mentioning is that due to scant ethnographic accounts on the Atacameños, I will mainly be referring to the Shipibo and Mapuche in the upcoming chapters; however, I will include examples from the Atacameños when information is available.

Chapter 2

ANIMISM—THE DOCTRINE OF THE SOULS

"There is an universal tendency among mankind to conceive all beings like themselves, and to transfer to every object those qualities with which they are familiarly acquainted, and of which they are intimately conscious….The unknown causes, which continually employ their thought, appearing always in the same aspect, are all apprehended to be of the same kind or species."

-David Hume, *The Natural History of Religion* (1757)

Tribal Religion

When discussing medicine in small-scale societies, it is imperative to also include a discussion of religion. Foster (1976:773) sums it up very well by stating that "In many [traditional] cultures, religion and medical practices are almost inseparable." Religion, as defined by Sir Edward Burnett Tylor (1958: 8), is simply "the belief in spiritual beings." This definition has been added to in recent years to include the thoughts, actions, and subsequent beliefs to which these spiritual beings give rise (Bonvillain, 2006: 366). Religion is a universal in human societies; however, the

forms in which it is found vary from one culture to another. That being said, religion, in all its forms, aims to do certain key things: to explain the world, to replace uncertainty with risk, and at least provide the illusion of control or influence over said risk, and to provide a narrative for illness, death and accident. It is important to note that for these small-scale societies, categories such as "religious" and "supernatural" do not necessarily exist. Often there will be no word to describe these categories, since they are so interwoven into their daily life. This is something that continued into historical times, as well. For example, in ancient Hebrew there is no word for religion (Wright, 2009: 20). However, for the ease of communicating these concepts, I will continue to use words such as "religion" and "supernatural" in the remainder of this chapter.

It is well known that religion generally tends to mirror the hierarchical or non-hierarchical arrangement of sovereign groups constituting the society in which it is found (Swanson, 1996). If religion is a reflection of social structure, and social structure changes over time, then religious views will tend to change as social structure changes. For example, in societies governed by a central leader, such as an emperor governing a multi-ethnic empire, or a king with his bureaucracy of nobles, monotheism tends to exist. Examples of monotheism in which there is a central political leader can be found in all of the major desert religions (Christianity, Judaism, Islam, and Mormonism). The gods of societies in which there is a pantheistic hierarchical social structure tend to be organized in a ranked pantheon of deities and can be classified as polytheistic, such as those seen in ancient Greece and Rome

(Bonvillain, 2006: 367). The focus of my discussion will be the religious views most typical of economically-egalitarian societies, where religion typically tends to be egalitarian, as well (Bonvillain, 2006: 367).

Tribal societies typically believe in a wide variation of supernatural beings, which are manifested in all of the objects and phenomena of the natural world. This type of religion is known as animism, as popularized by E.B. Tylor in his classic work *Religion in Primitive Culture*, originally published in 1871. For the purpose of consistency and coherency, I will classify the levels of social complexity in the Shipibo, Atacameños, and the Mapuche at the level of the tribe. While all of these groups are economically-egalitarian, their means of subsistence differs, which leads to differences in the type of gods and spirits which exist in their religions. The Shipibo are slash-and-burn horticulturalists who get animal protein primarily from fishing in the dry season and hunting in the wet season (Roe, 1982: 32), the Atacameños are agropastoralists (Para et al. 2004: 39), and the Mapuche are traditionally agropastoralists who supplemented their diets with hunting and fishing. However, the Mapuche have adopted a predominantly agrarian lifestyle since Spanish rule has established hegemony over them (Faron 1968: ix).

Animism

The term animism was popularized by Sir Edward Burnett Tylor in the late nineteenth century. Tylor, considered by many to be the founder of British social

anthropology, grounded his theory of animism in a paradigm that has been popular in anthropology for over a century: cultural evolutionism, a direct result of Darwin's theory of evolution (Moore, 2009: 2). While modern cultural evolutionists believe that societies evolve in a multilinear fashion, Tylor saw the evolution of culture as one that proceeded unilinearly. Tylor believed that human culture evolved, the same as biological species did, and that progress was an inevitable byproduct of cultural evolution. Tylor thought that progress could be documented through the identification of survivals from earlier stages and the analysis of them through the use of the comparative method (Moore, 2009: 10-12). It was from this theory that Tylor constructed his view that religion evolved from a less complex state, to one of greater complexity; in historical terms, the theory posited that monotheism has evolved out of the more "primitive" animistic doctrines. Tylor's theory has been heavily criticized for its reduction of the complexity of tribal religion and the supposition that the evolution of gods and religion is inherent (Moore, 2009: 16). Yet, other recent studies emphasize the continued relevance of Tylor's evolutionary perspective (Wright, 2009). Hence, I will still draw on his theory of animism because it remains very important in outlining the origins of some of the ideological phenomena found in many tribal religions. Animism, as defined by Tylor, is simply the belief that the spiritual world and the physical world coexist, and that every phenomena present in this world (i.e. humans, animals, plants, rocks, rivers, wind, etc.) has a corresponding spirit that exists in the spiritual world. What was it, though, that caused humans to attribute souls to both ourselves, as well as other entities in the natural realm?

Origins of Animism—Inquiries About Human Existence

Religion arose in cultures during the early stages of human social evolution as a result of efforts to explain the unknown. In Tylor's (1958) view, these cultures must have had fundamental questions about human consciousness, such as: What happens when we dream? The answer that early humans devised was that the "ethereally-embodied" soul departed from the body and traveled to the dream world. It was clear to early humans that the dream-world was very similar to our own world, so their explanation was that the soul left the body and wandered about in the dream-world. Other questions that may have puzzled early philosophers may have been things like, what occurs when humans enter trance? One explanation for trance could be that the soul is also temporarily leaving the body to go to the spirit world. What makes a human contract a disease? Tylor (1958) thought that early humans would attribute disease either to the soul exiting the body and its subsequent "capture" by malignant spirits ("soul capture"), or the possession of the body by another spirit ("spirit intrusion"). And an ever important question which has puzzled all religions is what happens when humans die? Death is most often attributed to the soul's permanent exit of the body (soul loss). Thus, animism helps to explain another problem that confronted tribal groups: death itself (Wright, 2009: 13).

In tribal-level societies it is usually believed that after death the soul leaves the body and progresses to a land of the spirits where it will wander for eternity often living like it did on earth (Tylor, 1958: 130). The belief in the soul's permanent exit from the physical body and subsequent entrance into the spirit realm helps to

demonstrate the animistic belief in a future state. The logic behind the existence of a future state after life becomes even more apparent if one believes that the souls of the dead can visit the living during their dreams. Tylor (1958: 135) states that "when in dream or vision the seer beholds the spirits of the departed, they give him tidings from the other world." This is considered to be very important by these individuals, and this type of occurrence often times gives rise to ancestral worship. This is especially true if the societies involved have unilineal corporate descent groups like lineages or clans. Thus, the relationship between living and dead souls is often one of tremendous importance for the tribal society. The importance of the departed can be seen in the attempts to contact the spirit world through trance, in the burying of the dead with funerary goods meant to accompany them into the next life, and in sacrifices made to appease the departed. One such example can be seen in Faron's (1986: 91) description of the Mapuche's view of the spirits of the dead. Faron notes that "the concept central in importance to Mapuche religious morality is that of a sustained and responsible link between the living and the dead." Furthermore, Faron notes that the Mapuche exhibit a pattern of patrilineal descent that traces inheritance back to an ancestral male who is often transformed into a mythological figure (Faron, 1986: 22).

The evidence presented in this section helps to demonstrate how the origins of the belief in the human soul came to be. Humans experience distinct realities, and an appropriate explanation to the differences between realities and the presence of departed individuals in these realities is that the soul travels to the spirit world where it can interact with the spirits of the dead. Once this philosophy of the human soul

emerged and became firmly established in the society, it wasn't long before humans extended the soul to other species as well (Tylor, 1958).

Animal and Plant Souls

Tylor's (1958: 53) view was that "the lower psychology cannot but recognize in beasts the very characteristics which it attributes to the human soul." Although Tyler describes this phenomenon quite crudely, from the animist point of view this attribution of humanoid characteristics is very logical. Animals also sleep, vocalize, and are seen to be moving while they dream, so they too must have souls that wander the spirit realm. Animals are also present in our dreams, so, naturally, their spirits are wandering around in the same dream-world as human spirits. Additionally, animals experience movement, health, disease, life and death the same as humans do. These physical states can all be attributed to their souls, as well. Notice that this "lateral view" (Roe, Pers. Comm.: 2011) to nature exposes the egalitarianism of their band and tribal societies, as well, since human and non-human animals are considered, in some sense, equivalent. In fact, in many small-scale societies individuals actually have animal counterparts; as such can be seen with the Yanomamö concept of *noreshi* (Chagnon 2009: 113-114). The importance of animal counterparts will be further seen in the next chapter's discussion of shamanism.

Humans often thought that the souls of some animals were more important than other animals. For instance, the significance of the snake, jaguar, cayman, and

raptor (note that all are powerful predators) is a reoccurring theme in lowland South American religious mythology (Roe, 1982; Tylor, 1958; Eliade, 2004, etc). Often times, important animals were sacrificed and incorporated into funeral ceremonies so that they could accompany the deceased into the next life (Tylor, 1958: 56-58). These animal souls can have positive, negative, or neutral connotations, but nonetheless their importance is evidenced by their more frequent occurrence in myth than other animals.

The idea that plants have souls was also prevalent in tribal, horticultural and pastoral societies. Tylor (1958: 58) says that plants "partaking with animals the phenomena of life and death, health and sickness, not unnaturally have some kind of soul ascribed to them." The importance of the idea of plant souls can be seen in the following translated account of how my Shipibo informant Manuel became familiar with the spirit of a medicinal vine used by the Shipibo. The Shipibo name for the plant is *shanën vana*. *Shanën* is the Shipibo name of a rare blue bird with a unique song and v*ana* refers to shade; literally shaded blue bird (Tournon & Reátegui, 1984: 111). The common Spanish name of the plant is *suelda con suelda*.

> The *shanën* bird eats the seeds of this vine and it grows out of their feces. It is very good for bone pain. The leaves are smashed and put on the sore area with a bandage. The spirit of this plant is very important for shamans. I studied this plant for three months in order to know the spirit. During this time I would follow a diet [free of fats, salts and sugars] and consume a tea made of the

> plant, tobacco and a little water every day. The drink would cause me to see [hallucinatory] visions so that I could meet the spirit in order to learn what I needed to know in order to heal the sick. After doing this for a while, the spirit finally came to me in my dreams. The spirit was an old man who smoked a pipe with two mouth pieces. He taught me all the ways to heal with the plant and all the songs I needed to know.

The reasoning presented above helps to demonstrate Tylor's attributed logic behind the animistic view of the world. If other living creatures experience things like health, sickness, life and death, then they too must logically have spirits. However, can this same logic be applied to inanimate objects as well? The theory of animism is extended to inanimate objects, as will be discussed below.

Inanimate Souls

The tendency of tribal societies to associate souls with inanimate objects may seem much more illogical than their crediting of souls to animate beings; however, upon closer examination it is not. As Tylor (1958: 61) states: "as strange as such a notion may seem to us," if we examine the notion of object-souls through the tribal point of view…we shall hardly pronounce it irrational."

In animistic religions, souls are laterally transferred to many inanimate objects found in the environment, such as: the sun, the moon, rocks, rivers, thunder, lightning,

mountains, and so forth (Tylor 1958: 290-294). While these things are not living per se, there is one thing which could indicate the possession of a spirit: They are still present when people dream, therefore, they are thought to have souls, as well. A good example of the attribution of souls to inanimate objects may be seen in Reichel-Dolmatoff's (1975: 52) description of the animation of thunder as a shaman-hero in the mythology of the Páez tribe of Colombia. "He may appear in the form of a child-like being or of a grown man, but most personifications and associations of thunder elaborate the feline character he has inherited from his jaguar progenitor." This demonstrates how inanimate objects are not only given the souls of humans, but how they are given the souls of animals as well. The association with the jaguar is symbolic of both the connection between the crack of thunder and the roar of the jaguar, and also of the importance of thunder in the Páez culture (Reichel-Dolmatoff 1975: 53). Similar notions are also present in Shipibo mythology (see Roe *in* Saunders ed., 1998). Small-scale societies also attribute souls to man-made objects such as clothes, musical instruments, and tools. These objects are both seen in dreams and placed in the graves with the deceased. By placing these funerary goods in the grave with the individual, it ensures that the souls of the objects will be transferred into the next life with them. An example of a soul being associated with a man-made object can be seen in the story I was told by a member of the Mapuche group of southern Chile. He told me of how the *kultrun*, the Mapuche name for their shamanic drum, possesses the energy called *mapun*. Because the *mapun* is present in the drum, the Mapuche shaman, known as a *machi*, is able to cure ill patients by utilizing the

spiritual energy from inside of the drum. The *kultrun* will be further discussed in the Shamanism Chapter.

Governing Spirits

Tylor believed that once the tribal belief in a broad range of spirits had become well established, social and ideological changes would occur and the society would evolve to have gods that govern other spirits. It is important to explain what is meant by the term "governing spirits." Tylor's theory asserts that at some point, the egalitarian view of the spirit world is replaced with the notion of spirits which govern other spirits present in their respective realms. This can take the form of an otiose deity, also known as a clock-maker god; that is, one which reigns supreme over other spiritual beings, but more as an aloof "first cause". The other type of governing spirit is found in the form of primary spirits which govern subordinate spirits present in their cosmological realm. For example, the Tukano Indians of Colombia believe in the presence of a spirit which governs all the animal spirits. This entity is what Reichel-Dolmatoff (1971) refers to as the "Master of the Animals." The Shipibo have a similar concept of primary spirits governing subordinate spirits with regard to their classification of cats. The Shipibo possess two major categories of cats, both of which are referred to as *ino*. The first category includes the following as kinds of quasi-feline creatures: the Amazonian otter (*Myocastor* sp.); the tara (*Tayra Barbara*); the coatimundi (*Nasuanasua*); and the dog (*Canis familiaris*), also regarded as a

"domesticated jaguar"; and the domestic cat (*Felis catus*). The second category of *ino* includes puma (*Felis concloro*), called *Casho Ino* (deer jaguar) from its favorite prey; the *Ahuapa* or ocelot (*Felis pardalis*); and the jaguar (*Panthera onca*). The Shipibo recognize several variants of jaguar, and their characteristics are freely mixed between natural and supernatural manifestations: the *Joshin Ino,* or "Yellow Jaguar", the *Huiso Ino*, or Black Jaguar (the melanistic variation), *Nai Ino*, or Sky or Thunder Jaguars, *Ani Inobo,* meaning "Big Jaguar group of", and *Jënë Ino* or Water Jaguars. Although all are classified in the *ino* category, they are all clearly distinct species (Roe *in* Saunders ed., 1998).

While the Shipibo's governing spirits exhibit a pantheistic view of the spiritual world, the views of the Mapuche and Atacameños exhibit more of a hierarchical, polytheistic religious belief. Although at the same level of cultural complexity, the governing spirits of the Atacameños and the Mapuche are not due to cultural evolution, as Tylor would have argued. Instead, both are thought by many to be concepts which diffused from the religious views of the Inca (Faron, 1986: 63, Para, 2004: 40). What they believed prior to Inca contact is unknown; however, I would hypothesize that since they are at the same level of social complexity as the Shipibo, both groups would have believed in an egalitarian, pantheistic assemblage of spirits due to their previously economically-egalitarian social structure. The Mapuche exemplify the presence of an active deity in their pantheon of gods, which they refer to as *Ngünechen*. While *Ngünechen* governs the other gods that are present in Mapuche cosmology, the minor gods still maintain a good degree of force and freedom of action

(Faron, 1986: 65-66). Some have argued that this is a result of Christian influence, however Faron (1986: 63) says that he and other scholars doubt this is true due to lack of evidence to support this claim, and the abundance of evidence to support Inca influence. The impact of the Inca on the Atacameños is more obvious in the Mapuche case. The Inca's reach extended from Ecuador in the north to central Chile in the south. This means that the Atacameño Indians were absorbed by the Inca Empire, but the vast reach of the empire stopped where Mapuche tribes began. So, while the Atacameños adopted the entire assemblage of gods from the Inca religion, the Mapuche only adopted some. This is doubtless derived from their successful military confrontation with the Inca, which left them more able to engage in "selective-acculturation" than the conquered Atacameños (Roe, 2012: Pers. Comm.) Some scholars, such as Para (2004) believe that the Atacameños adopted the whole religious doctrine of the Inca. Other scholars, such as Cortes & Santander (2002) think that the Atacameños adopted only major aspects of the Inca religion, such as the Sun Cult. I tend to agree with Cortes and Santander, due to the fact that the Inca only occupied the region for 100 years, and there is little evidence to suggest that the entire Inca assemblage of gods was taken on by the Atacameños. In either case, the Atacameños and the Mapuche examples help to show how cultural diffusion affects religious beliefs, and how higher-ranking gods can become integrated into previously egalitarian animistic religions.

Conclusion

In tribal societies, the religious beliefs tend to be animistic. Animism, or "nature worship", was a result of our early ancestor's inquiries into the phenomena that they encountered on a daily basis. The most powerful driving forces behind the belief were questions concerning different states of human consciousness. The soul served as a logical explanation for altered states of mind like dreaming, trance, illness (temporary soul loss or soul intrusion) and death (permanent soul loss). This concept that the soul left the body after death and moved on to a spirit world gave early humans the notion of a postmortem future state. This concept eventually gave rise to ancestral worship in those societies that had corporate descent groups, as well. Shortly after humans thought of themselves as possessing souls, it didn't take long before this belief was extended to other objects and phenomena, as well. Animals and plants were thought to have souls and were considered to be very important, as evidenced by tribal mythology. Inanimate objects, both natural and man-made, were also believed to have souls and were often incorporated as essential elements of ritual and myth. Eventually, perhaps as a reflection of internal social changes, or, in the cases of the Atacameños and Mapuche, as a result of cultural diffusion, the spirits were no longer egalitarian, but became organized into a hierarchy of deities.

As mentioned before, the spirits found in tribal religions were present in every single aspect of social life; therefore it was necessary to maintain good relations with the spiritual beings. Some spirits were benevolent, some malevolent, and some were thought to be neutral tricksters somewhere in between the two. Regardless of their

temperament, the duty of the society to appease the spirits was of paramount importance for the survival of its members. This need to maintain harmony between the spirit world and humans eventually gave rise to an individual in society who could act as a liaison between spirits and humans. This person is known as a shaman, and his role as mediator between human beings and the spirit world was vital to tribal societies everywhere. Indeed, the shaman (or the shamaness) can be regarded as the magico-religious practitioner of the animistic world view.

Chapter 3

SHAMANISM—THE ART OF ECSTASY

"It is consoling and comforting to know that a member of the community is able to see what is hidden and invisible to the rest and to bring back direct and reliable information from the supernatural worlds."

-Mircea Eliade, *Shamanism: Archaic Techniques of Ecstasy* (2004)

Introduction to Shamanism

In small-scale religions, there exists an individual who, due to his possession of magico-religious powers, acts as the mediator between the sacred world and the profane world. For centuries, people have studied these individuals and referred to them as "medicine men," "sorcerers," "magicians," or "witch doctors," with the most popular and accepted term now being "shaman." The prominent work on the matter was originally published in 1951 by the Romanian- born historian of religion, Mircea Eliade, and is entitled *Shamanism: Archaic Techniques of Ecstasy* (2004). Eliade explains that shamanism is widely thought to be a phenomenon of Siberia and Central Asia, with the word shaman actually coming from the Tungusic word "*šaman*," which is most commonly translated as "one who knows" (Eliade, 2004: 4; Wright, 2009: 30).

Although shamanism is thought to have originated in what is today Russia, survivals of the ancient practice can be seen throughout the entire world. Shamanic practices are evident in Indo-European societies from the Druids of England and Ireland to the Hindu and Buddhist traditions of India. In Africa, anthropologists, such as E.E. Evans-Pritchard (1976), have described many instances of shamanic techniques. In the New World, shamanism arrived when the first Americans crossed the Bering Land Bridge some 20,000+ years ago, and can be seen from the Inuit tribes in the Canadian Arctic all the way to the southern tip of South America in Tierra del Fuego with Fuegian groups such as the Ona and Yaghan (Eliade, 2004; Dillehay, 2000).

While the role of the shaman varies from culture to culture, there are some duties that appear almost universally with these individuals. Shamans are medicine men and are employed to cure like doctors. They are magicians believed to be able to perform miracles and control natural events. Shamans are considered to be psychopomps; that is, individuals who accompany the souls of the dead to the afterlife (like the Roman God, Mercury, and the Greek God, Hermes [Bierlein, 1994: 25]). They are also supposed to be the mystics who possess the ability to understand realities outside that of normal human perception and the ability to see into the future (Eliade, 2004).

All of these responsibilities of the shaman help to make one thing clear: shamanism, in itself, implies the existence of "magic, belief in Supreme Beings, spirits, [and] mythological concepts" (Eliade, 2004: 7). Eliade also goes on to make clear that shamanism arrives either after, or parallel to, ideology, never before. Now

that we have seen how the animistic beliefs of small-scale societies gave rise to the shaman, let us explore how an individual becomes a shaman.

The Call to Shamanhood

Eliade (2004: 13) lists four ways an individual is initially recruited to the path of shamanhood: (1) hereditary transmission (2) spontaneous vocation ("call" or "election") (3) free will and (4) the will of the clan. Of these four means of recruitment, those individuals who inherit their role or have obeyed their call to shamanhood are more common than those who become shamans by their own free will or the will of the clan. According to Eliade (2004: 21), several Guianan and Amazonian tribes are known to have a hereditary path to shamanhood, including the Shipibo shaman, or *ona ya*. Shipibo individuals may also be called to shamanhood after some sort of major event in their life, such as surviving a snakebite or being struck by lightning (Roe, 2011: Pers. Comm.) The Mapuche shamaness, or shaman (both of which are referred to as a *machi*), obtains their powers in one of two ways. The first is by being visited by either a mythological spirit, or by the spirit of a deceased *machi* on the mother's side, during a vision known as a *perimontun*. The second way, which the Mapuche view as the more powerful of the two, includes those individuals who are beckoned to shamanhood after some natural phenomenon such as a lightning storm or an earthquake (Bacigalupo, 2007: 26-27).

Besides visions, dreams, natural phenomena, or some life changing event

acting as the shaman's call to vocation, sometimes there are physical maladies which draw an individual to the profession, but this is not always the case. It was once thought that all shamans were either schizophrenics or epileptics; however, a major distinction must be made between an ill individual and a shaman. While it is true that many cultures around the world view epileptic attacks and schizophrenic auditory hallucinations as a sign of interaction between an individual and the spirit world, interaction with the spirit world does not necessarily imply that an individual is a shaman. The supposition that individuals who hear voices are always shamans was mainly drawn from a phenomenon known as arctic hysteria, first noted in Siberia—the place where shamanism was thought to have originated. Arctic hysteria is thought to be the result of the difficult living conditions in the arctic, namely "the extreme cold, the long nights, the desert solitude, and the lack of vitamins" (Eliade, 2004: 24). Someone who is afflicted with this severe mental illness would be likely to have difficulty in grasping the vast amount of practical instruction and the large amount of information a shaman must grasp, and therefore is most likely not a shaman. Although in many cultures, such as the Hmong, epileptics have a proclivity toward becoming a shaman, the distinction must be made clear that not all shamans are epileptics (Fadiman, 1997; Eliade, 2004). The assumption that epileptics are always shamans can be debunked when one considers the major difference between shamans and epileptics: shamans have the ability to enter trance at will, while epileptics do not.

These mistaken assumptions by early anthropologists can be attributed to biases rooted in the Western religious tradition. In Western religions, all interactions

with the supernatural world occur through intermediaries in the form of high priests. In egalitarian societies, on the other hand, anyone can have an experience with the supernatural in a variety of ways (Roe, 2011: Pers. Comm.). However, this was not understood by those individuals who first studied shamans, so they thought that anyone that heard voices or entered epileptic frenzy was in contact with the spirit world and should therefore be considered a shaman. It is not surprising that this assumption was made by early ethnographers, but there is one major difference that we now know of between a sick man and a medicine man: while the sick man is sick for life, the shaman is a sick man who has been cured, and furthermore, a sick man who is thought by his society to have cured himself, thus demonstrating his power (Eliade, 2004).

Initiatory Sickness

The initiatory sickness of the shaman-in-training, referred to as the neophtyte, involves all of the three phases of a rite of passage, as defined by Arnold van Gennep (2004: 11): the pre-liminal rite (the rite of separation), the liminal rite (the rite of transition), and the post-liminal rite (the rite of incorporation). The transformation into a shaman also involves the traditional symbolic motifs that correspond to these three phases of the rite of passage; that is, suffering, death of the former self, and rebirth into a new individual identity.

The psychic isolation of the initiate can be seen as a metaphor of the ritual of

separation that is present in most rites of passage. The transitional stage of the initiation is constituted by sickness, dream, and the first ecstatic experience, which transforms "the profane, pre-"choice" individual into a technician of the sacred" (Eliade, 2004: 33). It is during this period of transition that the neophyte suffers immensely. This period of mortification is the analog of the initiatory torturing that is prevalent in so many tribal societies' adulthood initiation ceremonies. The affliction will get to a point at which the initiate feels that death is imminent and the novice will be in such pain that he passes out or goes into shock. It is at this time that he will undergo his symbolic death and enter his initiatory ecstatic state. The first ecstatic experience is typically highly symbolic of a ritualistic death, with the most common motifs being the dismemberment of the individual and the subsequent renewal of the internal viscera with tutelary spirits, ascent to the sky to communicate with spirits, and descent to the underworld to converse with spirits (Eliade, 2004: 34).

Once the future shaman has undergone his initiatory illness, dream, and ecstasy, he will have been symbolically reborn as a new individual. This rebirth into a new person will be taken quite literally by his village. In many cultures, the novice will be given a new name, act as if he lost his memory, and will have to be re-taught common tasks (Eliade, 2004: 66). He will have demonstrated his ability to successfully heal himself and will have also demonstrated that he can travel to the dangerous realm of the spirits and return unscathed. Ana Mariella Bacigalupo (2007: 31) explains the transformation of one Mapuche individual into a *machi*. "Mapuche with spiritual gifts become ill with *machikutran* [shamanic illness]. Their symptoms

include fevers, boils, foaming at the mouth, insomnia, partial paralysis and partial blindness. Once neophytes heal themselves, they can become initiated and heal others."

Even after the individual has healed themselves, he still has a long way to go in his training. Lying ahead of the neophyte is a theoretical and practical apprenticeship with an elder shaman. During this period the master shaman will teach the new shaman many new things, but the most important for his future in shamanism is the mastery of the technique ecstasy. During these periods of ecstasy, or trance, the shaman's soul will engage in what is known as "magical", or "shamanic", flight in order to communicate with spirits through ascent to the sky world and descent to the underworld. This is the most important aspect of shamanism because these are the two primary realms that the shaman's soul will travel to during healing, and these realms are home to the primary helper spirits he will call on in order to cure the sick individual.

Shamanic Flight

David Lewis-Williams describes two trajectories of consciousness. The first of these is aptly called "normal consciousness", and only the state of dreaming, on the far right end of the spectrum is important for the shaman. While shamanic flight is possible in this state, the mind is more likely to dream of a world similar to ours in this state, as was discussed in the chapter on animism. Our concern lies in the second

spectrum of consciousness, the "intensified trajectory." It is this intensified trajectory that Eliade would refer to as the "ecstatic experience." The trance entered in the ecstatic experience of the intensified trajectory is something that is a near universal in traditional societies. Although it seems strange to us as Westerners, it is important to remember a major difference between our culture and the culture of traditional societies. We view other states of consciousness as irrational, and even dangerous, due to our emphasis on intelligence and rationality, hence our calling visions "hallucinations". This is partly due to our religious traditions and the fact that when someone is in an altered state of consciousness it gives them a direct path to the supernatural realm (this is why many psychoactive drugs are illegal), which is a position usually reserved for intermediaries or priests (Roe, 2011: Pers. Comm.). In contrast, the supernatural experience is much more accessible to the average person in the egalitarian, tribal society, and trance is something that they are reared to do from an early age. For example, among individuals in the !Kung tribe, of the Kalahari Desert, approximately half of the men and ten percent of the women have the ability to enter ecstatic states (Lindholm, 2008: 319).

There are two main ways to enter the trance associated with intensified trajectory. How trance is entered depends on whether the culture is drugo*phobic* (drug fearing), or drugo*phillic* (drug loving). In drugophobic cultures, trance is mainly entered through a combination of audio-driving (often times through the rhythmic beating of a drum), dancing, and hyperventilation, however other means can be used as well such as pain, fatigue, sensory deprivation and fasting (Harner, 1972: xii;

Lewis-Williams, 2002)

In drugophillic cultures, a specific class of chemicals, known as psychoactive compounds, is consumed in order to enter trance. The psychoactive compounds most commonly used are typically derived from plants (and fungi). These psychoactive species have, over time, evolved compounds that function as biochemical defense agents, i.e. "poisons" (Schultes et al. 2001). According to Richard Evans Schultes (et al. 2001), considered to be the father of ethnobotany, there are ninety-seven plants and fungi that are known to have a hallucinogenic or psychoactive effect on human beings, and these have been widely used over time.

The use of hallucinogens is widely documented throughout history. One of the most important is the Fly Agaric mushroom (*Amanita muscaria*), the most widely

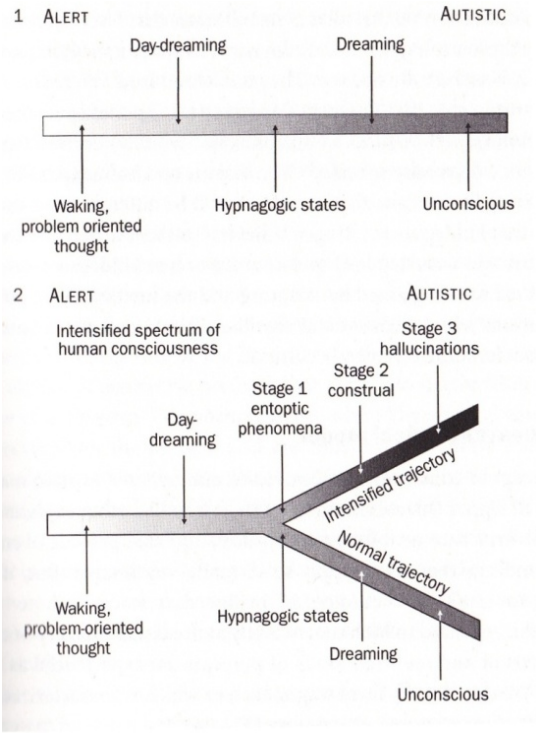

Figure 4 The two trajectories of consciousness (Lewis-Williams, 2002: 125)

used hallucinogen in Asia. Its consumption can be seen from Siberia, by those individuals credited with the advent of shamanism, all the way to India where the holy plant *Soma* is mentioned in 120 out of the 1,000 hymns in the Rig-Veda (Schultes et al. 2001: 82). It also seems that the spiritual importance of the Fly Agaric mushroom crossed the Bering Strait with the first American settlers thousands of years ago. The mushroom's religious usage can be found from Northwestern Canada, with groups like the Athabascan peoples, to groups living around Lake Superior in Michigan, such as the Ahnishinaubeg, and can be seen as far as Mesoamerica with groups such as the Maya and Ojibwa (Schultes et al. 2001: 84-85). The Peyote cactus (*Lophophora williamsii*) is also extremely important in areas of the Southwestern United States and Mexico, with groups such as the Huichol (Roe, 2011: Pers. Comm.). In Europe, the solanaceous plants belladonna (*Atropa belladonna*) and mandrake (*Mandragora officinarum*) were the ingredients added to witch's brews in order to make them engage in magical flight on their broomsticks (Schultes et al. 2001: 86; Harner, 1972: 129). The Mandrake rhizome was also always likened to a human, due to its form, and superstition claimed that its shrieks could drive someone mad (probably because its effects could drive someone mad). The Australia Aborigine use of the psychoactive plant Pituri (*Duboisia hopwoodii*) in what is most likely the longest continuous use of a hallucinogenic plant in mankind's history, having been used somewhere between 40,000 to 60,000 years ago with their arrival in Australia. In Africa, groups such as the Kuma use a species of *Datura* to enter trance to talk with the spirit world. *Datura* species are also widely used throughout much of Asia, North

America, and South America.

When discussing the prevalence of hallucinogenic plant use, South America stands out amongst the crowd. Along with *Datura* usage discussed in the previous paragraph, there are countless other South American hallucinogenic plants whose use is widespread, according to Schultes (et al. 2001). For example, the Shipibo are widely famous for their use of the jungle vine, *ayahuasca* (*Banisteriopsis caapi*), also known as *yajé*. Evidence of this plant, which they call *nishi rao* ("vine medicine"), can be seen in the hallucinogenic imagery present in their artwork (Roe, 1982). The San Pedro Cactus (*Trichocereus pachanoi*) was consumed as a tea throughout the Andes from Ecuador through to Chile. The beans of the *Yopo* Tree (*Anadenanthera peregrina*) were made into a snuff, primarily in the Carribean by the Taíno Indians and by many groups surrounding the Orinoco River Basin in Colombia, Venezuela, and Brazil. In the Atacama Desert, another *Anandanthera* species (*A. colubrina*), referred to locally as *Cebíl*, was extremely popular with pre-Colombian Atacameño Indians. Schultes (et al., 2001) explains how in 1987 the archaeologist and art historian C. Manuel Torres excavated more than six hundred prehistoric graves in San Pedro de Atacama, and nearly every one of the graves contained tools for ritual snuffing of *Cebíl,* including bird bones and snuff tablets. The Mapuche Indians employ a tree from the Nightshade family, known in *Mapudungun*, the language of the Mapuche, as *Latué* (*Latua pubiflora*), to induce "delirium, hallucination, and even permanent insanity" (Schultes et al. 2001: 72). The Tukano Indians ingest the psychoactive snuff, made from various *Viriola* species. The plant is commonly known as *Epená*,

and they believe it to be the semen of the sun (Reichel-Dolmatoff, 1971; 1975; 1978; 1987). Finally, one of the most powerful hallucinogens used in South America is the tobacco species *Nicotiana rustica*; the close cousin of the much weaker species which millions of people use on a daily basis, *Nicotiana tabacum*. It is smoked out of cigars and pipes during shamanic healing ceremonies, as well as used as an additive in many hallucinogenic mixtures. The symbolism behind tobacco's use will be discussed further in the Shamanic Curing section.

All of the previous plant hallucinogens discussed possess a class of chemical compounds known as alkaloids; that is, compounds containing the element nitrogen. These alkaloids have a chemical structure almost identical to that of certain neurotransmitters in the brain, namely serotonin and norepinephrine, and dopamine (Blanc, 2010). These are the same neurotransmitters that are released by individuals that enter trance without the aid of hallucinogenic drugs. This phenomenon can be explained from a psycho-evolutionary perspective.

These neurotransmitters all act on a brain structure that appeared in our distant evolutionary past called the limbic system, or the Paleomammalian complex (Brooker et al. 2008). This system directly influences the activities of the neocortex, the part of the brain that controls logic and has evolved most recently in humans. Since these ancient mammals (hence the term "*paleo*"mammalian) developed this structure in the brain, and humans evolved from early mammals, it can be hypothesized that humans should experience similar effects when they enter trance. It turns out that humans do experience similar phenomena during trance, but this is only part of the story, as

culture does come into play as well, continuing the everlasting tug-of-war between nature and nurture.

David Lewis-Williams (2002) describes three stages of the trance experience. The first stage is the biologically determined stage. In this stage, neurally conditioned images appear in the subject's peripheral vision. These images are known as phosphenes (*phos*- being the Greek word for light). This is what people refer to when they press on their closed eyelids and then "see stars," it also goes by the name "prisoner's cinema," referring to the phenomenon described by prisoners who have spent many hours in isolation (Oster, 1970). The German physicist Max Knoll was the first to study phosphenes by injecting subjects with mescaline, psilocybin, and LSD. Reichel-Dolmatoff (1987: 15) states, "by testing thousands of cases under controlled laboratory conditions, Knoll was able to observe a long series of abstract geometrical phosphenes which proved to be common to people of different cultural areas and which, obviously, were neurally-based." Gerardo Reichel-Dolmatoff (1987), an anthropologist who studied with many groups in Colombia, such as the Tukano Indians, compiled a selection of phosphenes patterns from Knoll's laboratory experiments and compared them to the motifs present in Tukano art; designs, which the Tukano say rather frankly come from their hallucinatory visions.

These included figures such as zigzags, spirals, dots, circles, to name a few. The resemblance is so close that it is near impossible that the similarities between the two are by mere chance. The next authority to pick up the subject was the psychologist Carl G. Jung (1959) who said that some of mankind's oldest symbols originated from these light patterns and that some of these symbols still exist today. These are known as archetypes; images that are embedded in our psyche from birth. Indeed they can be likened to Plato's "Theory of Forms" in the allegory of the cave from *The Republic* (1992). Many scholars since Jung have elaborated on this theory that mankind's earliest symbolic meaning arose from phosphenes, including Lewis-Williams (2002), Reichel-Dolmatoff (1987), and Oster (1970).

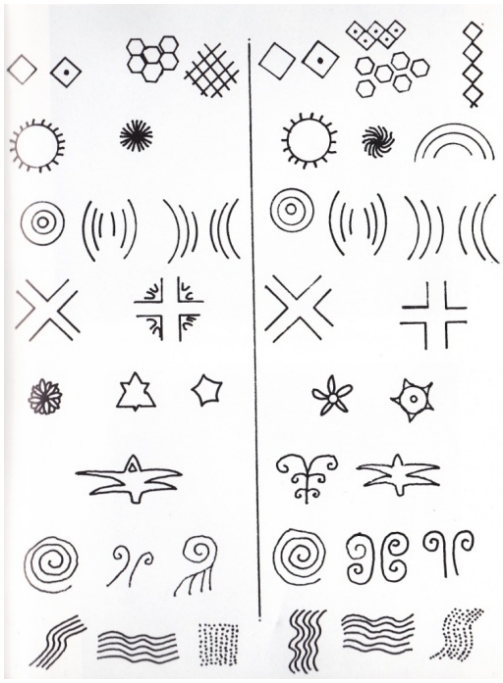

Figure 5 A collection of phosphene patterns collected by Knoll (left) and a collection of phosphene patterns from the Tukano Indians collected by Reichel-Dolmatoff (right)(Reichel-Dolmatoff, Plate XXXI)

The second stage described by Lewis-Williams (2002) occurs when the entopic phenomena begin to coalesce into iconic forms. This stage of the ecstatic experience is cultural in origins, and consists of objects that the subject sees in day-to-day life. However, there is an underlying biological theme in those objects, as well. Often times, the figures present during this stage of trance are theriomorphic, or taking the form of animals. These are not just any animals that the ecstatic individual sees either, they are icons of power; the "biggest, baddest" animals in the animal kingdom, which just happen to be the animals that have caused the biggest threat to humans over time. These images are avimorphic (bird form), ailouromorphic (cat form), and ophidiomorphic (reptilian form).

Although we aren't typically afraid of birds, it does not mean that our ancestors were not. For example, there exists fossil evidence of a two-million-year-old *Australopithecus africanus* child, known as the "Taung child," with talon marks in his skull, indicating he was killed by a large raptor (Hart and Sussman, 2005). The big cats are duly feared, as they are widely regarded as the perfect hunters and the deadliest of all land predators. They hunted our smaller great ape ancestors and in some cases they actively hunt modern man (Roe, 1987: 211). I remember one day during my fieldwork with the Shipibo, we spotted jaguar prints and the entire disposition of my informants changed as they pointed their guns toward the trees and some walked backwards to make sure that we didn't have a jaguar jump down and snatch one of us by the back of the neck for a nice lunch. As for reptiles, millions of individuals around the world suffer from ophidiophobia, fear of snakes (myself

included). Humans, as slow-moving, bipedal apes are ill-equipped to defend themselves against these three apical predators. Thus, it has become advantageous for us evolutionarily to fear these creatures, and when we enter trance we tap into our paleoanthropic fears of them.

If this stage of the trance is culturally based on what individuals see in their day-to-day life, then how is it that the same images appear to city dwellers who have the luxury of never coming into contact with these powerful animals? In Claudio Naranjo's chapter of Michael Harner's 1972 book, *Hallucinogens and Shamanism*, Naranjo explains how he administered *yajé* to thirty five volunteers in Santiago de Chile, Chile. What he found was astonishing. Naranjo states "serpents…recur in the visions, and crocodiles or reptiles in general, and so do tigers, leopards, and cats…even though big cats are not seen in Chile" (Naranjo *in* Harner ed., 1972: 183). Something else to note is that each of these creatures is linked to a layer of the cosmos: the reptilian corresponds to the underworld, the jaguar to the earthworld, and the raptor to the skyworld. It is these three realms that the shaman will visit during his shamanic flight, which is exactly what Stage 3 of the ecstatic experience is.
As Eliade (2004: 259) states, "the pre-eminently shamanic technique is passage from one cosmic region to another—from earth to the sky or from earth to the underworld." These three levels of the universe are thought to be connected by a world pillar, also known as the world naval, umbilicus of the earth, and the Latin term *axis mundi* (Eliade, 2004; Campbell, 2008; Roe, 1982; Lewis-Williams, 2002). This is also a cross cultural phenomenon that can be explained biologically as well. At this point of

the ecstatic experience, the feeling of limb attenuation and the dissociation from reality cause the person to feel a sense of weightlessness, as if they are floating. In addition, hypoxia begins to set in, and the subject's optic nerve begins to shut down causing tunnel-vision. The brain combines these two sensations to trick the person into thinking that they are flying through a tunnel connecting the earth to the sky and the underworld.

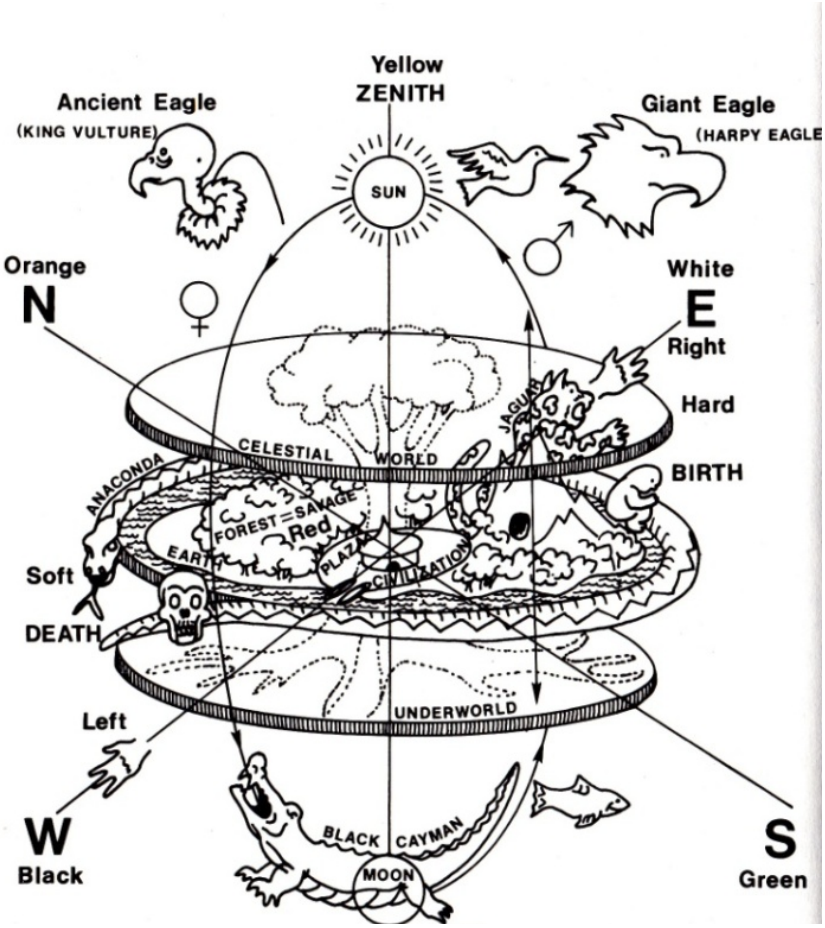

Figure 6 Depiction of the Amazonian cosmos (Roe, 1982: 128)

Many mythologies account for this phenomenon, but in many different ways; this cross-cultural occurrence in myth is what Claude Levi-Strauss (1963: 211) referred to as a mytheme. For example, the *axis mundi* motif is most commonly found in a handful of forms: the tree, the pillar/ladder, and the mountain. Examples of the tree can be seen with Buddha, who found his enlightenment at the foot of the Bodhi tree (Campbell, 2008: 32). In the Amazon, the *lupuna* (*Ceiba pentandra*) tree is the world umbilicus whose spirit is thought to visit the Indian narcotized by *ayahuasca* (Roe, 1982: 118). The world tree becomes the tree of sacrifice, hence Jesus' sacrifice on the cross is yet another example of the world pillar motif (Campbell, 2008: 32). The Mapuche shaman's or shamaness' ecstatic flight also takes place at a pillar known as the *rewe*. The *rewe*, literally "the purest", is the altar carved from the *foye*, or *canelo* tree (Bacigalupo, 2007: 52). The *Foye* is the Mapuche tree of life that connects the three planes of the universe together, which means the *rewe* pillar can be viewed as a microcosmic copy of the macrocosmic *Foye* world tree (Bacigalupo, 1999: 23). Finally, the example of the mountain as the cosmic connector can be seen in many mythologies. In Hinduism, Mount Meru is the home of the god Shiva. In Ancient Greece, Mount Olympus was the home of Zeus. In Judaism, Mount Sinai was considered the holy mountain. In deserts, where mountains and trees fail to grow, mountains are built by man, such as with the Old World pyramids in Ancient Egypt and Mesopotamia, and with the New World Pyramids in Ancient Mexico, Guatemala, and Peru to bring them closer to the gods (Boorstin, 1985).

Apprenticeship of the Neophyte

Once the shaman has healed himself after his initiatory sickness, he then enters a period of apprenticeship with a master elder shaman. It is during this time that the initiate and the master shaman will retreat into the wilderness together for an intensive period of instruction. During this time the shaman-in-training will have to follow many taboos that restrict him from certain foods, sex, and certain behaviors (Wright, 2009). It is also during this instructional period that the master will teach the new shaman his ethnobiological theory behind healing; he will help to show which medicines to use to heal which ailments, as well as how to prepare these medicines. The neophyte's ecstatic visions will serve as the entire framework for this instruction. Rather than the master shaman directly instructing the neophyte on the biological theory behind healing, he will instead teach him by interpreting his visions for him. This will be done by employing a high level of suggestibility and something that Franz Boas (1955: 123) refers to as "reading in," and what Lewis-Williams (2002) refers to as "construal." This means that he will place significance in something that is otherwise arbitrary.

As mentioned before, during the ecstatic experience, the individuals will see geometric shapes (phosphenes), which will eventually coalesce into figurative images, and finally they will have the feeling of traveling through the world's umbilicus. The master shaman will interpret what the young shaman sees in such a manner that he is able to convey the information that he wants to teach the neophyte. For example, if the initiate tells the master that he sees a green spiral pattern the elder shaman may say

to him that this is the inflorescence of a certain plant, and that it is used in the curing of some illness by preparing it a certain way. By doing so, he is able to transform what is a simple geometric pattern experienced by all individuals in this stage of the trance into a means of teaching what plants are used for what illnesses and how they are prepared.

In addition to interpreting the phosphenes, the elder will talk to the shaman-initiate about the spiritual beings he sees during trance. Although the animal spirits are seen most often (especially that of the bird, reptile, and cat), anthropomorphic, or human, spirits are also seen quite frequently as well (Eliade, 2004). The humanoid spirits that appear are often thought to be the souls of deceased shamans that are appearing in dreams to instruct the neophyte. They are also thought to be deities, such as the Master of the Animals, if the group is deistic. Whether humanoid or animal in form, the shaman's goal is to gather these spirits into a sort of army of helping spirits, which he will use to heal. The spirits which appear during séance may be malevolent or benevolent, and can appear alone, or with other spirits (van Gennep, 2004: 108). Although many spirits will appear to the shaman, only a few of them will actually be under his control and will serve as his helping, or tutelary spirits. These will be different for each individual because unlike in the Western religious traditions where orthodoxy is preserved, each shaman will have his own set of tutelary spirits. This results in a heterodoxical worldview due to each individual having a different perception of the cosmos and mythos.

The spirits that appear during the ecstatic visions also communicate with the

shaman. As one of my Mapuche shaman informants told me, the spirits may tell them how to heal a sick person, which plants to use, where to find the plants, etc. Often times, the ecstatic individual will grow partial to one particular tutelary spirit, either animal or anthropomorphic, that will become his spirit-familiar (Eliade, 2004: 88). If this is the case, the shaman will actually transform into his spirit familiar either by putting on a mask, or by apparent possession by the spirit. Reichel-Dolmatoff (1987:10) talks about the Tukano Indian belief that "shamans are transformers and are said to be able to turn at will into jaguars, huge serpents, harpy eagles or other fearful creatures." He will turn into this familiar during all of his future shamanizing and will fight rival shamans and enemy spirits in this form. The transformation into a jaguar is extremely common in lowland South America, and is known as the "shaman-jaguar transformation complex" (Steward, 1949: 707, cited in Wilbert, 1987: 192). It turns out that the Jaguar is one of the oldest figurative depictions on any piece of South American art, appearing on ceramic vessels in the Early Tutishcainyo Phase of Tropical Culture development (Lathrap, 1970: 86). In addition to transforming into his spirit familiar through mask or possession, the shaman will also learn a "secret language" or an "animal language," which helps to increase his credibility. This will either be taught to him by his master shaman or he will learn it himself from the spirit world, but whichever way he learns it, the fact that he knows a language that nobody else does helps to increase his "bedside manner" in the eyes of the village. Eliade (2004: 30) states that the Yakut shaman of Siberia has a lexicon of around 12,000 words, while an ordinary person has a vocabulary of only 4,000 words. Roe (1982:

89) describes a similar occurrence with the Shipibo where the shaman sings his curing song in what he thinks is Quechua to call on the magical powers of the deified Inca. Roe then explains that the individual is actually not speaking Quechua, but a language of Quechua *sounding* words, but it still accomplishes the task of establishing their other-worldly repertoire within the society.

Once the elder shaman feels that the neophyte is ready, there will be a public ceremony in the village acknowledging his new societal role. The communal initiation ceremony will almost always involve some sort of symbolic means of celestial ascent. Eliade (2004: 122) provides a great description of the Araucanian shamaness' initiation ceremony where the central motif of the ceremony is the climbing of the *rewe* pillar. This is one of the most important symbols of the *machi*,

Figure 7 A Mapuche machi atop her rewe alter (Faron, 1986: 84)

and the *rewe* that is used in her consecration into the profession will be placed outside her house for the remainder of her life. For the ceremony, however, the *rewe* will be placed in the center of the village, as befits an *axis mundi*. The ceremony begins with the candidate undressing and laying down on a couch of blankets. Then, old shamanesses circle her and rub her body with *Canelo* leaves and then bend over her and suck her breast, stomach, and forehead with such force that blood spurts out. The candidate then dresses and sits in a chair while communal song and dance continues for the rest of the day. This will last for over a day, until the climax of the ceremony, which occurs when the old *machi* form a circle and drum and dance around the *rewe*, while the candidate goes to the *rewe* and begins to climb its seven steps. She then enters an ecstatic state, falls, and is caught by her fellow *machi* at the bottom of the altar. Once the new shamaness comes back again, there is a great uproar in the village where everyone wants to see her, touch her, and kiss her. Following this is a feast put on by the new *machi*'s family. This is the moment of the concrete entrance into shamanhood. Once the sorcerer recognizes his own powers and the village his powers, as well, the shaman can then begin to take on patients and heal them (Levi-Strauss, 1963: 168).

Shamanic Curing

Although the shaman's duties are many (magician, psychopomp, mystic), the seemingly most important shamanic task for this investigation is his or her role as a

healer. However, before discussing the actual ceremony surrounding the healing of illness, we must first address all of the different factors that contribute to the causes of sickness, or the disease etiology (Foster, 1976: 774).

It is first important to note that non-traditional etiologies attribute illness to two causes: personalistic and naturalistic (Foster, 1976). Personalistic causes of are "due to the *active, purposeful intervention* of an *agent*, who may be human (a witch or a sorcerer), nonhuman (a ghost, an ancestor, an evil spirit), or supernatural (a deity or other very powerful being)" (Foster, 1976: 775). The ill individual is literally a victim of the aggression or punishment directed towards him by these agents. Naturalistic causes of illness do not come from an angry being, but rather from natural forces. These could be from excessive cold or heat entering the body, dampness, or an upset in the balance of the body elements (Foster, 1976: 775). These two causes of illness are rarely, if ever, mutually exclusive. In order to properly cure the individual, the shaman will have to address both the personalistic and naturalistic causes of the illness. Ecstatic flight most commonly deals with personalistic causes, as it requires someone with supernatural powers, while naturalistic causes are typically healed by using herbal remedies, food restrictions, massage, and the like.

In addition, there are also different aspects of the sickness that the shaman must address. In Robert Pool and Wenzel Geissler's (2009) text, *Medical Anthropology*, they explain the distinction between illness, disease, and sickness. Disease includes abnormalities in the structure and function of organs and body systems, as defined by the Western Biomedical Model. Illness deals with the patient's

subjective experience of mental and/or physical states. Illness may be caused by underlying disease pathology, but it does not necessarily have to be. As Eric Cassell puts it, "Illness is what the patient feels when he goes to the doctor, disease is what he has on the way home" (Cassell, 1976 *in* Geissler and Pool 2009). The term "sickness" is used in two ways. Some medical anthropologists use it as an umbrella term to refer to the process in which illness and disease are socialized. Others, including myself, use it as an umbrella term to refer to both illness and disease. The illness narrative is a story told to the healer by not only the patient, but also relatives, and other acquaintances about the sickness. This social aspect of sickness that exists outside of the affected individual is sometimes called the "second illness," and in some cases can be added to the illness experience (Geissler and Pool, 2009: 53). These definitions help to make it clear that there are three realms that must be addressed when treating a sickness: biological, psychological and sociological vectors. These will all be addressed during the healing ritual in various ways.

Before the ceremony can begin, however, the patient, their friends, and their family will all provide the shaman with an illness narrative so that the shaman knows how to go about healing the individual. Usually, a shaman will receive payment, often in the form of tobacco, food, or art supplies such as beads (Wright, 2009: 35). Once the shaman understands the sickness and has received his payment the healing ceremony can now begin. While the details of the ceremony vary from culture to culture, there are certain recurring motifs that are common cross-culturally. These include the shamanic costume, drum, interpersonal touch, the use of trance to address

either spirit loss or spirit intrusion, and the prescription of plant medicine. In South America, one more motif that can be found in nearly all shamanic ceremonies is the use of tobacco (Wilbert, 1987).

Just as priests in the Christian religious tradition must wear the sacred clerical collar, so too must the shaman wear a sacred costume. The costume itself will also constitute a religious cosmography and is laden with religious and metaphysical symbolism. The Waiwai Indians of the Northeast Amazon, for example, will adorn their body with feathers of birds that correspond to different levels of the cosmos. The feathers of the giant harpy eagle, who inhabits the highest part of the three-tiered canopy and guards the world tree (the *Lupuna*), is found from the shoulders up, representing the sky world. The middle layer of the body will be adorned with bright red, yellow, and orange breast feathers of the toucan, which are found in the middle canopy of the rainforest. The lower layer of the body will be adorned with the ground-dwelling curassow's black feathers (Roe, 1995: 61). The shamanic mask is also very common, and will typically represent ancestors, mythical animals, or a deity (Eliade, 2004). This mask causes the individual to transform into whichever mythical entity it represents as per the "law" across many religions that "one becomes what one displays" (Eliade, 2004: 179).

The shamanic drum, a survival of the most ancient shamanic practices of Siberia, is also one of the most important aspects of the curing ceremony (Eliade, 2004). This is mainly because the drum offers the steady rhythmic beating that allows an individual to slip into trance. Furthermore, the drum is also highly symbolic of the

cosmos through which the shaman flies during this trance. The Mapuche offer a great example of the importance of the drum in ceremony, cosmology, and myth. During a Mapuche healing ceremony, the shamanic drum, the *kultrun,* is beaten over afflicted areas of the patient's body with a specially made drum stick that symbolizes the *machi*'s power (Faron, 1968: 73). As a means of entering trance, and thus traveling through the levels of the universe, it is only fitting that the *kultrun* actually serves as a miniature model of the cosmos through which the shaman flies during his state of ecstasy. As my Mapuche consultant, Juanita, told me in January of 2011 (translated by the author), "the bowl of the *kultrun* is thought to be the underworld, or *munche mapu*, the goatskin face of the drum is thought to be the earth plane, or *mapu*, and there is thought to be an invisible hemisphere over the top of the drum which would be the sky world, or *wenu mapu*." The *wenu mapu* is associated with benevolent gods and ancestral spirits, life, and the colors white, yellow, and blue. The *munche mapu* is the dimension of evil and death, associated with the colors bright red and black. The

Figure 8 The Mapuche shamanic drum, or kultrun (Bacigalupo, 1999: 24)

mapu, or earth plane, is the everyday dimension where the Mapuche live, where good and bad spirits confront each other and where "the struggle between good and evil, life and death, health and illness takes place." (Bacigalupo, 2007: 24) This level is associated with the colors of nature, such as green and blood red (Bacigalupo, 2007: 24).

The head of the drum is always painted with a cross, splitting the face into four quarters. This represents the *meli witran mapu*, or the fourfold division of the world (Bacigalupo, 2007: 52). This is symbolic of the four corners of the Mapuche earth (the north, the south, the coast to the west, and the Andes to the east), the four winds, the four classical elements (earth, water, fire, air) and the four aspects of Ngünechen. Ngünechen is the four-part gendered deity who sits atop the Mapuche pantheon of deities. Ngünechen consists of four principles arranged in a dualistic opposition to one another: wisdom (old age) versus sexuality (youth) and masculinity versus femininity. These four principles are often viewed as a family in which an old man and old woman are the knowledgeable parents, and the young man and young woman are the libidinous brother and sister, or husband and wife. Like Adam and Eve in Christianity, it is from this family that all Mapuche have descended. These four individuals are so important that they are depicted as symbolic elements on the face of the drum, usually in the form of stars, or suns. Although all *kultrun* possess the cross with icons symbolic of the quadripartite deity, Ngünechen, Juanita made it clear to me that no two *kultrun* will ever be the same, demonstrating the aesthetic imperative of the artists.

The point at the center of the cross where the two arms meet is thought to be the center of the earth where the shaman's *rewe* altar is located. As mentioned before, the *rewe* tree is the symbolic *axis mundi* of the Mapuche, thought to connect the three tiers of the universe to one another (Bacigalupo, 1999: 23). The *rewe* has seven steps carved into it, which I hypothesize symbolize the Pleiades constellation (also known in the West as the "Seven Sisters") and its significance as a marker in the agricultural cycle. It is atop this altar that the *machi* would have been initiated during a large communal ceremony, taking part in their first shamanic flight as a consummated *machi*, which makes it the home of her spirit familiar. The *rewe* altar is the second most important symbol of the *machi*'s practice (the first being the *kultrun*), and so the *kultrun* can be viewed as a uniting element. It unites the two most important shamanic instruments, the *rewe* and the *kultrun*, the four quadrants of the Mapuche universe, the four most important figures in the Mapuche mythology, the three levels of the universe, and the *machi* and their possessing spirit.

While the shaman is singing, dancing, and beating his drum he will be massaging the afflicted areas of the patient's body. Touch is very important during the healing ceremony of the traditional society, but, unfortunately, the art of touch in Western Medicine is something that has largely vanished (although minority movements such as Osteopathy and massage therapy are trying to bring this back into the mainstream). As primates, touch is one of our most important non-verbal means of communication for things like bonding, intimacy, and liking (Hertenstein et al. 2007). It acts directly on our neuroendocrine mechanisms, which, as Melvin Konner

puts it, "serve as the intermediaries between mind and body" (1985: 3). Therefore, it is very important that the patient has an emotional connection to their practitioner for the psychological aspect of the healing ceremony. Additionally, if this person is thought to possess divine healing powers, then through the principles of contagious magic (Frazer, 2009) their touch will cause the person's sickness to be cured.

In many groups in South America, especially the ones of importance for this work, the shaman will often smoke tobacco out of a pipe or cigar and blow the smoke over his patient prior to the ecstatic experience. South America is the home of the cultivated tobacco plants *Nicotiana rustica* and *Nicotiana tabacum* and it is extremely important in traditional mythology and healing. The use of tobacco in South America is masterfully chronicled in Johannes Wilbert's 1987 book *Tobacco and Shamanism in South America.* As mentioned in the section on hallucinogenic plants, tobacco is the strongest hallucinogen in South America, containing up to eighteen times more nicotine than the typical Virginia-type cigarette (Wilbert, 1987; Narby, 1999). Individuals in South America ingest tobacco in a number of ways (smoking, snorting, chewing, drinking [as tobacco water], and as an enema), and often times they will consume it to such an extent that it results in acute nicotine poisoning. This results in a catatonic trance paralysis and can even lead to death. For this reason, tobacco shamans are largely considered to be the most powerful type of shaman who is in closest relation to the spirit world because they consistently enter a death-like state and return to speak of their encounters with the spirits (Wilbert, 1987). Not all use of tobacco is for ecstatic purposes, however. The Mapuche, for example, also use it for

the rich symbolism associated with tobacco, which will be discussed below.

The first thing that must be discussed is why tobacco, something that is perhaps the largest cause of cancer in our culture, is viewed as medicinal. This is because Indians realize that nicotine actually contains powerful insecticidal properties, which allows it to be used in medical application, as well. It is effective in ridding the body of worms and fleas, such as the neotropic botfly larvae, which burrow themselves under the skin of humans (Wilbert, 1987). One symbolic metaphor connected with tobacco use is that tobacco is considered food for the spirits (Wilbert, 1987). Traditional cultures often view tobacco as a sacramental food, probably because of the association of tobacco with hunger: people smoke to suppress hunger pains, and often times if someone is craving nicotine they eat to suppress the cravings. Therefore, as Johannes Wilber states, there is a duality that corresponds between the two types of hunger, food and "soul food." As with most dualistic associations, the shaman stands as the symbolic intermediary in the liminal zone between the two. Since the shaman is closely related to his tutelary spirits, it is only logical that they too crave tobacco for their efficacy just as the shaman is given tobacco as payment for his services. Parenthetically, the anthropologist/archaeologist can also be the recipient of tobacco as a gift acknowledging his expertise in things super-natural. Dr. Roe (Pers. Comm., 2012) told me how after giving several lectures to his guides at the site of Chavín de Huantar in the Northern Andes on the results of his archaeoastronomical studies of the site and the implications for Chavín religion, one of the local guides, who is also a famous local shaman, presented him with two hand rolled cigarettes in

gratitude for this new "vision" on an ancient culture he felt close affinity with. In addition to the tutelary spirits crave tobacco just as the shaman does, the relationship is further evidenced by the fact that when tobacco is smoked, the smoke travels to the sky where the spirits reside. Eliade (2004: 330) quotes a Mapuche *machi* who, after taking a long puff out of a pipe, tilts her head back, blows her smoke to the sky and says "I offer thee this smoke." Another symbolic association of tobacco is that by lighting with fire (a cultural element), it, too becomes an object that falls into the realm of culture (Levi-Strauss, 1963). Some illness is thought to be caused by an evil spirit's intrusion into the body, which is associated as something originating from the more dangerous natural realm. Therefore, the burning of tobacco and blowing it over the body can be thought of using a cultural weapon to fight the hazardous natural spirit world, thus "fumigating" the illness away (Roe, 2011: Pers. Comm.).

The song, dance, touch, and tobacco smoke are all part of the stage that leads up to the cathartic climax, which is the ecstatic experience. What the shaman's spirit does in order to heal during the ecstasy depends on which type of personalistic illness the shaman determines the individual has. Personalistic sickness is attributed to one of two things in small-scale societies: soul intrusion or soul loss from the body-hut (Tylor, 1958). In the case of soul intrusion, the shaman will have to delve into the body of the patient, often employing x-ray vision to find and expel the intrusive agent. In the case of soul loss, the healer's soul will travel to the upper tier of the universe to either fight an enemy shaman or to retrieve his patient's soul from whatever evil spirits have hold of it. In both cases, he will depend on his helper spirits to identify

the cause of illness, and he will call on this army of spirits to help him to combat the forces of evil.

Since the healing experience also deals with psychological and social matters, as well as physical aspects, the shaman will have to convince the audience that what he is doing is genuine. In order to do this he will employ sleight of hand and ventriloquism, but the sleight of hand he does again depends on whether the person was sick from spirit loss or intrusion. If he has to remove a spirit from inside the affected individual, he may slip something in his mouth to make it appear that an actual object had been removed. He will then take this object and act as if he is blowing it at an enemy shaman who caused the illness in the first place. This is bewitchment, the other side of shamanic healing. This is the tribal equivalent of the First Law of Thermodynamics: energy can neither be created nor destroyed; it is just transferred. This "sucking cure" and "blowing curse" are common throughout all of South America (Eliade, 2004: 329). If the spirit is lost and the shaman has to fight against evil spirits in the cosmos, then they typically will inflict some type of injury to themselves such as biting the tongue to draw blood, cutting themselves with a razor blade, or stabbing an animal bladder under their robe to make it seem as though they are bleeding from their battles (Eliade, 2004). This use of "trickery" does not mean that the individual is a charlatan; instead it just shows that the shaman understands that belief and confidence on the part of his patients are just as important as biology in the healing process. Just as my Mapuche informant Miguel told me, you can't heal a person without addressing both the body and the spirit.

The biological aspect of curing for naturalistic illnesses (rather than personalistic) is the one that will be most important for the rest of this work. This is mostly done through the administering of plants to the patient. Tribal knowledge of the chemical properties of the plants is extensive and encyclopedic. When the plants are taken, the individual often times must follow food taboos. In a discussion with one Shipibo informant, Suimara, and her father, Alejandro, they told me that when you consume a plant infusion orally, you make a large bottle of the solution, and until the bottle is finished, you can't have salt, oil, butter, or anything sweet. The plants that I collected had two tasks: to address magical matters and what we, as Westerners, would refer to as medical issues. These plants were prescribed for everything from helping to make your wife love you again to curing cancer. Unfortunately, this was looked over for a long time by Western scientists. Recently, however, attention has been given to the fact that many plants used in tribal societies have the potential of containing chemical compounds that may prove valuable to modern medicine and industry (Schultes & Raffauf, 1990: 9; Prithiviraj et al. 2005). This has given rise a field of anthropology, known as ethnobiology, and three related sub disciplines, ethnobotany, ethnopharmacology, and ethnomedicine. My fieldwork with the Shipibo, the Atacameños, and the Mapuche were ethnobotanical and ethnomedical investigations. I also had an ethnopharmacological aspect to my research in that I collected specimens and tested them in a laboratory against the pathogen *Enterococcus faecalis*. However, I am unable to present this laboratory aspect of my research due to

the protection of indigenous intellectual property rights, which will be discussed further in the following Ethnobiology Chapter.

Chapter 4

ETHNOBIOLOGY

Introduction to Ethnobiology

Ethnobiology is described as "the study of the biological knowledge of a particular ethnic group—cultural knowledge about plants and animals and their interrelationships" (Anderson et al. eds., 2011: 1). The field of ethnobiology developed as a response to Claude Levi-Strauss' assertion that a nature:culture dichotomy was a human universal, which lead to other binary opposite relationships such as raw:cooked and female:male (Townsend, 2009: 21). The association of women with nature and men with culture led feminist anthropologists to investigate if this were truly a human universal, which led to the discovery that the concept of "nature" was an ethnocentric assumption made by European and American anthropologists. That is, other cultures did not have the same distinction between culture and nature as Westerners do (Townsend, 2009: 21). This discovery led to a heated debate in the anthropological community and the subsequent emergence of the field of ethnobiology. Modern ethnobiology developed in the late 1950s and early 1960s with biological, linguistic, and cognitive anthropological researchers from

Harvard and Yale, associated with pioneers of the field, such as Harold Conklin (1954). Conklin described the vast knowledge the Hanunóo of the Philippines needed to farm their tropical rainforests. Since then, the field has developed widely, with such notable works as Brent Berlin's comprehensive summary in *Ethnobiological Classification* (1992).

Ethnobiology has since evolved into a diverse range of fields of study from cultural and linguistic studies to biological ones. The former investigators are concerned with semantics: vocabulary, linguistics, symbol, cultural meaning, art, and religion. The latter group of researchers is concerned with chemical analysis of flora, field agronomy, genetics, and crop evolution. In the middle there is a fusion of archaeological and biological approaches and concerns with things like ethnomedicine, food production and consumption, ethnoecology, ethnoentomology, ethnobotany, archaeozoology and archaeobotany (Anderson et al. eds., 2011: 2). The three subdisciplines that will be most important for this work are ethnobotany, ethnomedicine, and ethnopharmacology.

Ethnomedicine, Ethnobotany, and Ethnopharmacology

The traditional knowledge of plants is an extremely old discipline, which probably goes back to the first humans in existence. In fact, there is even evidence that animals consume specific plants for their diverse purposes (Schultes and von Reis eds., 2008: 11). Early humans had to differentiate plants by those that were not useful

to them, those which could be employed in a utilitarian sense as tools or for construction, those which they could consume for nourishment or stimulation, those which had medicinal properties, those that had psychoactive properties, and those that were poisonous. In every culture there are men and/or women that were particularly knowledgeable in the properties of plants and gained social prestige due to their role as medicine men or women. These individuals knowledgeable in local flora have long interested Westerners from the times of Columbus up through modern times, as evidenced by such works of popular culture as the 1992 film *Medicine Man*, starring Sean Connery. This deep-rooted fascination resulted in academic disciplines devoted to the study of these aspects of traditional cultural knowledge, namely, the fields of ethnobotany, ethnomedicine, and ethnopharmacology.

Ethnobotany is simply the study of people-plant relationships. Just as ethnobiology had covered a wide range of studies from linguistic and cultural to biological, so does ethnobotany. Biological concerns of ethnobotany deal with taxonomy, nutirition, pharmacognosy, phytochemistry, palynology, ecology, conservation biology, and the cultural usage of life forms once thought of as plants, but that are now classified as distinct kingdoms of their own, such as algae and fungi (Anderson et al. eds., 2011: 133). On the more social side of ethnobotany are fields such as anthropology, political science, geography, environmental studies, economics, psychology, linguistics, and philosophy, to name but a few (Anderson et al. eds., 2011: 134).

There are two main goals of ethnobotany: First, the ethnobotanist aims to

document plant use, the abiotic cultural significance of the plants, and plant management. Second, the ethnobotanist seeks to expand ethnobotanical knowledge by defining, describing, and investigating their data (Schultes and von Reis eds., 2008: 25). In order to conduct their research, most ethnobotanists work collaboratively with other people on a personal and community level through participant observation, an approach commonly used by ethnographers. This is the methodology in which ethnobotanists fully immerse themselves in the lives of the culture they wish to learn about. By adopting the lives and daily routines of the people you wish to learn about, the researcher learns things that may seem so "obvious" to their informant that they would never mention them in interviews. The research site chosen by the ethnobotanist may either be on a local-level, or it can be in a different cultural and geographic setting than that which the researcher is from. The ethnobotanist may employ methods such as: note taking, tape and video recordings, photography, statistics, and the collection and preparation of plant specimens. Although most community members (children included) know at least some valuable knowledge about local flora, community elders are often the most significant source of native plant knowledge. The pioneer of the field of ethnobotany was the Harvard professor, Richard Evans Schultes. He brought back voucher specimens of over 24,000 plants during his fieldwork expeditions. He also emphasized the importance of interdisciplinary approaches to ethnobotany that could benefit people, rather than just the documentation of plants. Mark Plotkin, one of Schultes' students, is one of the most famous ethnobotanists today, along with other notable figures such as Michael

Balick and Nina Etkin.

Although there are countless ways for plants to be used, the use of medicinal plants has perhaps the largest potential to benefit the human race. People have had to adapt to sicknesses since our earliest human ancestors, and this pressure has caused all humans to utilize their environment to help combat such sicknesses. Two resultant fields that focus on the traditional use of medicinal plants are ethnomedicine and ethnopharmacology. Ethnomedicine deals not only with what the culture uses as medicine to heal a sickness, but also with larger systems such as political-economic influences, disease experience, and local explanatory models for disease (Anderson et al. eds., 2011: 232). Ethnopharmacology studies the physical properties of indigenous plant use and the effects that the chemical compounds in these traditional remedies have on animals. The field of ethnopharmacology is an interdisciplinary one, as it requires both a fieldwork aspect of the research, as well as a laboratory aspect. Although there are countless benefits that can occur from this type of research, there are also issues that the researcher must keep in mind, as well. Both the benefits and the issues will be examined below.

Benefits and Issues with Ethnobotanical, Ethnomedical, and Ethnopharmacological Research

The benefits associated with ethnobotanical, -medical, and –pharmacological research are ample. The first and most important for this project are the wide

abundance of plant-derived chemical products that humans could potentially use, ranging from artificial sweeteners to pharmaceuticals (Schultes and von Reis eds., 2008: 27). There have been many such developments already made by Western science (Schultes and von Reis eds., 2008: 287). One example is curare (*Chondrodendron tomentosum*), an arrow poison used by many South American Indians to hunt animals. Curare yields an alkaloid, tubocurarine, which is used widely used today as a muscle relaxant before surgery. Another example is rotenone, a ketone from a leguminous vine used by South Amerindians as a fish poison, which is now used worldwide as a rapidly degrading pesticide. Another example is the chemical quinine, which is derived from the bark of the Cinchona tree, found in the tropical Andean forests of Western South America. Long used by the indigenous people for its medical benefits, quinine was the first widely used treatment that showed effectiveness in combating malaria. There are many more such examples, but these three help demonstrate the importance of phytochemicals in Western Biomedical therapy.

Unfortunately, very few of the estimated 500,000 angiosperms in existence today have ever been tested for their chemical properties in a laboratory setting. In 1978, the World Health Organization compiled an inventory of 20,000 medicinal plants from ninety countries. Of these 20,000 plants, only 250 were used widely or had been tested to identify their main chemical compound(s) (Schultes and von Reis eds., 2008: 363). Richard Evans Schultes and Siri von Reis (eds., 2008) estimate that fewer than 10% of the 80,000 species in Amazonia have ever been tested. It would be

quite the daunting task for the Western scientists to systematically test each of these 80,000 plants one at a time. Rather than trying to collect and test all 80,000 species of Amazonian plants, a shortcut can be taken by the researcher by asking Amazonian tribal peoples, who have experimented with the bioactivity of these plants for millennia, which ones should be focused on to provide potential cures. The positive results from this are many. First, plants will be screened that may never have otherwise had a chance to be tested. Second, this will bring awareness to biological conservation efforts, as the potential importance of the plants will be noted. Third, biological conservation may result in cultural conservation in an otherwise rapidly changing globalized world, where the knowledge of indigenous people will be acknowledged, rather than derided or ignored. It has been noted that regions of high biological diversity in the world strongly correlate to the regions with the highest cultural diversity. This is important because efforts to conserve collective environmental knowledge of humanity are essential to conserving the earth's biodiversity (Anderson et al. eds., 2011: 134). Finally, this type of research will result in the documentation of traditional knowledge, which is in imminent danger of being lost. Mark J. Plotkin (1993) puts it perfectly when he says that every time a shaman dies it is as if a library has burnt to the ground. This is a problem due to the fact that there has been decreased interest in traditional knowledge by young people because globalization is occurring at such an astonishing rate. The result is that future generations may never learn this information that would traditionally have been passed onto them orally by the village elders. Plotkin (1993) developed a fantastic cultural

knowledge conservation program called the Shaman's Apprentice Program. Plotkin posits that it is the responsibility of the ethnobotanist to translate the information given to him by his informants into the language of the culture in which he derived that information in order to ensure that it will be passed on to future generations. I have made a commitment to do this with all three of the groups with whom I worked.

Despite all of the good that can come from research of this nature, it has also been a contributor to long list of wrongdoings that has been committed against native peoples in the past. There has been a long history of "hit and run" ethnobiology where Westerners felt that they owned the knowledge that they obtained from native people. As Anderson (ed., 2011: 21) puts it, "Tropical South America was like a candy shop with lots of cheap penny sweets for the taking." One such example was with the discovery of the rubber (*Hevea*) tree and latex in 1775 (Schultes and von Reis eds., 2008: 150). Rubber is today a multibillion dollar industry and was a major catalyst for the Industrial Revolution, however native South Americans have never received reparations from this, or the millions of lives lost due to the excesses of the rubber boom (Roe, Pers. Comm., 2010). In the past quarter of a century, there have been ethical codes (such as the Declaration of Belem, 1988) instituted which must be followed in order to prevent "biopiracy" from occurring. Nevertheless, proper payment to indigenous peoples rarely occurs, or if they do get any payment, it must be upfront, regardless of laboratory results. This is largely due to nation states insisting, often times in a court of law, that they receive compensation and control payment to the indigenous groups, even if they do not effectively control or benefit in the

indigenous peoples in their territories. Regrettably, this is something that I did not account for before starting this project. I thought that if I were able to find an effective plant with antibiotic properties, I could market it to a pharmaceutical company and channel profit back to whichever group possessed the intellectual property rights to the plant. However, I found out after meeting with Michael Balick and the New York Botanical Garden, that there are a lot more considerations that must come into play with contracts with national government, local government, and funding organizations. For this reason, I will not present my research to any pharmaceutical companies until I have received the correct retroactive permission from all of the proper institutions until such time as proper arrangements can be made.

Conclusion

Due to the overlap between ethnobotany, ethnomedicine, and ethnopharmacology, each of these three sub-disciplines of ethnobiology were employed in the present research project. This project was ethnobotanical in that I was investigating the use of medicinal plants by the Shipibo, Atacameños, and the Mapuche. I conducted participant observation fieldwork (although for relatively short periods), during which I conducted interviews, I took pictures, and I brought back voucher specimens. It was ethnomedicinal in that in addition to the plants I collected, I asked how they prepared them, what spirits were associated with them, and I also asked questions to better understand each group's concept of what illness actually was.

My subsequent testing was ethnopharmalogical, as I was attempting to discover antimicrobial properties associated with the specimens I collected. I will now offer pocket ethnographies of each of the three groups with whom I worked, followed by a reflexive account of my ethnobotanical fieldwork (Escobar, 2007; Rabinow, 2007) during my time spent with these peoples in Peru and Chile.

Chapter 5

THE SHIPIBO INDIANS

INHABITANTS OF THE UCAYALI OF EASTERN PERU

Introduction

The Shipibo Indians are a Panoan-speaking group of South Amerindians who live along the new alluvial deposits of the Ucayali River in the Peruvian montaña. Other neighboring Panoan-speaking groups include the Cashinahua to the southeast, the Cashibo to the west, and the Amahuaca to the south. These groups were once collectively referred to as the Chama, however, this is now considered derogatory, as the word *chama* is actually a pejorative term that refers to an ugly armor-headed catfish with facial bumps and spines (Eakin et al. 1986; Roe, 1982). The Shipibo also lived in close proximity to the Arawakan-speaking Campa people to the south and the Tupí-speaking Cocama to the north. The Shipibo traditionally occupied the middle Ucayali from the mouth of the Pachitea in the south, where the Conibo people began their distribution, up through Cumaría, where Setebo territory started; both of these groups were very closely related to the Shipibo in language and culture. The Setebo population was greatly diminished by epidemics and warfare, and, as a result, their remnant members were absorbed into Shipibo culture through conquest and

intermarriage. The Conibo, on the other hand, still exist, but the differences between them and the Shipibo are nearly non-existent due to intermarriage and acculturation (Eakin et al. 1986; Roe, 1982). Therefore, when speaking of the Shipibo, this theoretically includes the Setebo and Conibo, as well.

The Peruvian montaña includes a wide spectrum of terrains beginning with the new alluvial lowlands created by the Amazon River Basin and its many broad tributaries, like the Ucayali; moving upwards one encounters the *ceja de la montaña* (literally the eyebrows of the forest), which is a cloud forest characterized as having

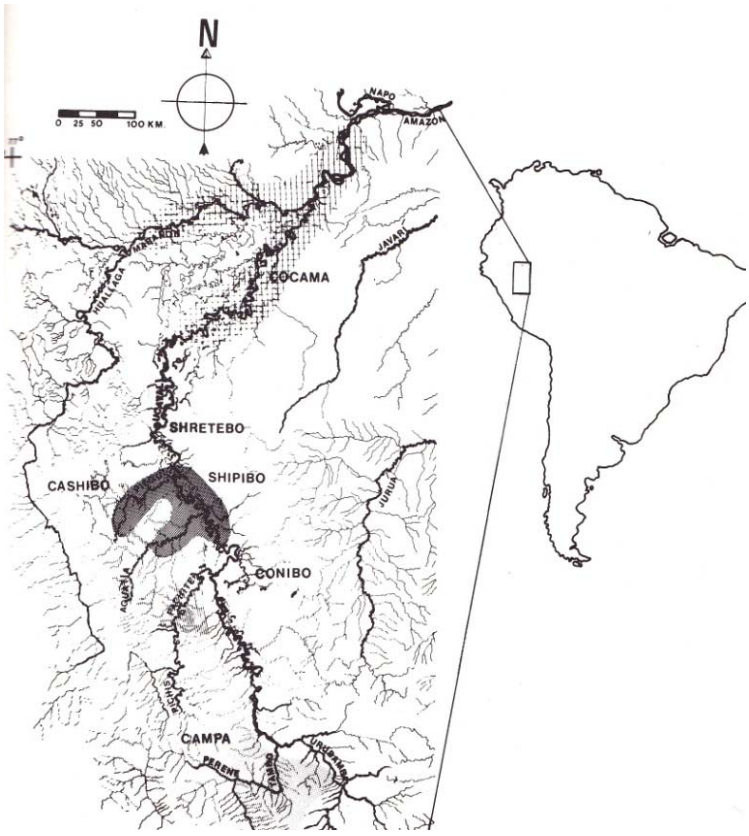

Figure 9 A Map of Eastern Peru showing the distribution of the Shipibo and their ancestors (Roe, 1982: 73)

epiphytes; finally, moving further upward, one will find the cold, dry, rugged, and towering peaks of the eastern slopes of the Andes (Lathrap, 1970; Roe, 1982).

The Shipibo are found along the banks of the Ucayali River, its tributaries, and the surrounding oxbow lakes from 6° to 10° south latitude (Eakin et al. 1986: 1). Major tributaries along the Ucayali include: Cushabatay, Pisqui, Aguaytia, Lower Pachitea, Mauiq, Chasiboya, Roaboillo, Callería, Tamaya and the Sheshea (Lamar, 1985: 5). The Ucayali proper is formed where the Urubamba and Tambo rivers converge and it flows northward until it merges with the Marañon near Iquitos and forms the Amazon River proper. The Ucayali is characterized by being a slow, meandering river that constantly changes its course causing the formation of oxbow lakes, which are connected by inlet-outlet streams known as *caños*. During the rainy season, which lasts from August through April, up to 99% of the terrain becomes entirely submerged in water and all travel must occur by canoe. A drier season occurs between the months of May and August, and during this time only about 10% of the terrain is submerged in water. This type of seasonal flooding biome is known as the *igarapé*, and it is typical throughout the tropical Amazonian River Basin (Lathrap, 1970; Roe, 1982).

The Ucayali River Basin is home to a forest similar to the *Hylea* (the tropical rainforest proper) in that it possesses the classic three-tiered vegetation growth, it differs only in that it is found at a higher altitude (around 170 m.a.s.l.), causing a cooler and dryer climate than that found in the Amazon Basin. The upper-level is about 50-70 meters above the forest floor and it is inhabited only by the giants of the

forest, including the giant *lupuna* tree. The middle-level is the most densely populated level and it actually blocks out so much light that hardly any vegetation grows on the forest floor, the lowest level. It is from the middle- and upper-levels of the rainforest that one hears the cacophony of screeches from the inhabitants of this level, including birds like macaws and harpy eagles, and primates like howlers and capuchin monkeys. The lack of light that reaches the ground and the sparse plant growth that occurs there allows one to move about quite freely and see a relatively far distance. It is only when a garden plot is cleared out that the mat of hanging vegetation hinders travel. It is on the ground level that the terrestrial animals dwell including the tapir, jaguar, deer and peccary.

The rich alluvial deposits along the banks of the Amazon and its major tributaries, like the Ucayali, served as prime environments for the evolution of complex cultures for two complementary reasons: On one hand, the silt from the Andean runoff provides the nutrients to support an amazingly diverse fishery that can easily provide the protein necessary to support human population with aquatic giants such as the paiche (*Arapaima gigas*), the anaconda, and the cayman. On the other hand, the seasonal-flooding *igarapé* forest around the Ucayali is such that when the floodplain becomes submerged in water during the rainy season, the new alluvium is deposited in the soil allowing for higher agricultural productivity. This fertile soil deposited by the annual floods allows for intensive agricultural practices which yield high-protein crops such as corn, as well as crops that yielded high amounts of carbohydrates, such as manioc. This highly productive setting allowed the

development of widespread migration, trade, and a rich technological tradition that is still present with the Shipibo today, including pottery and loomed textiles.

It is in this new alluvial biome that the Shipibo have lived for millennia and will thus serve as the setting for the rest of this chapter's discussion. Of the two villages in which I conducted fieldwork, one was along a tributary of the Ucayali, known as the Río Callería (the village was also called Callería), and the other was along an oxbow lake formed by the Ucayali, known as Lake Yarinacocha, in the village of San Francisco de Yarinacocha. San Francisco is the largest, most populated, and most acculturated of all Shipibo villages today due to its proximity to Pucallpa, a major port and terminus of the Trans-Andean highway.

.

Ethnohistorical Sketch

While there are examples of cave pictographs at sites such as Pedra Furada, in southern Brazil, which date to 12,000 BP, the archaeological record in the Amazon Basin is extremely scant due to what is known as a preservational bias. Preservational bias acknowledges the fact that ecology is one of the most important factors in determining the preservation of organic remains. Whereas in the desert the preservation of organic remains is nearly complete, in tropical climates, preservation of organic remains is terrible due to the moist environments that create a paradise for bacteria and detritivores, like fungi. It has been demonstrated that the rainforest will erase all organic evidence of human occupation after just 30 years (Roe, 2011: Pers.

Comm.). The only hope for archaeologists lies with inorganic remains, such as stone axes, the first evidence of which was near the Colombia-Brazil border at a site known as Peña Roja, dating to between 9000 and 8000 BP, and ceramic pottery, which first appears around 7500 BP at sites like Taperinha in southern Brazil (Oliver *in* Silverman & Isbell eds., 2008: 211).

The earliest evidence of inhabitance by the ancestors of the Shipibo comes from ceramic findings at a site known as Tutishcainyo, dated by Donald Lathrap (1970:89) to around 4,000 years ago. I had a chance to visit this site with Dr. Agosto Oyuela-Caycedo, who explained to me that due to advances in modern carbon dating methods, today, this site would more accurately date to about 5,000 BP (2010: Pers. Comm.). It is a very real possibility that the Shipibo lived in this area long before that time, but all organic evidence of human habitation has long been erased.

Lathrap (1970) explains how through ethnographic analogy, the archaeological evidence from Tutishcainyo shows that inhabitants of the site were following a way of life that is still present in many Amazonian cultures. One such example is that the village was located adjacent to an old active river channel or oxbow lake, indicating that the inhabitants were "clearly oriented to the resources of the riverine environment" (Lathrap, 1970: 87). In the addition, the Tutishcainyo phase had the three forms of ceramic pottery most commonly found in Amazonian cultures, today: the cooking pot, the double-spout-and-bridge drinking vessel and the large brewing vat, both indicating the evidence of *chicha* (=corn) or *masato* (=manioc) beer consumption (Lathrap, 1970). These ceramics were found in early phases to be

incised with geometric and rectilinear designs, and while these designs vanished in the later part of the phase, the quality of the ceramics became better, indicated by harder, better-fired ware (Lathrap, 1970). Evidence also suggests that these people were living in raised houses that were walled-off to protect them from the harsh environmental risks, including predators, mosquitoes, and rain (Lathrap, 1970: 88). Finally, as there are hardly any stones found where the Shipibo live, the presence of stone axes in the Tutishcainyo Phase means that there must have been trade with their neighbors in the Andes to the west. This indicates that there must have been an economic surplus available for the purpose of trade, and that there specialized manufacturing also occurred amongst various ethnic groups in various environments.

The next phase after Tutishcainyo was the Shakimu phase, which began sometime around 2650 BP (Lathrap, 1970: 94). The traits associated with the Early Shakimu Phase are a result of both the stylistic changes that arose from the Late Tutishcainyo Phase, as well as an influx of new decorative traits, vessel shapes, and iconography from immigration into the area. These new stylistic traits came from what is known as the Chavín Horizon, named after the Chavín Civilization that developed in the Central Peruvian Andes (Lathrap, 1970). By the Late Shakimu, the Late Tutishcainyo Phase and the Chavín Horizon had merged completely to create a distinct style characterized by the high prevalence of excised decoration and ceramics which were polished to produce a brilliant sheen (Lathrap, 1970: 95).

Around 2200 BP, the Barrancoid People of the Lower Orinoco overtook the Ucayali, bringing with them a new ceramic style known as Hupa-iya (Lathrap, 1970:

117). It can be concluded that these people were invaders since the previous, Late Shakimu, ceramic tradition suddenly vanished from the archaeological record. The most common vessel shapes in this tradition were hemispherical bowls with broad horizontal lugs below the rim. These lugs were decorated on the upper surface with incision designs and appliqué pellets. There are also many cases of zoomorphic appliqué adornments which were added to the rims of the vessels (Lathrap, 1970: 118). During this time the community layout typical of modern Shipibo became prevalent. The disappearance of the daub-molded post-holes suggests that the change to unwalled houses, used by the Shipibo today, occurred as a result of this invasion. Lathrap (1970: 119) was also able to conclude the approximate size of the Hupa-iya village by using ethnographic analogy. By comparing the midden of modern Shipibo, who occupy the same general area, to the sites associated with the Hupa-iya phase, Lathrap was also able to estimate that a community of 500-1,000 people lived there over the course of a few hundred years. This is also the first appearance of ceramic spindle whorls, indicating a flourishing textile industry. Once the shift to the unwalled household occurred, textiles were probably used as protection against mosquitoes either in the form of mosquito nets, or as outer garments, called *cushma*, which are still found in the area today (Lathrap, 1970: 119).

The Hupa-iya peoples of the Central Ucayali were eventually displaced by a style known as Yarinacocha around 2000 years ago (Lathrap, 1970: 129). This ceramic style was a backwards step after the intricate Hupa-iya ceramic tradition, and was marked by poorly finished, lopsided, asymmetrical pots that were mostly

monochrome (Lathrap, 1970: 130). Lathrap hypothesizes that this change in style was due to the culturally degraded Late Shakimu peoples who pushed the Hupa-iya invaders off of the new alluvium after a two- or three-hundred year stay in the old alluvium, which accounts for their cultural degradation.

The Yarinacocha Phase only lasted for a few hundred years, eventually giving rise to the Pacacocha culture about 1550 years ago. The Pacacocha inhabited the Ucayali for approximately 400 years, and during this reign the ceramic tradition evolved through three phases: Pacacocha, Cashibocaño, and Nueva Esperanza (Lathrap, 1970: 131). The Pacacocha Tradition consisted of simple, globular vessels that were poorly fired. Some vessels were decorated with allover red-slips, but there was no other widespread type of surface decoration. The Cashibocaño Tradition only differed from Pacacocha in that the rim was typically curled backwards by using a thumb-print impression (Lathrap, 1970: 132). The Nueva Esperanza Complex, dated to around 1200 years ago, is thinner and better made than that of Pacacocha and Cashibocaño. The Nueva Esperanza community was a circular village, about 100m in diameter, with little to no midden found in the center, indicating a community plaza, which is still found today (Lathrap, 1970: 133).

The Nueva Esperanza Tradition was eventually replaced by the Cumancaya Tradition, after the invasion of the Cumancaya People from the south, and the Tupí-speaking Cocama from the east (Lathrap, 1970: 136). This tradition differs from previous traditions in the way in which the surface was treated. The corrugation method was employed by pinching the coils of clay to weld them to the vessel as it

grows. The decoration during this period consisted of interlocking scroll and step-fret motifs, which are the predecessors to modern Shipibo design patterns. The use of resin glaze after firing also began during this time (Lathrap, 1970: 136). The number of continuities between Cumancaya Tradition and those of the Shipibo and the neighboring Panoan tribes, shows that the latter traditions were a result of the former (Lathrap, 1970). As Lathrap (1970: 183) states: "All the kinds of decoration found on modern Shipibo-Conibo cooking pots and the form-category itself can be found in the ceramics of the Cumancaya Tradition, giving us the strongest reasons for believing that the modern Shipibo and Conibo are the direct descendants of the makers of Cumancaya ceramics."

The adoption of the Cumancaya Style was the next-to-last major cultural change that occurred prior to the arrival of the Spanish and the products of it are the distinct cultural styles that distinguish the Shipibo today. The Shipibo made their first contact with European missionaries and settlers in the mid-seventeenth century, which ended with the Shipibo killing the missionaries in 1657. Missionary activity ceased for about 100 years, until another mission was established in the 1740s, only to be destroyed again in the uprisings of 1767. Since 1790, missions have operated in the area under more peaceful conditions (Eakin et al. 1986). Despite three centuries of contact, it has only been in the last 100 years that extensive acculturation has occurred due to missionary conversion attempts, government control, tourists, schools, military presence, and the like. The remainder of this chapter will discuss the Shipibo as they existed at the time of first contact through today, drawing from both ethnographic

accounts, as well as the author's time spent with the Shipibo. The major areas of discussion will be the Shipibo population, lifecycle, the domestic unit, village, and socio-political organization, subsistence patterns, technology, and religion.

Population

In the early 20th century, directly following the rubber boom and as a result of centuries of fighting against European diseases, the Shipibo population was at an all-time low, numbering around 1,300 people (Roe, 1982: 35). Today, the Shipibo are one of the few exceptions of an indigenous population that has rebounded, with numbers estimated at around 22,500 people living in 104 villages (Aparicio & Bodmer, 2009). The reason for this population increase is due to the pronatalist attitude of the Shipibo. Unlike other tribes in the Amazon who practice female infanticide, the Shipibo prize infants, especially female ones, due to the high market for textiles, beadwork, and pottery, which are all female industries (Roe, 1982).

The Shipibo are Mongoloid in appearance, but are not easily distinguishable from neighboring groups, so the Shipibo changed their outward appearance in order xto differentiate themselves from their neighbors. One such way they marked themselves as being Shipibo was through frontal-occipital cranial deformation. In order to do this they would compress a newborn's head under a pad that was placed on the forehead and held in place by a padded balsa board and a band that was wrapped around the infant's head. This would stay on the head for around three months and the

result was a rounded face and a slanted forehead (Steward and Métraux, 1948: 572). This practice has been greatly reduced in recent years, as the slanted forehead marks an individual for ridicule by the mestizo population. Shipibo men have medium length hair with bangs covering the forehead and any facial hair is depilated by plucking it out with two shells fastened together as tweezers. Female coiffure consists of hair that is long in the back and sides with bangs cut horizontally across the forehead (Eakin et al. 1986: 20). Sometimes in traditional times, the Shipibo were said to paint their faces in intricate designs with the black pigment from the *Genipa americana* tree.

Traditional dress for men consists of a *cushma*, which is a long poncho-like garb woven out of tree cotton and decorated with warp-patterned designs. Women's clothing consists of a long cotton skirt, a blouse, and, occasionally a cotton shawl,

Figure 10 A Shipibo man in traditional ceremonial regalia (Smithsonian Photograph Collection in Roe, 2011)

which are also highly decorated with the geometric designs characteristic of the Shipibo (Eakin et al. 1986: 19). Today, while the men have generally adopted Western-style clothing, except in the case of special ceremonies or for extra warmth at night, the women in the village are commonly found still wearing traditional clothing. The Shipibo also wear various types of body ornaments. The most common form is an ornate, diagonally-woven, glass bead jewelry tradition. These glass beads are woven together to produce such things as bracelets, headbands, breastplates, earrings, and chokers. As glass beads are an imported good, in the past these same forms of body ornamentation would have been made from local resources, such as colorful seeds, like *annatto* (*Bixa orellana*) or *genipa* (*Genipa americana*), and the teeth of local animals, such as monkey or cayman. This traditional style of jewelry can still be found today in local markets. Feathers and animal furs were probably also used for corporeal art, however, this has largely diminished today due to the scarcity of game in the area.

Life Cycle

When a woman is preparing to give birth, she will go into the forest to enter a temporary hut accompanied by several other women to aid her in the process. After the birth, the umbilical cord and placenta will be buried in the floor of the temporary shelter. The baby is painted with black genipa (*Genipa americana*) shortly after birth, and once the color fades the child's skin is thought to be fresh and clean. Both parents

observe food taboos both pre- and post-partum, avoiding foods that are sweet, salty, and fatty, and also many types of meats are avoided as well (Eakin et al. 1986: 49). If the Shipibo do not feel that they are able to undertake the responsibility of raising a child, they can use herbal contraceptives or they have the option of receiving an abortion using herbal methods, as well (Eakin et al. 1986; Roe, 1982).

A Shipibo child learns the Shipibo native language as his first language and after he begins to receive informal instruction from his parents. Child rearing is predominantly the mother's job, and it varies from "highly permissive and affective to neutral and withdrawn, punctuated by physical punishment when a mother's patience snaps" (Roe, 1982: 40). There are many ways that a child is punished, but two common methods are by rubbing his skin with stinging nettles, or by the more extreme method of rubbing hot chili peppers in their mouth, nose, or eyes (Lamar, 1985). As boys grow, they will be taught various practical skills by their father, such as, hunting, fishing, construction, woodcarving, etc. As girls grow, they will learn from their mothers how to make arts and crafts to be sold in the local market, how to garden, and they will often take the role of primary caretaker for the younger children (Eakin et al. 1986: 51). In more recent times, schools have been built in the area and children attend them daily. During the first years of school, most instruction is given in Shipibo, but this gradually gives rise to the introduction of more and more Spanish instruction, until finally all instruction will be received in Spanish. Since this is a recent introduction into Shipibo society, many members of the older generation of Shipibo, especially women, cannot converse in Spanish at all.

The Shipibo have no observation for a man's transition into manhood, but there is a very important rite of passage for girls shortly after their first menses. The ceremony is known as the *ani Ŝhrëati*, literally the "big drinking," which is an elaborate ceremony filled with singing, dancing, and fighting, all built around a clitoridectomy of the pubescent girl. Prior to the ceremony, the girl will remain in isolation in a hut constructed in the forest for some time where she will observe food taboos. She will be given alcohol prior to her entrance to the village, which is filled with hundreds of individuals, both from within the girl's village, as well as neighboring villages. The girl then goes into the hut with elder women who will perform the clitoridectomy on her, using a bamboo knife. Once the clitoridectomy is complete, the intoxicated members of the crowd will begin to fight with other members of the village who are known to have slept with their spouses. While the women only engage in a hair-pulling fight, the men will engage in a swinging match with their war-clubs, known as *huino*, and once they have incapacitated their opponent, they will cut his skull with the blade of their daggers, known as *huishate*. The next stage of the ceremony is the ritualistic killing of a domesticated pet, which is tethered to a pole in the center of a village. Once this part of the ceremony is over, a large feast follows. After the entire ceremony ends, the woman is considered an eligible candidate for marriage and motherhood (Roe, 1982). There is an extremely elaborate symbolism behind this ceremony, but it is beyond the scope of this work to address all its aspects. For an excellent explanation of the symbolic associations of the *ani Ŝhrëati*, see Roe's 1982 book *The Cosmic Zygote*. In recent years, this ceremony

has disappeared due to the fact that missionaries, mestizos, and the Peruvian government view this custom as "barbaric." Instead, the *ani Ŝhrëati* has been supplanted by a hair-cutting ceremony for the pubescent girl, which also serves to mark her passage into adulthood.

In the past, marriage was promised at a very early age, perhaps even as early as two or three years of age by two children's parents. The Shipibo are an anomalous case amongst tropical forest tribes in that it was the mother, rather than the father, who decided who the mate of the daughter would be. Today, the early marriage practices, and, to some extent arranged marriages in general, have disappeared and individuals typically marry between the ages of fourteen and seventeen, but sometimes as early as eleven or twelve (Roe, 1982: 39). There is no formalized marriage ceremony with the Shipibo; instead, the partnership is consecrated the first time the woman cooks her husband a meal (Eakin et al. 1986: 54). Sororal polygyny was common with the Shipibo at one time, as well, but it was mostly limited to prominent individuals and they rarely possessed more than two wives. Today, Shipibo unions are monogamous, but very wealthy individuals are not above keeping two wives in two separate villages (Roe, 1982: 39).

The Shipibo believe that death can be caused by both natural and supernatural forces. There is archaeological evidence that indicates that individuals were buried in urns. However, in recent times, Shipibo are laid to rest in a canoe, in imitation of a Western coffin (Roe, 1982: 41). When a woman dies, her pots are shattered and ritualistically "killed" so that they may accompany her to the next life. When a man

dies, some of his personal belongings are placed in the grave with the corpse, and his house will be burned to the ground. Women observe death for at least a day, during which time they will keep up a ritual wailing, known as keening (Roe, 1982: 41). If a woman's husband dies, she will mourn his loss for a year, during which time she will keep her hair short and only wear certain clothes (Eakin et al. 1986: 56).

The Domestic Unit, the Village, and Socio-Political Organization

The Shipibo's descent and residency patterns are highly gynocentric ("female centered") in that they are matrilineal and matrilocal, respectively. Matrilineal, or uterine, descent means that the Shipibo trace their ancestry through a line of females to a common founding ancestor, which shows the possession a sort of clan characteristic. There is evidence that, today, the Shipibo are shifting to a more non-unilineal descent pattern, known as cognatic descent, in which descent is drawn from both sexes (Roe, 1982: 39). Matrilocal residence refers to a post-marital residence pattern whereby the newlyweds live with the family of the wife, who, in turn, lives next to her mother, the matriarch of the residential compound. Shipibo villages are made up of multihouse, matrilocal extended-family compounds of about 150 people each, which stretch up and down the banks of the middle Ucayali. These compounds were connected to one another by a narrow footpath. Aboriginally, the Shipibo village was composed of several communal *maloca* huts characteristic of South America, but this custom has died out, most likely due to the pressures of acculturation. Today, the Shipibo village

consists of several compounds consisting of the hut of the matriarch and those of her daughters, their in-married husbands, and their offspring.

Communication between huts in the compound occurs frequently, although, many times, the individuals in one compound may not know the individuals just a few compounds down from them. The areas between huts were communal workspaces, consisting of ceramic worksheds, cooksheds, and chicken pens, all surrounding a well-swept plaza. The huts in the compound sit on raised platforms, are wall-less, and are covered by a palm-thatch roof. At night, people sleep on mats laid over the planked floor with their mosquito net suspended over them. Today, some members of a household sleep in a hammock covered by a mosquito net, while others continue to sleep on the floor. On the floor of the house, there is usually only a wooden or cardboard chest for the family's valuables, but objects such as machetes, shotguns, and arrows are placed in the thatch-roof huts out of the reach of children (Roe, 1982: 37).

In the past, the compounds were spaced out much further from one another and a village could stretch for kilometers. This village organization was unstable and as a result fissioning was very likely to occur when a compound packed up to move down river and either establish a new village of their own, or fuse with a different village (Roe, 1982). In modern times, the compounds are typically much closer together and the path connecting them encloses the Spanish-influenced plaza where there may be soccer nets for the children to play, or a communal gathering place where meetings occur or games are played. In pre-pacification times, inter-village warfare was endemic. War most likely occurred as a result of witchcraft accusations, land disputes

over access to the rich new alluvial soil, or in order to obtain women through wife-raiding parties (Roe, 1995). The principal weapons employed during warfare were bows and arrows made from bamboo, slings, clubs (*huino*), and daggers (*huishate*) Warfare is just about nonexistent in lowland cultures in today's pacified world.

While the Shipibo are gynocentric in residency and descent, men who are heads of the compounds hold official authority, representing the family in communal affairs, such as voting (Eakin et al. 1986: 23). The Shipibo never had any tribal or intervillage political organization. There is some mention of headmen in the past, but their office was informal and limited to being consultative and persuasive, with little to no coercive power at all (Eatkin et al. 1986: 23). Their position was reserved for older individuals and was acquired either by chance circumstance or by personality traits. Communal issues were always discussed by the members of each household, and the headman could not make a decision on behalf of the community by force. If the village was dissatisfied with the headman, they would simply ignore him or just appoint another person in their place (Eakin et al. 1986: 23). Today, the position of headman has changed in that it is usually reserved for individuals who are fluent in Spanish and who have been well educated. Today, a Shipibo government composed of prominent headmen exists and has become integrated into the larger Peruvian government.

Subsistence and Technology

The Shipibo are known as "Canoe Indians," meaning they follow pattern of lowland human adaptation based almost entirely around the river systems of the Amazon Basin. The Shipibo are in their element on the water and are ill-at-ease in the unfamiliar jungle surrounding the rivers (Roe, 1995: 17). As a riverine people, the vast majority of travel done by the Shipibo is done in the water in either dugout canoes, which can reach up to twenty feet in length, or balsa reed rafts. The Shipibo practice slash-and-burn, or swidden, agriculture, and they also hunt and fish for animal protein along the banks of the Ucayali. These subsistence patterns are highly determined by whether or not it is the rainy season or the dry season. In the dry season, from April or May through August, travel on the river systems becomes difficult as many of the inlet-outlet streams, known as *caños*, dry up completely. While travel becomes difficult during this time, this is the time when fishing becomes most fruitful since the fish become more concentrated as they follow the retreat of the water. During the rainy season, a complete metamorphosis of the terrain occurs when the rivers swell and cover up to 99% of the landscape. Although fishing and agriculture become much more difficult during this time, animals isolated on small patches of land make easy targets for the Shipibo's bows and arrows, and, thus, form a larger part of the diet during this part of the year (Roe, 1982).

Hunting and fishing constitute the major means of Shipibo protein subsistence. The Shipibo traditionally did their hunting using blowguns and fishing by using single-, multiple-, and harpoon-pointed bows and arrows, and spears. Fish poisoning

was also done by pulverizing a vine in a dammed *caño*. Once this was done, whole canoe loads of fish could be picked up (Steward and Métraux, 1948: 568). Recently, the Shipibo have adopted the use of shotguns, fishing hooks, and fishing nets, which allow them to easily kill larger game and catch larger numbers of fish. Some popular riverine targets include many varieties of fish, including the mammoth *paiche* (*Arapaima gigas*) and the well-known piranha (*Pygocentrus natterei*), many species of aquatic turtles, and river mammals, with the largest being the manatee (*Trechichus inunquis*). Reptiles are also hunted, such as the black cayman (*Melanosuchus niger*), the white, or speckled cayman (*Caiman crocodilus*) and the anaconda (*Eunectes murinus*). The most common terrestrial game animals include tapir (*Tapir americanus*), the whitelipped peccary (*Dycotiles torcuatus*), capybara (*Hidrochoerus capybara*), monkeys, deer, and birds. Jaguars (*Felis onca*) were also once hunted for their skin (Eakin et al. 1986). Today, the amount of terrestrial game has greatly decreased due to the pelt industry and the rivers in the Amazon Basin are being over-fished by the mestizo population at such a rate that devastation to the ecosystems seems imminent.

Slash-and-burn agricultural plots, known as *chacras*, are preferably cleared on high alluvial bluffs that are safe from floods during the rainy season. There can be over 50 different species of cultigens found in a Shipibo *chacra*. This type of method of agriculture is known as intercropping. The plots are thought of as a microcosm of the three-tiered *hylea* forest since they are separated into three tiers, as well. The top tear is composed of fruiting trees, corn makes up the middle level, and on the ground

are the smaller plants like beans and peanuts. In order to clear a plot, the underbrush is first cut, the trees are then felled, and once the trees have dried, the field is burned. This is done every two to three years, depending on necessity (Eakin et al. 1986: 8). The two main staple crops of the Shipibo are sweet manioc (*Manihot* sp.) and plantains (*Musa acuminate*), with the former being a cultigen native to the Amazon Basin and the latter being introduced in post-contact times (Roe, 1982: 32). These two plants provide the bulk of the carbohydrates in the Shipibo diet, and are thus very important for subsistence. In addition to manioc and plantains, the Shipibo also grow corn (*Zea mays*), peppers (*Piper* sp.), sweet potatoes (*Ipomoea batatas*), beans (*Pachyrhizus tuberosus*), and peanuts (*Arachis hypogaea*), with the last two species of legumes having the added benefit of nitrogenating the soil, which makes it more fertile for the surrounding plants. There are many other species of edible plants grown in the swidden plots, but these cultigens will suffice for this thesis, as they are the most important. Utilitarian cultigens are also grown with some notable ones being *annatto* (*Bixa orellana*), used for the red pigment in its seeds, *genipa* (*Genipa americana*), used for its black pigment, and cotton (*Gossypium barbadense*) (Eakin et al. 1986). The Shipibo also collect a variety of foods from their environment. They collect arthropods such as snails, crabs, shrimp, insects, beetles and termites. Many wild palms, fruits, and medicines are also collected by the Shipibo (Steward and Métraux, 1948: 569).

While animal husbandry is not practiced on a large scale, the Shipibo do have some domesticated animals. Nearly every household owns at least one short-eared

dog (*Atelocynus microtis*) for hunting purposes. Monkeys and birds are kept as pets either for food, or for donors of fur or feathers, respectively. Some households also have cats to help with the many pests that live in the roof. Many houses also raise chickens, ducks, and turkeys for their eggs and meat (Eakin et al. 1986: 9).

Most Shipibo food is prepared by boiling it for immediate consumption. Food is seasoned with salt received (a trade good), chili peppers, and wild honey gathered from the forest. As food spoilage is a very large problem in the tropical rainforest, the Shipibo have developed ways around this problem. The *barbacoa*, the South American barbeque, is used to dry meat and vegetable goods so that they can be stored during the rainy seasons. The Shipibo utilize sweet manioc (*Manihot* sp.) and plantains all year around preparing them as simple roasted or boiled pot vegetables. The Shipibo also produce the alcoholic *chicha*, corn beer, and *masato*, manioc beer. This is done by first cooking the plants, and the women will then spit into the beer vat to provide the enzymes necessary for the fermentation process (Eakin et al. 1986).

The Shipibo are most famous for their manufacturing of two types of technology: pottery and woven goods. Both of these industries are the result of women's labor. Concerning the ceramic industry, Roe (1982: 42) states that "the Shipibo…have what is probably one of the most elaborate and flourishing polychrome pottery traditions in the Amerindian world today." The coil-built ceramics are used as vessels for cooking or holding beverages, or as goods sold in the flourishing tourist market, with better specimens being reserved for the Shipibo and their culinary needs. The manufacture of the pottery requires many raw materials including clays, resins,

tempers, and pebbles used for polishing it which must be imported from 400 km. away (Roe, 1982: 42). Woven goods are all made from cultivated cotton and are used to make hammocks, carrying bags, clothing, and mosquito nets. Two types of looms are employed for weaving by the Shipibo: the horizontal belt loom and the Ucayali, or bent-stick, loom (Steward and Métraux, 1948: 577). While both the manufacture of pottery and textiles are a woman's industry, men, in accordance with their taboo concerning the sexual division of labor, engage in carving hard objects out of wood such as canoes, canoe paddles, and sword clubs, to name a few examples (Steward and Métraux, 1948: 587; Roe, 1982).

Any discussion about Shipibo technology must also acknowledge the importance of art to the Shipibo. It is very likely that the reason that the Shipibo have not only managed to stay afloat as a culture in this rapidly globalizing world, but have even had their population grow, is because their art style and the manufacture of

Figure 11 Some Shipibo ceramics from San Francisco de Yarinacocha (Photo by the author: 2010)

beautiful artifacts is something that makes them unique from other South American Indians (Dr. Roe, Pers. Comm: 2009). The importance of art is evident when considering that an artifact is not considered finished and ready for use until it is decorated (Roe, 1982, 1995). An example illustrating both the importance of art and the complimentarity of the sexes can be found with the construction of the Shipibo's war clubs. While it is a man who carves his own war club, he cannot use it until he has his wife or a close female relative paint the designs onto both faces of the club. He will then carefully incise the painted design into the wood, filling it with white kaolin clay for contrast. The Shipibo design system is characterized as an elaborate, rectilinear, symmetrical cross-motif pattern (Roe, 1982). The Shipibo attribute their designs to what the Shipibo shaman sees while under the influence of the hallucinogenic ayahuasca vine. It can then be concluded that religion is enmeshed in all aspects of Shipibo society, since all technology used by the Shipibo is decorated with designs, and these designs are derived from the visions seen by the shaman under trance.

Religion

The Shipibo have a rich mythology concerning the supernatural, however, there is variation both between villages, and even between individuals. There has also been a syncretism of Christian and indigenous beliefs in recent years. Here, I will offer a short summary of some of the most important religious components possessed

by the Shipibo, but, for a more comprehensive summary of the supernatural beliefs of the Shipibo, one should refer to Dr. Peter Roe's 1982 text, *The Cosmic Zygote*. All information presented here on Shipibo religion is drawn from Dr. Roe's text.

The Shipibo view the earth as a flat disc with a river running around the edges. There are also two similar disks that exist above and below the earth plane, which are both home to the souls of the dead. The souls in the upper-tier of the universe are thought to be happy and benevolent due to the abundance of game, fish, and women. Those souls which inhabit the underworld are often thought to be demons, known as *yoshin*, and are generally associated with deceased medicine-men or sorcerers. These souls are malevolent and active at night. The earth is believed to be split quadangularly by a cross, which is the central motif in Shipibo art. It seems that this cross is derived from the Southern Hemisphere constellation, the Southern Cross, rather than from Christian influences.

The souls of the demon *yoshin* spirits are thought to exist in the world tree, the *lupuna*, which connects all three levels of the universe. This evil association with the world tree is further evidenced by the tree's poisonous sap and the fact that it is covered with spines, which protects it from the Shipibo's culture heroes, the Magical Twins, which are two of the most popular heroes in Shipibo mythology. The older of the twins is considered wise, while the younger is considered dumb and impulsive. Another dualistic association in Shipibo mythology are the Good and Bad Inca, with the former being viewed as a culture hero, and the latter being viewed as a stingy, miserable individual. The sun and moon are also deified in Shipibo mythology.

Traditionally, the Shipibo had a rich animistic belief system, believing that both animate and inanimate objects possessed spirits. These spirits were again arranged in opposition, as some were thought to benevolent, and others malevolent. All natural phenomena are thought to be the result of spirits, including health and illness. It was these spirits that shamans used in order to cure during ritual, and sorcerers used in order to bewitch. Many plant spirits are also thought to be magical and are also used to heal a wide variety of different ailments. Shipibo shamans took ayahuasca and other hallucinogens during their apprenticeship in order to learn the spirits of the medicinal plants and to meet the spirits of ancestors, which would help them in healing the ill.

What I saw during my time with the Shipibo was very different than what ethnographic accounts tell, as missionaries have wreaked havoc on traditional supernatural beliefs. Most Shipibo have been converted to Christianity, or have simply abandoned traditional beliefs. While I have hope that the less-contacted, backwoods tribes have maintained some of their traditional beliefs, I am unsure whether or not this is true. This would be an interesting topic for future research.

Conclusion

The Shipibo Indians of the Peruvian Montaña are an extremely interesting group to be studied. They represent both the incredible potential for human adaptability to harsh environments, as well as the relatively rare exception of being a

matrilineal and matrilocal tribe in lowland South America. They still maintain a relatively traditional way of life, as their ancestors did, but they have lost much of their traditional culture to the pressures of the Western world. Today, they can be found using modern technology, practicing Western religions, and wearing Western clothing. As a result, they have lost a lot of the knowledge that their ancestors possessed. One thing they have not lost, which makes them so distinct from other lowland groups, is their beautiful artistic tradition, namely their textile and ceramic industries. If for nothing else, these traditions will help to ensure that their cultural traditions will continue to thrive in a rapidly changing world.

Chapter 6

THE ATACAMEÑO INDIANS

INHABITANTS OF THE CHILEAN ATACAMA DESERT

Introduction

For millennia, the Atacama Desert has been the home to a group of South Amerindians known as the Atacameños. They are also known as the *Kunza*, named after their native language, and sometimes referred to by their auto-designation, *Likan-Antai*. The *Kunza* langage was spoken until the end of the 19th century, however, today, most Atacameños have been absorbed culturally and linguistically by the Spanish, and *Kunza* only exists in textbooks with a reduced lexicon of around 1,100 words (Bennett *in* Steward ed., 1947: 605).

The culture-geographic region of the Atacameños covers what is today Southern Peru, Southwestern Bolivia, Northwestern Argentina, and Northern Chile. As Chile was the only country where I conducted fieldwork, this will be the main area of concern for this discussion. Northern Chile can be divided into two zones: the Arid Region (18-27^{O} south latitude) and Semi-Arid Region (27-32^{O} south latitude) (Rivera, 1977:1). I will narrow down the focus even further to the former, as the latter was mainly home to the Diaguita, not the Atacameños. The Arid Area is composed of four

ecological niches where human settlement was possible: the coast, the intermediate region, the precordillera, and the altiplano (Rivera, 1977: 16). The villages that I visited during my fieldwork were both found in the intermediate zone, so that will be the most important physiographic context for this chapter.

This area is home to the Atacama Desert, the driest desert in the world (http://astrobiology.nasa.gov/articles/the-driest-place-on-earth/). In some places in the Atacama, rainfall has never been recorded during historical times (Bennett *in* Steward

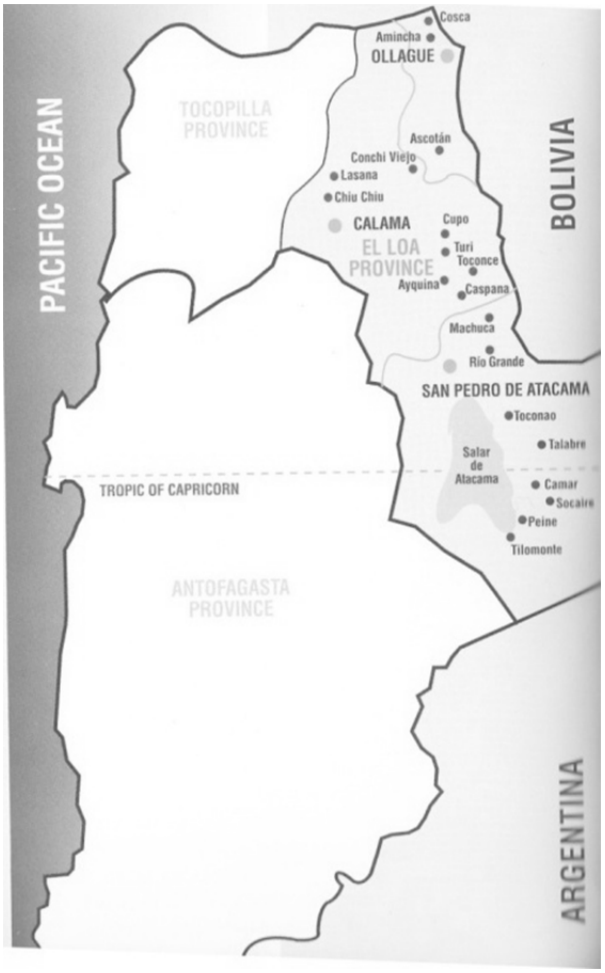

Figure 12 A map highlighting the intermediate zone of the Arid Area (Cortes & Santander, 2002: 21)

ed., 1947: 599). The reason for this lack of rain is due to the rain shadow caused by the towering peaks of the Andes Mountain Range, which are so high that the moisture in the clouds cannot pass to the Pacific Coast (Moseley, 2008). For this reason, all human inhabitance in this region must occur around desert oases caused by ground water seepage, temporary mountain streams from Andean glacial melt off, or around the lone river that runs through this area, the Loa River (Bennett *in* Steward ed., 1947).

Today, there are but a few remaining isolated Atacameño villages in northern Chile and, unfortunately, the Atacameño traditional cultural customs have largely vanished. What we know today of the Atacameño culture is only based on archaeological findings. Luckily, the archaeological evidence contains a storehouse of data because the extreme aridity that has created so many challenges for the Atacameños has also afforded a paradise for the archaeologists. These dry conditions

Figure 13 A snapshot of the vast Atacama Desert wilderness (Photo by the author, 2010)

allow for near perfect preservation of organic objects that would typically deteriorate in any other landscape, such as wood, baskets, cotton, wool, and bone. Since no ethnography was ever published on the culture of the Atacameños, this section will differ from my sections on the Mapuche and the Shipibo, as it will be almost entirely concerned with the archaeological record of the Atacama Region.

Many scholars believe that one cannot speak of the Atacameño culture proper until around the year 1000 AD after the collapse of the Tiwanaku State (Bennett *in* Steward ed., 1947; Llagostera, 2008; Latcham, 1938). However, as most of what we know about the Atacameños comes through archaeological inference, I find it important to offer an ethnohistorical sketch of the inhabitants of this area from before the fall of Tiwanaku, as well as after. In order to do this, I will begin with a brief sketch of the cultures that preceded the Atacameño culture prior to the Tiwanaku state, then I will discuss all of the important aspects of Atacamans that we know from after the fall, as well as accounts of the Inca and Spanish, and I will occasionally commentate on what one would find today if they were to visit the Atacameños in modern-day Chile.

Ethnohistorical Sketch

The first inhabitants of the Atacama Desert arrived in the area at least 11,000 years ago after crossing the Bering Land Bridge and following a coastal route southward until they reached the region (Dillehay, 2001; Rivera, 1977). For about

three thousand years, these individuals followed what is referred to as the "Paleo-Indian" Lifestyle. The Paleo-Indian lifestyle was characterized by hunting small game fauna, gathering wild fruits and vegetables, and supplementing these two main subsistence activities with hunting the Pleistocene megafauna still present during that time, such as mastodons, paleollama, and megatherium (the giant sloth) (Dillehay, 2001; Rivera, 1977). Around 10,000 years ago, the last ice age ended and a marked change occurred in the flora and fauna of the area, causing these paleo-Indians to adapt to a new lifestyle. This lifeway is referred to as the "Archaic Hunting" tradition. The archaic hunters consisted of small bands that hunted camelids, small mammals, and birds, with simple stone projectile points, and they additionally gathered fruits and wild plants.

These paleo-Indians and archaic hunters comprised what is now known as the Early Period of South American cultural development, however, around 3,100 years ago a shift occurred in lifestyles and the result was the beginning of the age known as the Initial Period. As Michael Moseley (2008: 87) states, "glaciers melted, ocean levels rose, biotic habitats migrated upward, and marine and meteorological currents shifted into their modern configuration. Pleistocene large game died out, but plants and animals were beginning to be domesticated throughout South America, as people adjusted to making a living in diverse environments." This shift, which occurred throughout the Andes, caused people to alter their means of subsistence and residency, which resulted in the first sedentary villages. One such group that characterized this change to a sedentary way of life was the Chinchorro culture.

The Chinchorro were a coastal culture that existed from around 3100 BC until about 500 BC. It is widely known for having the earliest case of mummification in the world, preceding the Egyptian practice by thousands of years. The Chinchorro differ from their Egyptian counterparts, however, because as Moseley (2008: 100) points out, the Chinchorro mummies don't indicate ancestor worship since the majority of them were children and adolescents. While the Atacameños and the Chinchorro differ from one another, it is important to mention the Chinchorro because towards the end of this culture, the appearance of cultural traits associated with the Atacameños begins to occur.

Some traits which will begin to become characteristic of the Atacameños during this time include textiles, bows and arrows, atlatls, baskets, gourd vessels, tropical feather headdresses, and crude pottery. Also, it is with the Chinchorro that hallucinogenic artifacts begin to be prevalent, such as snuff tablets and bird bone tubes (Moseley, 2008: 100; Rivera, 1977: 34). This is also one of the earliest cases where

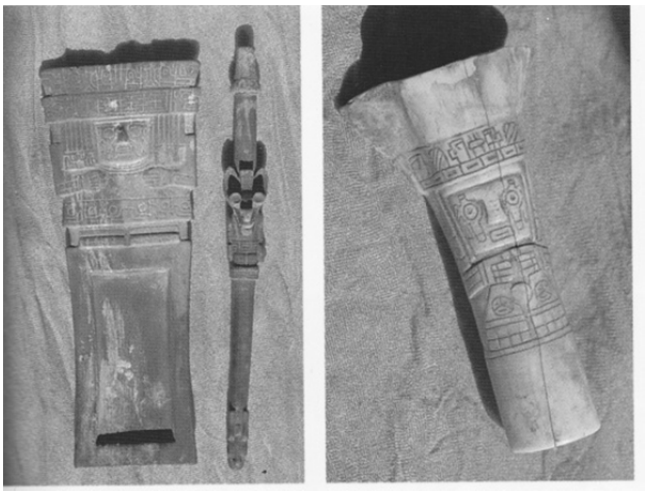

Figure 14 Picture of an Atacameño ritualistic snuff tablet and snuff container (Schultes et al. 2011)

domesticated crops can be seen on a large-scale in the area. Max Uhle, cited in Mario Rivera (1977), excavated cultigens such as quinoa (*Chenopodium quinoa*), and in a later phase of the tradition sweet potato (*Ipomoea batatas*), lima bean (*Phaseolus lunatus*), and yucca (*Manihot esculenta*). In addition, there is evidence that camelids were domesticated in the region sometime around 1500 BC (Llagostera, 2008). The end of this Initial Period was marked by the emergence of what is known as the Altiplanic Tradition. This Altiplanic Tradition gave rise to the Intermediate Period, which is characterized by the emergence of the first Atacaman agropastoralists whose primary concerns were in shepherding and maintaining their domestic crops (Moseley, 2008).

The Intermediate Period is dated from 500 BC-1350 AD and is split into three subperiods: The Early Intermediate, the Middle Intermediate, and the Late Intermediate (Rivera, 1977: 5). It is during the Early Intermediate Phase (500 BC-300 AD) that Atacaman characteristics begin to arise. As Rivera (1977: 39) puts it this phase "could be considered a threshold in the cultural development of the Arid North." This is sometimes referred to as the Late Formative Period which falls between the dates of 1400-400 BC (Núñez, 2005: 165). It is called the Formative Period because this is when Atacaman society began to "form" and have distinct cultural traits (Llagostera, 2008: 12). Elements that indicate higher social complexity begin to come about during this time like cemeteries with burial mounds, more elaborate textiles and ceramics, basketry, and metalwork in copper, silver, and gold. The emergence of a greater variety of agricultural products comes about during this time as well, such as

maize (*Zea mays*) and chili peppers (*Capsicum* sp.) (Rivera, 1977). The transformation to a society of higher complexity caused the emergence of social characteristics and practices that marked people as distinctly Atacameño. One such example of this is the fact that people began to mold their skulls as an ethnic badge (Rivera, 1977).

While these Atacameño traits began to arise, their regional culture development would be put on hold in the Middle Intermediate Period with the emergence of the first South American state, Tiwanaku, which arose near Lake Titicaca in the Bolivian Altiplano (Moseley, 2008; Rivera, 1977; Llagostera, 2008). The Atacameños were tremendously influenced by this empire, and, as a result of cultural diffusion, they adopted new artifacts, a different ideology, and new socio-economic elements, as well. This can be seen with the emergence of a different technology and the decoration of objects with Tiwanaku deities on them (Rivera, 1977). While textiles during this time changed to have more elaborated polychromatic geometric motifs and figurative images, the ceramic style went in the opposite direction and became less complex.

In the Late Intermediate Period, beginning around 1000 AD, the Tiwanaku culture declined after about 1300 years of rule, causing yet another change in the Atacameño society. This change, however, brought about the beginning of what many scholars believe to be the true Atacameño culture that will be the focus of the rest of this chapter. Known popularly as the Local Development Phase, the end of the Tiwanaku reign was a chance for the Atacameño culture to exist in autonomy, and

distinct cultural traits developed as a result. During this phase, the Atacameños ceramic industry changed to a style that is characteristic of the group. The polychrome pottery was decorated with black and white designs overlying a red background. The textiles of this time became more elaborate and also demonstrated the syncretism of the Atacaman worldview and that of the Tiwanaku culture by depicting elements from each culture.

This Local Development was short-lived, as yet another new empire expanded into Atacameño territory in the year 1450 AD. The Intermediate Period came to an end with the arrival of the Inca and the beginning of what is known as the Late Period (Rivera, 1977). The Atacameños were not as heavily influenced by the Inca as they were by the Tiwanaku culture, since the Inca reign only lasted for about 100 years. The Inca governed Atacameño territory and forced them to pay taxes to the capital in Cuzco, as well as organize labor for roads and supplies of the Inca army in their advance southward. The capital that the Atacamans had to pay to the Inca came in three forms: agricultural taxation, *mit'a* service (labor performed by able bodied males), and textile taxation (Moseley, 2008: 70). Due to the short occupation of the Inca in the Atacama Desert, local crafts were not changed by Inca leaders, but there was an influx of Inca artifacts into the area where Inca armies were stationed (Llegostera, 2008: 18). Ideology and political organization also underwent another change during this time. The three-part taxation plan placed communities under a central political power, while the Sun Cult was imposed on the Atacameños, and the Inca language of Quechua was introduced to the area (Cortes & Santander, 2002: 33).

Quechua never fully took hold as the official language and *Kunza* persevered (Parra, et al.2004). I suppose that some elements of the Inca Empire have survived to modern times, but as to how many I am unsure because the Atacameño culture is very hard to differentiate from Chilean national culture.

After a century of Inca rule, the fate of the Atacameños and the rest of the New World would change drastically with the arrival of the Spanish. After Francisco Pizarro and Diego de Almagro took the Inca capital of Cuzco in 1532, Spanish forces began moving southwards in search of gold. Almagro reached the Atacama Desert in the year 1536 and, feeling rather angry about his inability to find gold, proceeded to commit violent acts against the Atacaman population in San Pedro de Atacama in order to obtain supplies for his depressed troops. Mercifully, he moved on shortly thereafter (Cortes & Santander, 2002: 37). Not long after this, Francisco de Aguirre and Pedro de Valdivia reached the Atacameños in 1540, but had little interest in remaining there because of the harsh environment and lack of resources (Bennett *in* Steward ed., 1947: 603). Although the Atacameño culture remained somewhat untouched until the arrival of missionaries during the 18th century, it was still suffering a process of cultural unraveling. One reason for this is due to European diseases against which they had no antibodies to protect themselves. I hypothesize that another reason that they had such a rapid culture decline is because they barely developed a distinct culture of their own. As Bennett (*in* Steward ed., 1947: 605) points out, all significant culture changes were largely due to trade with neighboring cultures. I think that when the Spanish arrived, the Atacameños did what they had

done numerous times in the past: they adopted the cultural traditions of another group. They did attempt several insurrections against the Spanish, most notably along with the rebellions led by Tupac Amaru II, but to no avail. Today, there are hardly any Atacameños left, and those that still call themselves Atacameño have little to no cultural identity of their own in these modern times, although they are very much trying to change this through indigenization efforts, as will be discussed later in this chapter (Blanco & Bustos, 2009)

Now that I have offered the ethnohistorical framework of the Atacameños, specific aspects of their culture can now be examined; however, this presents a problem. It becomes difficult to define what is meant by "Atacameño" culture. As mentioned in the introduction to this chapter, many scholars think that the Atacameño culture can only be defined in the span after the collapse of Tiwanaku up until Inca conquest. However, since Inca impact was minimal, it could also be asserted that the Atacameño culture persisted with slight Inca influence. I could also refer to the Atacameño culture found at the time of Spanish conquest, but as I mentioned, the culture had largely begun to unravel at this point because of disease. Finally, I could refer to what one would find today if they visited one of the few Atacameño communities still existing in the north of Chile. For the majority of the remainder of this chapter, I will refer to the Atacameño after the Tiwanaku decline, during the Local Development Period, up through the years of Inca rule (that is, 1000 AD-1540 AD), as it was during this time that they developed and maintained their distinct cultural traits. However, I will also refer to data that has been collected during historical times, as

well. The cultural realms of concern for the remainder of this chapter will be the Atacameño population, the domestic unit and the village, their subsistence patterns, technology and trade, art, socio-political organization, and religion. All information was derived from Wendell C. Bennett's chapter *in* Julian Steward's *Handbook of South American Indians*, Volume 2 (1947), unless otherwise specified.

Population

Unfortunately, there exist no good statistics on the total population of the Atacameños. This is mainly because it is difficult to make a population count as many Atacaman individuals have been absorbed by Spanish and Aymara cultures. Guevara (1929 cited in Bennett *in* Steward ed., 1947) quotes an estimate made by Viceroy Jose de Manso of 1,632 inhabitants in the 18th century. He also mentions another estimate of 4,000 made in the 19th century. Another population count in 1884 was of only 2,000 individuals. Domingo Gómez Parra (et al. 2004: 20) states that the Atacameño population in Chile at present day is somewhere around 3,000 individuals.

The Atacameños are referred to by Bennett (*in* Steward ed., 1947) as being Andean in appearance. That is, they have a short stature and are of brachycephalic (short, round) cranial form, although dolichocephalic skulls are found in earlier skeletal remains (Coon, 1963). To distinguish themselves from their neighbors, the Atacameños practiced cranial deformation of two types: They had the lateral, or

"sugar loaf," deformation style, also known as the Tiwanaku type, as well as the more recent "frontal-occipital" type.

Atacameño dress followed the Andean tradition, but changed seasonally. Men and women wore breachcloths in the warm months. In the cold months men wore longer slit-necked shirts, both with and without sleeves, while women wore longer shirt-like garments. Poncho-like garments have also been found. Both sexes would fasten these at the waist with belts. The Atacameños wore sandals to protect their feet from the hot, rocky desert terrain. Headgear consisted of velvet caps, basketry hats, and hats made from the skins of birds and animals. There have also been tropical feather headdresses found in the area. These were acquired through trade with their tropical forest neighbors to the east. The Atacameños also wore articles of copper and bronze jewelry, such as rings, bracelets, earrings, beads, and pendants, and breast plaques. The traditional Atacameño coiffure, or hairstyle, for men and women was to have the hair in many braids. Men also practiced depilation of their facial hair. There have been many finds of bone paint boxes, suggesting that corporeal body paint was also very common.

The Domestic Unit and the Village

The typical Atacameño village was approximately 275 X 400 meters and were often fortified either with walls built around the village with holes through which people could shoot arrows, or built into the side of a hill, also for fortification

purposes. The village houses were typically around 3 X 4 meters in dimension and were made of stone slabs set in mud cement, however occasionally wattle and daub and adobe architecture were employed. Entrances to the house were probably through the roof, and houses were most likely only used as sleeping quarters, with most activity occurring outside the home in temporary shelters. There was storage containers inside the houses that were about 1.2 meters tall, and, in some cases, people were buried under the floors of the houses.

Subsistence, Technology, and Trade

The Atacameños can be described as "agropastoralists," and this pattern of subsistence was primarily concentrated around oases. Their staple food was maize (*Zea mays*), supplemented with other crops such as beans (*Leguminosae* sp.), quinoa (*Chenopodium quinoa*), squash (*Curcubita* sp.), calabash (*Lagenaria siceraria*), chili peppers (*Capsicum* sp.), potato (*Solanacae* sp.), sweet potato (*Ipomoea batatas*), lima bean (*Phaseolus lunatus*), and yucca (*Manihot esculenta*). This was made possible by well-constructed irrigation systems and aqueducts that were built into the land. Wild plants were also consumed, the leading two being the *chañar* fruit (*Geoffroea decorticans*) and *algarrobo* beans (*Prosopis* sp.), from which food was made, as well as a mildly intoxicating alcoholic beverage. Their principle agricultural implements were the wooden digging stick, the wooden shovel, and a knifelike tool.

Atacameño livestock typically consisted of herds of the domesticated llama (*Lama glama*). These llama were laden with packs, however, they could not be used as draft animals, as they are weak animals when compared with the Old World burden animals such as the ox and the horse, and are of an irascible nature. Dogs (*Canus lupus familiaris* sp.) were also domesticated and helped to herd the packs of llama. It also seems dogs were of ritualistic importance, as mummified remains have been found in special graves.

Due to the low concentration of wild animals in the land, hunting was rarely possible, but they did it when possible. Their main game animals were wild camelids such as the llama's non-domesticated ancestor, the guanaco (*Lama guanicoe*), and the ancestor of the domesticated alpaca, known as the vicuña (*Vicugna vicugna*). They also hunted many different species of local avian fauna. They did this with the bow-and-arrow, the sling, atlatls, and probably also bolas. They used these same weapons in times of warfare, which village structure indicates was rather prevalent. Arrow and dart points were made either from bone or from flint knapping local stones.

Due to the harsh conditions of the landscape, the Atacameños relied heavily on outside goods for subsistence. There is much evidence indicating widespread trade with their neighbors. This is why the Atacameños are often referred to as the "middle men of the Andes." Many of their domesticated crops were most likely received through trade, and there is evidence suggesting that they received goods such as tobacco (*Nicotiana* sp.) from their neighbors in the Altiplano. The coastal cultures to the west gave them fish supplied by the rich Pacific fishery provided by the Humboldt

Current and the Peru-Chile trench, and there is evidence of trade with Amazonian cultures, which can be seen in the feather headdresses and the presence of the *Anadenanthera* (sp.) snuff (Rivera, 1977). There is also evidence of exchange of metal artifacts with the Diaguita culture located in the semi-arid zone to the south.

Plant and meat food goods were preserved in special granaries built in corners of the house and sometimes in caves. Fish were dried on racks to make stockfish, and meat was also dried to make *charqui*, the South American jerky. These food goods would have been stored either in simple coiled baskets, or in the traditional utilitarian Atacameño pottery. The latter were typically a matte red or unpolished black in color. These ceramics were typically decorated with simple geometric designs. Food was eaten out of hemispherical bowls, and liquid was stored in calabash bottles.

The most prevalent Atacameño artifact was the carved wooden tablet, used for the preparation and consumption of the hallucinogenic *Anadenanthera* (sp.) snuff. This snuff was snorted into the nose either through hollow wooden tubes, cane, or hollow bird bones. Weaving techniques in the area were basic and limited to the belt loom warp patterns. Textiles were typically dyed blue, green, yellow, or red from local flora and ochre pigment. The Atacameños crafted simple wooden figurines, had rudimentary stonework technology, and also made some artifacts out of bone. Certain metal objects were made from copper, gold, and silver, and in later times tin was added to copper to make the bronze alloy. This metalwork technique most likely diffused into their culture from the Diaguita culture.

Art

In contrast to their simple technology, art was a rich practice of the Atacameños and appears in many forms. As mentioned previously, bone paint boxes have been found indicating that corporeal body decoration was a common practice, with pigments most likely coming from local flora and ochres. In addition to paint, the Atacameño individual also decorated him/herself with bird feathers, tufts of fur, and headdresses (Llagostera, 2008). Rock art is also common in this area and is extremely well preserved due to the dry climate. The rock art occurs mainly in the form of negative, bas-relief petroglyphs, made by scraping off the rock's oxidized patina surface to reveal the white stone underneath, as well as positive pictograph drawings from local ochres and plant pigments.

Woodcarving is outstanding in the Atacaman art tradition, especially with respect to their snuff tablets, perhaps emphasizing the importance of the shaman and the supernatural. In addition to snuff tablets pointing to shamanic techniques, the prevalence of drums may also indicate trance caused through audio-driving. The simple, geometric phosphene patterns that decorate so many artifacts also help to support this claim. In addition to the drum, the Atacameños had other musical instruments such as bone flutes and six-tube panpipes, the latter an Andean trait.

Socio-Political Organization and Religion

Practically nothing is known about the social, political, and religious organization of the Atacameños, but some things can be inferred about them. There is no evidence of monumental architecture, which would point to small scale socio-political organization. Also, due to the nature of the terrain and the fact that communities are restricted to the areas surrounding oases, villages would be limited to a relatively small size. In addition, because the inhabitable areas are separated by such large areas, it is doubtful that widespread political authority would be possible. Bennett reports that one Spanish document mentions villages which were composed of related families that were ruled by a chief who inherited his position via patrilineal decent and primogeniture. It can be inferred that this, along with vague references to totems associated with the founders, suggests that a form of lineage or clan organization existed in the villages.

Religious beliefs of the traditional Atacameño culture are also unknown. Some of their gods that appeared on artifacts were borrowed from the Tiwanaku religious tradition, but it seems that by the time of the Inca arrival they had vanished from their artifacts. By this time, ceramic designs were not of figurative images, but rather of geometric patterns. The problem with geometric patterns, though, is that meaning cannot be ascribed to them by archaeologists. However, I hypothesize that these geometric patterns were phosphenes that shamans saw in trance, due to the appearance of other artifacts that point to shamanism, like the snuff tablets.

The careful attention paid to corpse preparation and graves points to an interest in the afterlife, and perhaps ancestor worship. Deceased individuals were sometimes buried under the house, but there were also burials found outside the margins of the village in caves and cemeteries. Graves came in two principle forms; one being the cylindrical pit covered with stick, cane, and dirt, the other form was bottle shaped with stone slabs covering the top of them. Bodies were typically prepared flexed and dressed in blankets, shirts, belts, and tunics. Female hair was also done up in braids before burial. Inside the grave, artifacts were placed, especially non-ceramic ones, and, in some cases, miniature copies of the artifacts were made to accompany the deceased person into the afterlife.

Domingo Gómez Parra (et al. 2004) posits that the Atacameño adopted the Inca pantheon of deities from their brief 100 year rule in the area and that these beliefs have persisted through present day, but I am doubtful of the validity of this statement, as I have not seen this mentioned in any other texts. I think that today, most Atacameños have either adopted Christianity, or they are agnostic. While it is possible that some of the Atacameño still possess animistic beliefs, I believe this to be the exception, rather than the rule.

Conclusion

The Atacameños are just one example of a number of similar cases of indigenous American peoples whose cultures have disintegrated since European arrival. While most Atacameños have been absorbed into cities and have forgotten

their cultural history, some members still continue to live off of the land as their ancestors have for millennia in an attempt to preserve their culture. Since the 1990s, many Atacameños have been trying to have a sort of ethno-regenesis occur, which means they are trying to construct an ethnic identity that will both be acknowledged by their ethnic-association with the "mythical past," as well as by the state of Chile (Bustos & Blanco, 2009). This includes teaching the extinct *Kunza* language to the younger generations, as well as trying to reclaim land that is rightfully theirs. Whether or not these efforts will help to resurrect the Atacameños from cultural extinction remains to be seen. However, one thing is certain: The Atacameños are the inheritors of a long, rich cultural history, and it is one that will not soon be forgotten due to the inevitable unearthing of the large amount of archaeological remains that the arid environment has preserved.

Chapter 7

THE MAPUCHE INDIANS

INHABITANTS OF THE TEMPERATE VALLEYS OF SOUTHERN CHILE

Introduction

The Mapuche are a population of South Amerindians that live from central to southern Chile, south of the Bío-Bío River. In the indigenous language of Mapudungun, their auto-designation, "Mapuche," literally means "people of the land" (*mapu*-: land; -*che*: people) (Faron, 1968: 9). The word Mapuche is often used synonymously with the word "Araucanian," however this word refers to a much larger, more geographically extensive group that the Incas were unable to conquer, coming from the Quechua word "*auka,*" meaning enemy or rebel (Cooper *in* Steward ed., 1947: 690). While the Araucanians were united linguistically by the language of Mapudungun, they were composed of independent tribes such as the Picunche (people of the north), Huilliche (people of the south), Pehuenche (people of the Andean foothills), and Cunco (people of Chiloe Island) (Cooper *in* Steward ed., 1947). While Faron (1968: 4) notes that today, differences between these different subsets are "insignificant from one region to another," the focus group of most importance for this work will be the Mapuche, the inhabitants of the Central Valley of southern Chile.

I have worked with the Mapuche three times in the past. My first time visiting with them was for just three days in January, 2010. During this time, I spent my nights with a Mapuche family and I spent my days traveling to different rural areas around Temuco, Chile to get an introduction their culture and to see how they existed in modern day Chile. My second time working with them was for a just over a week's time in July, 2010 where I lived with a Mapuche shaman and his family in the community of Alonso Mariqueo in order to document and collect their medicinal plants. My third time among them was with a population of Mapuche in the Chilean capital city of Santiago in January, 2011. The goal of this month-long project was to help them to increase tourism to their ceremonial center located in the city, as well as to learn more about their religion, how they viewed health, and to see how they were able to exist as a functioning tribal group in one of the largest and fastest growing cities in South America. Despite the differences that I saw in each of these short fieldwork experiences, I learned invaluable information on the Mapuche culture, which I will draw upon for the remainder of this chapter.

Although the Mapuche are now spread throughout much of Chile, the main zone traditionally inhabited by them is in the rolling Central Valley, located between the Andean Cordillera to the east and the much smaller coastal mountain range to the west from 30°- 43° south latitude (Cooper *in* Steward ed., 1947: 687). This zone's climate is characterized by cool, dry summers and rainy winters where snowfall is rare (Faron, 1968: 2; Castillow-Feliú, 2000: 15; (Cooper *in* Steward ed., 1947: 687). The biome is considered a temperate rainforest and the trees most typically found there are

deciduous beeches and evergreen cypresses (Cooper *in* Steward ed., 1947: 687). Prior to Spanish contact, this area was covered by dense forests with a rich, fertile soil caused by glacial deposits and volcanic ash (Faron, 1961: 7; 1968; 15). This lush biome was able to support a wide variety of plants, both wild and cultivated, and animals, both wild and domesticated, which led to the Mapuche developing a agropastoral lifestyle that was supplemented by hunting and fishing. It was

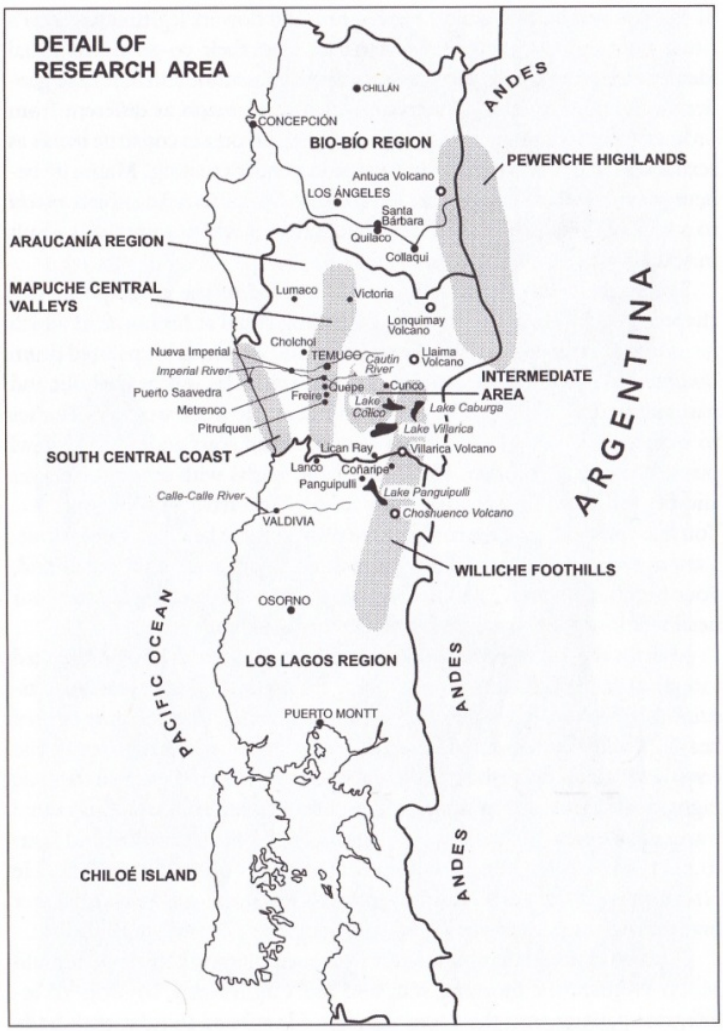

Figure 15 A Map of the Mapuche in the south-central valley of Chile (Bacigallupo, 2007: 3)

characterized by women cultivating the vegetable gardens and men tending to the llama herds, hunting, and fishing (Faron, 1961: 18). While this pattern has changed today due to the reservation system imposed by the Spanish, this subsistence strategy was followed by the Mapuche for millennia and forms an extremely important aspect of their cultural history.

Ethnohistorical Sketch

In the mid-1970s, men clearing a path for their ox carts stumbled across buried wood, stone artifacts, and what was later determined to be mastodon bone in an archaeological site in the south of Chile next to a small stream, Chinchihuapi Creek. These men contacted a local university and excavation of the site began under the American archaeologist, Tom Dillehay, who determined the site to be at least 12,500 years old, with one level dating to as old as 30,000 years (Dillehay, 2000: 167); however, Dillehay explains that he is hesitant to accept such a level until more evidence is found to help support human settlement in the Americas that long ago (for more information on the first settlement of the Americas, see the Introductory Chapter). The conclusions that Dillehay drew from the site help to support that the claim from the Mapuche to being "people of the land" is a legitimate one, since their ancestors were living in this part of South America at least 12,500 years ago, and most likely longer. Based on Dillehay's conclusions, it seems that in addition to having their ancestors in the same place 12,500 years ago, it turns out that those ancestors were living a way of life that was similar to the lifeway that they lived up until the

Spanish conquest.

Dillehay concluded that 20-30 people built and lived in a 20-meter-long community hide-hut that was divided into individual living spaces by planks and poles (Dillehay, 2000: 161). Inside the house, Dillehay excavated various stone tools including unifacial and bipointed projectile points made by percussion, bola stones made by pecking or grinding, and smaller edge-trimmed pebbles made by fracturing them with hammer stones (Dillehay, 2000: 166). There were also many organic remains excavated including wooden tools and edible plant goods. Wooden tools that were excavated include digging sticks, mortars, stakes, and poles used for building houses. Edible plant goods were found, such as seeds, nuts, seaweed (most likely used as a source of iodine to prevent goiter), and berries (Dillehay, 2000: 161). In addition to the communal house, Dillehay also excavated a separate, wishbone-shaped structure where carcasses were butchered, hides prepared, and tools were manufactured, suggesting a non-residential, public space. Also found in the wishbone hut were eighteen medicinal plants, most of which are still used by the Mapuche today to treat skin ailments and pulmonary infections (Dillehay, 2000: 165). These discoveries help this study for two reasons: First, it shows that the Mapuche have been using some of the same plants which they showed me for at least 12,500 years, demonstrating the antiquity of their medicinal plant knowledge. Second, it helps to show that the Mapuche's claim to the land is a genuine one, which explains why they have defended their lifestyle and land with such bravery for such a long time.

As Louis Faron (1968: 10) states quite simply "Inca forces were unable to

conquer the Mapuche. Spanish armies fared no better." The first historical account of the Araucanians comes from the first Inca attempt to invade their territory under Tupac Yupanqui, who reigned from approximately 1448-1482 A.D. (Cooper *in* Steward ed., 1947: 696). The Inca Empire's expansion was rarely met with successful resistance by any tribe, evidenced by their several thousand mile empire, which stretched from Ecuador to Chile. That being said, the southward expansion of their empire stopped where Mapuche territory began, which shows just how much of a force to be reckoned with the Mapuche really were (and are). After this attempted absorption by the Inca, the Mapuche lived in relative harmony until 1540 when they made first contact with the Spanish, and a few centuries of Christian conversion efforts began (Cooper *in* Steward ed., 1947: 696).

Pedro de Valdivia arrived in central Chile with a small army in 1540 and they rather quickly absorbed the northern Araucanians (the Picunche) as mestizos (Faron, 1968: 10). The Spanish hoped to use the Picunche in two ways: to harvest Chile's natural resources and to use their manpower to conquer the Mapuche to the south. The first objective was accomplished; however, the small forces of the Picunche did not prove effective in conquering the huge numbers of the Mapuche, which were estimated to be around 500,000 at this time (Faron, 1968: 10; (Cooper *in* Steward ed., 1947: 694). This caused Valdivia to move south with larger forces, which marked the start of centuries of conflict between the Mapuche and the Spanish. The Mapuche managed to keep the Spanish out of their heartland for a long time, which allowed them to maintain many of the ways of their ancestors. The Mapuche often engaged in

guerilla warfare with the Spanish and on one occasion they even penetrated so deep into Spanish territory that they pushed their forces to the gates of Santiago. However, they were eventually driven back. In 1882, the Spanish and Mapuche finally reached a peace agreement where the Mapuche would be allowed to live protected on reservations and were allowed to follow their traditional ways; however, by this time, the Mapuche numbers were reduced to no more than 100,000 due to disease and warfare (Faron, 1968: 11).

During these years of warfare, many Mapuche were conquered by the Spanish forces and forced to work as slaves on Spanish farms, ranches, mines, and homes through the imposition of the *encomienda* system (Cooper *in* Steward ed., 1947: 696). The result of this was the intermarrying of Mapuche women with Spanish conquistadors. Another result was the conversion of many of the mestizo Mapuche to Christianity and their absorption into Chilean society. Today, the Mapuche's numbers have greatly increased from the 100,000 at the end of the nineteenth century to almost 700,000, according to the CIA World Factbook (https://www.cia.gov/library/publications/the-world-factbook/geos/ci.html). In addition to this, there are thousands of unknown Mapuche who live and work fully assimilated in Chilean towns, on farms, in the national army, and in the police force (Faron, 1968: 12).

While many of the Mapuche's traditional customs have undergone change, they are quite remarkable in that much of their traditional beliefs and social institutions continue to be preserved through until today (Faron, 1968; Bacigalupo,

2007). The remainder of this chapter will examine the social institutions of the Mapuche as they existed from the first years of contact until the present, with the former information coming from texts and the latter from the author's three previous fieldwork experiences with the Mapuche in modern-day Chile. The social institutions of major importance for discussion will be the Mapuche population, their lifecycle, their domestic unit, village, and socio-political organization, their subsistence patterns and technology, as well as their religion.

Population

Today, the Mapuche are the most populous indigenous group in Chile, making up approximately 4% of the total population, or almost 700,000 individuals, with the number still climbing. The Mapuche are described by Faron (1968: 3) as being Mongoloid in appearance and easily distinguishable from their Caucazoid Chilean counterparts who are European immigrants. That being said, there has been much interbreeding between the two populations, and there are many Mapuche who have been absorbed into Chilean society, and many Chileans who have been adopted into the Mapuche culture. Those individuals who are today Mapuche proper, however, are still distinct from their white neighbors in their dress, language, and according to Faron (1968: 3), the subtle differences in walking, sitting, etc.

The Mapuche never practiced head deformation, piercing of the lips or septum, tattooing, and there does not appear to have ever been much face or body painting,

although face painting has become more popular recently (Cooper *in* Steward ed., 1947: 711). Traditionally, men had hair cut short around the ears, but beginning in the early 17th century they let their hair grow in lose locks to the shoulders. Men also practiced depilation of facial hair (including eyebrows) and pubic hair. Upon going to war, the men would shave their heads on the top, leaving a corona around the outside, as friars do (Cooper *in* Steward ed., 1947: 711). Today, I have seen Mapuche men with shorter, more European hairstyles, as well as individuals with long hair that flows to the shoulders. Traditionally, females wore their hair loose, but bound it up into two long braids during menses. It is unclear if this practice is still in use today by female Mapuche.

Today, the Mapuche have generally adopted European clothing, however, during ceremony or special occasions they will wear traditional garments, made from woven llama wool (Cooper *in* Steward ed., 1947: 708). Females wear traditional dress on more occasions than men, and their dress consists of a wraparound garment, known as a *kepam*, which covers them from their shoulders to their ankles (Faron, 1968: 3; (Cooper *in* Steward ed., 1947: 708). Women are also fond of wearing jewelry. In pre-Spanish times, female body ornamentation consisted of necklaces, pins, bracelets, and ear pendants made of green and blue stones that were perforated and polished, as well as gold, silver, and copper that they probably acquired through trade (Cooper *in* Steward ed., 1947: 711). Today, female jewelry has changed, yet it has become a distinct cultural emblem of the Mapuche. It typically consists of Western silver coin pieces flattened into shiny disks and worn as necklaces, breast pins, breast plates,

earrings, and hair ornaments (Faron, 1968: 4). This fusion of Western material with non-Western art which has become a powerful symbol of a non-Western culture is something that Dr. Peter Roe (Pers. Comm., 2011) refers to as "cultural hybrid vigor," borrowed from the biological term of hybrid vigor, referring to something that is more than the sum of its parts. Men typically wear Western clothing; however, the traditional poncho is still occasionally seen. In ancient times, men would have also made use of feathers for body decoration.

Life Cycle

When a woman was preparing to give birth, she and a relative or friend would go to a temporary hut near a stream or the ocean and she would deliver the child in a kneeling position, usually under the influence of *Datura stramonium* to alleviate the pains (Cooper *in* Steward ed., 1947: 732). Abortion and infanticide did occur, but the cause and the frequency are unclear. It is known, however, that deformed children and one of two twins were killed by throwing them into the water or suffocating them with mud (Cooper *in* Steward ed., 1947: 733). The woman and newborn child would remain in isolation for some time until she returned with the infant for the naming feast, during which a lamb would be sacrificed (Cooper *in* Steward ed., 1947: 732).

Boys were educated from an early age in fighting, swimming, and, in recent times, horsemanship (Bennett in Steward ed., 1947: 734). In their later years they were taught the rest of the duties that men follow in the village, including felling trees,

clearing garden plots, tending livestock, hunting, fishing, wood-working, constructing huts, corrals, and other enclosures, as well as how to make weapons and tools (Bennett in Steward ed., 1947: 728). Girls were taught feminine tasks from an early age, such as gardening, cooking, caring for the young, which wild plant foods were able to be gathered for consumption and utilitarian purposes, how to spin, weave blankets and clothing, how to make pottery, and how to weave basketry (Bennett in Steward ed., 1947: 728). Individuals from both sexes are also known to possess a good knowledge of the cosmos, anatomy, and medicinal plants (Bennett in Steward ed., 1947: 749). There are no reports of any concrete puberty rite or a rite of passage observance for either boys or girls (Bennett in Steward ed., 1947: 728).

There were many activities that gave the Mapuche a change of scenery from the mundane activities of day-to-day life. One such way was through storytelling and improvised singing. Oratory was in high esteem among the Mapuche and it is said by Steward (ed., 1947: 737) to have been an avenue to public office. There were village historians who were knowledgeable about the ancient traditions, genealogies, and war stories of the past, and would tell these to the younger generations (Bennett in Steward ed., 1947: 738). Songs were also frequently sung by the Mapuche in a low voice to the accompaniment of the large drum, known as the *kultrun*, and sometimes a flute, gourd rattle, and, more recently, a cattle horn trumpet (Bennett in Steward ed., 1947: 738). Men and women would often dance to these songs, although they would rarely dance together. The dancers sometimes wore masks and their dance steps were slow and deliberate with the feet barely leaving the ground (Bennett in Steward ed., 1947:

738). Song and dance were usually performed during large social gatherings, which occurred during religious rites, victory celebrations, the erection of a hut, marriages, burials, shamanic initiation, etc (Steward ed,. 1947: 739). *Kawiñ* is one such festival, and it contains all of the characteristics of the typical South American drinking bout—large amounts of drinking that would climax with the intoxicated participants engaging in bloody fights and sex orgies (Bennett in Steward ed., 1947: 739). The Mapuche also engaged in a recreational game known as *palin*, in which men, women, and children would play a hockey-like game with a small wooden ball and wooden sticks curved at the end (Bennett in Steward ed., 1947: 739).

Personal cleanliness was observed by daily baths taken in rivers or streams, even in the wintertime, because the Mapuche believed that it preserved health and strengthened the body. These daily baths were done by men, women, the young and even the elderly (Bennett in Steward ed., 1947: 729). When elderly individuals passed away, it was always attributed to sorcery or an evil spirit. Only in the case of death by a fatal wound was death attributed to natural causes (Bennett in Steward ed., 1947: 734). The death rite included a large ceremony accompanied by the consumption of huge amounts of *chicha*, followed by a procession in which the body was carried to the lineage's burial ground. Adornments and belongings were deposited in the coffin, which was then covered with dirt (Bennett in Steward ed., 1947: 735). It was thought that the souls of the departed were transported to the spirit realm in the afterlife; however, it is important to note that the nature of the future life was not dependent on an individual's moral behavior in this life (Bennett in Steward ed., 1947: 736).

The Domestic Unit, the Village, and Socio-Political Organization

The Mapuche are a highly androcentric group, described by Faron (1968) as strongly patrilineal in descent and patrilocal in residence. Patrilineal descent refers to kinsmen who trace decent through a line of males (agnates) to a common founding ancestor. Patrilocal residence refers to a post-marital residence whereby married sons continue to live with their father. Traditionally, the Mapuche lived in three to eight dispersed household settlements, rather than in villages proper. These consisted of kin that drew descent from a common totemic ancestor, and the settlements were governed by a village headman, or *lonko* (Steward ed., 1947; Faron, 1968). Settlements were typically separated by much larger distances than houses were and they were located in valleys or plains along streams and rivers (Bennett in Steward ed., 1947: 706). Communication between villages was done through smoke signaling. Accounting within the settlement was done by utilizing a variation of the knotted cord recording system introduced by the Incas, known as the *quipu* (Steward ed., 1947; Diamond, 1999: 360). Amongst other things, the *quipu* was used to keep a tally of number of the days' work done, keep accounts of livestock, and to indicate the number of days until warriors would assemble for war, festival, or sport. It was also used to document the number of payments needed to compensate victims for crimes such as murder, adultery, wife-stealing, sorcery, and treason. But such indemnities were only applied in the case that the offender would not receive the death penalty for his crime (Steward, 1947: 754).

The three to eight residences typically found in the settlements were in the

form of a communal hut known as a *ruka*. The inside of the *ruka* was divided into compartments and could house around 30 people. Sleeping took place on skins or heaps of grass using ponchos for cover and a bundle of rushes for a headrest. The *ruka* was erected and garden plots cleared by the joint labor of the men in the settlement, and was typically followed by a drinking feast (Bennett in Steward ed., 1947: 708). While *ruka* are still constructed in modern times, I have been told that they are reserved for mostly ceremonial purposes and communal gatherings. Today, the inside of the houses are relatively modernized with beds, tables, chairs, and most now even have electricity and running water.

Land territories were (and in many cases still are) passed down within lineages from father to son, following the patrilocal residency pattern. However, this is not nearly as common today as it was in the past (Faron, 1968: 28). The earliest

Figure 16 Traditional Mapuche communal house, or ruka (Chilean Postcard)

chroniclers of Mapuche territory describe large patrilocal, extended-family households that were inhabited by a man and his wives, his sons from each wife, and his grandchildren from each son. Faron (1968: 50) discusses how the Mapuche household has undergone significant changes in recent years. In the past, the most common form was the communal house composed of the compound family. There was then a gradual change to an extended family house unit that consisted of three generations. Today, the most common household is the elementary nuclear family household, which is composed of the husband, wife, and their children. I hypothesize that the change from communal household to extended household is due to the decrease in polygyny in recent years and the decreased need for housing multiple wives under the same roof. I believe that the change from the extended household to the nuclear family household is due to the fact that the Western stigma concerning adults living with their parents into adulthood has diffused into Mapuche ideology. Now, although the communal household is nearly extinct, the same patrilocal principles still persist, however, but in a different form. Today, the Mapuche are no longer patrilocal by household, but rather by reservation, with residences being separated by each family's farming plot (Faron, 1968). Married sons will move out of their father's house, but still live relatively close to him and work their father's land under his authority (Faron, 1968: 29). However, Faron (1968: 29) states that if the married sons do not work under their father, then it is no longer appropriate to speak of patrilocal residence, no matter how close the houses may be to each other; or, as he puts it, "It is not only a common roof which defines patrilocality; there must also be a common organizational

front" (Faron, 1968: 29).

While I have been told that polygyny is virtually gone in modern times, it was highly prevalent in the past, especially sororal polygyny, where sisters were taken as wives (Bennett in Steward ed., 1947: 719). Each wife would have had her own living space and bed in the household where her children were raised. Commoners had 1-2 wives, wealthy and prominent men had 4-10, and extreme cases their harems could reach as high as 30 wives (Bennett in Steward ed., 1947: 721). Marriage was in the form of unilateral cross-cousin marriage, where the mother's brother's daughter was the highest preferred bachelorette, and the father's sister's cousin was forbidden (Faron, 1968: 44). Brideprice was always paid to the bride's father, uncles, and brothers, and elopement took the form of what is known in anthropology as "dramatized bride capture" (Steward ed., 1947; Faron, 1968). This is when the groom and some of his friends would seize the bride-to-be at her father's house while a dramatized struggle was put up by both the bride and her family. A few days later, the groom would return to her house and all of the animals paid in the brideprice would be slaughtered and eaten in a large wedding feast (Steward ed., 1947; Faron, 1968). While husbands were allowed to have multiple wives, the opposite case of women with multiple husbands, known as polyandry, never occurred and an adulterous wife could even be put to death.

Villages were typically founded from fissioning when married sons would move out of their parental households during times of war (Faron, 1968: 28). The villages, as previously stated, were made up of kin who drew descent from a common

totemic ancestor. These decent lines, which the Mapuche refer to as *kuga*, each had their own name (sky, sun, stone, etc.). After birth, children were given a name derived from their name of the *kuga*. Steward (ed., 1947: 723) explains how if the father was of the llama *kuga*, he could hypothetically call his sons "white llama," "black llama," "running llama," etc. Members of the same sib would have loyalty to one another and side with each other in quarrels (Bennett in Steward ed., 1947: 723). Typically, the eldest or "richest" member of the *kuga* would be appointed to be the village headman, and after he died he would be succeeded by his eldest or most capable son (Bennett in Steward ed., 1947: 724).

While in the past stratification in the Mapuche society was twofold (headmen and commoners), today stratification is based on economic status: wealthy, commoners, and poor people, with wealthy individuals typically assuming the position of the headmen of the reservation (Bennett in Steward ed., 1947: 727). Traditionally, the headman's authority was limited to being almost exclusively consultative and persuasive, with little to no coercive power at all. They were not permitted to inflict punishment, claim tribute or personal service, or to demand obedience from other kin (Bennett in Steward ed., 1947: 724). The decision to go to war was not made by the headman, but rather by conferences consisting of the headman and the heads-of-households in his village (Bennett in Steward ed., 1947: 726). There was no overall Mapuche chief, but there were regional-polities that consisted of the heads of multiple villages that would come together to make decisions. Often times, villages would form alliances and elect the military commander, known as a *toki*, during the war

(Bennett in Steward ed., 1947: 726).

In the past, intertribal warfare was very common amongst the Mapuche in order to carry out raids and settle quarrels (Bennett in Steward ed., 1947: 730). After the arrival of the Spanish, most war efforts were carried out against them to prevent them from taking Mapuche land. To prepare for war, all of the headmen of the regional-polities would eat the heart of a sacrificed black llama as a pledge of their alliance. All of the men who were going to fight would shave their heads, abstain from sex, and eat and drink sparingly for 8 days prior (Bennett in Steward ed., 1947: 730). The warriors would use spears, clubs, and slings to kill their adversaries (Bennett in Steward ed., 1947: 730). Sometimes, captives were simply absorbed into the tribe or kept as slaves. However, the most common practice was to put captives to death with torture. Afterwards, they would perform the following ritual: After killing the captive, they would cut out and eat his heart, they would make a drinking cup from his skull, flutes from his bones, rattles from the hard, dried skin of his hands, and sometimes masks were made from the facial skin of the captives and worn by the victors. There are other accounts of cannibalism within the Mapuche in which they would cut flesh off of the living captive, boil it, and eat it; in other cases they would burn the bones of captives down to a powder and drink the powder. The end of the celebration ended with an animal being sacrificed, singing, dancing, and elaborate feasting accompanied by heavy drinking (Bennett in Steward ed., 1947: 731). To return to peacetime, a messenger with a *canelo* branch, the symbol of peace, was sent to the council of the enemy village, and the two villages would come together and kill

a white llama and eat it (Bennett in Steward ed., 1947: 732).

Subsistence and Technology

After the Neolithic Revolution up through recent times, the Mapuche drew their subsistence from an agropastoral lifestyle that was supplemented by hunting and fishing (Faron, 1968: ix). Steward (ed., 1947: 699) explains that their diet was predominantly vegetarian with meat typically being consumed only during feasts. During this time, the work of women included tending to the fields and collecting wild plant foods, while men dealt with tending to the herds and occasionally hunting and fishing (Steward ed., 1947). For the purpose of this section, we will assume that this is still largely the case today, although there is a greater emphasis on agriculture and less on hunting and fishing. That being said, with many Mapuche families now owning cars and having access to grocery stores, meat is much more accessible and thus constitutes a larger part of the diet.

Most plant food for the Mapuche is from cultivated plants. The staple crop of the Mapuche is corn (*Zea mays*), with the potato (*Solanacae* sp.) being a close second; it actually is now widely believed that the potato originated with the Araucanians that inhabited Chiloé Island (Dillehay, 2000). They also grow varieties of kidney beans (*Phaseolus* sp.), squash (*Cucurbita maxima*), chili peppers (*Capsicum* sp.), quinoa (*Chenopodium quinoa*), and peanuts (*Arachis hypogaea*), to name a few (Bennett in Steward ed., 1947: 700). Plots were cleared through the slash-and-burn technique.

The terrace farming, as practiced by the Inca, was not present with the Mapuche (Bennett in Steward ed., 1947: 701). Planting and harvesting of the gardens were done on the communal *mingaco* system, and labor was rewarded with a *chicha* and food feast at the end (Faron, 1968: 19). Today, this is less common since the horse and ox have been introduced. Steward (ed., 1947: 702) states that 75-100 wild plant foods are also collected, but the one of greatest importance is the seeds from the Chilean Pine (*Araucaria imbricata*), whose Latin name is derived from the word Araucanian. The Mapuche place a rather large significance on the fermented *chicha* beverage, which is made from over a dozen kinds of grains, seeds, berries, fruits, and tubers (Bennett in Steward ed., 1947: 741).

Domesticated animals included the dog (*Canis lupus familiaris*) and the llama (*Lama glama*). The llama was used as a burden animal and was eaten at special ceremonies, especially during war (Steward ed., 1947). There were two types of dog: a short-legged one with long hair and a medium sized one with shorter hair, which were used in herding and hunting, respectively (Bennett in Steward ed., 1947: 703). Mapuche kept 4-8 head of llama per person, with the headmen usually tending anywhere from 12-20. Today, sheep, mules, oxen, and horse have replaced the llama, which are now only bread by farmers who make clothing out of their wool. Since stealing the horse from the Spanish, the Mapuche have become skilled riders and compete with one another in competitions today. There is one more domestic animal that the Araucanians possess that has caused much confusion for the scientific community: the Araucanian Chicken (*Gallus inauris*). The reason for the confusion

is that the chicken was domesticated in South Asia from the red jungle fowl (*Gallus gallus*), yet the Araucanian Chicken existed in South America in pre-Colombian times, which may suggest Araucanian contact with Polynesian peoples (Moiseyeva, et al. 2003: 35n. 403-423; Wilhem in Browman ed., 1978).

Hunting plays a minor role in the Mapuche economy, as there is not much game to hunt. However, occasionally the guanaco (*lama guanicoe*), the huemul (*Hippocamelus bisulcus*), and the pudu (*Pudu pudu*) were hunted, along with many different species of birds. The main hunting weapons were the bow and arrow, the sling, and later on the two-balled bola was also used (Bennett in Steward ed., 1947: 703). Fishing was of minor importance to the Mapuche in the Central Valley. However, it was important for the Araucanians living on the coast, and the Araucanians who lived on Chiloé had a diet that largely consisted of potatoes and fish. Fish were hunted with nets made from bark, hooks, spears, and fish poison (Bennett in Steward ed., 1947: 705). Animal meat and fish were cut into strips and either smoked or sundried to make *charqui* and stockfish, respectively (Bennett in Steward ed., 1947: 705). Grains and other plant goods were stored in hill caves, elevated platforms, hide sacks, or bins (Bennett in Steward ed., 1947: 705).

Mapuche manufactures were relatively simple, yet they met all the needs of the culture. There was a sexual division of labor, with men doing all wood-work, making weapons, and tools, while women wove blankets and clothing, prepared skin dressing, made pottery, and plaited baskets. The Mapuche crafted plank boats, dugout canoes, and reed balsas for water transport. For land transport, the Mapuche used a tumpline

made from plant fibers (Bennett in Steward ed., 1947: 712). Basketry (a woman's task) was also constructed from plant fibers in the form of filters, sieves, and large storage baskets (Steward ed., 1945: 713). Spinning and weaving were done by women by using a two-barred loom placed vertically for larger textiles, like ponchos, and horizontally for smaller textiles, such as belts, with llama wool being the main constituent (Steward ed., 1945: 715). While some textile products were uniform in color, others were decorated with geometrical designs of crosses, squares, and triangles. In modern times, Europena-influenced flower, bird, and animal figures are quite popular (Steward ed., 1945: 716). Dyes were mostly derived from plant pigments, though some were derived from minerals. The colors employed were typically black, red, yellow, white, green, and violet (Steward ed., 1945: 717).

The Mapuche make wide use of pottery, and have since pre-Hispanic times, however there have been some stylistic changes in recent times (Steward ed., 1945: 717). Pottery, which is mainly the task of women, was typically made by tempering with fine sand, pulverized rock or shell, with shaping by the coiling method, smoothing with a spatula, and firing inside a kiln dug into ground (Steward ed., 1945: 717). Vessels included cooking pots, large jars for holding water or *chicha*, single and double-bellied pitchers, effigy pitchers resembling a duck (most likely the South American domesticated muscvoy duck [*Cairina moschata*]) and plates (Steward ed., 1945: 717). The Mapuche also made gourds into dishes, bowls, trays, and vessels, shells into vessels and spoons, and, in recent times, they turn the horns of bulls into water containers (Steward ed., 1945: 719).

Woodwork was not highly developed with the Mapuche. It was limited to carved wooden masks used at gatherings, a drill, which they used to make fire, and crudely shaped wooden figurines that were deposited in graves. They also carved the *rewe* altar out of wood, which was extremely important in their shamanic practices (Bennett in Steward ed., 1947: 737). As for stonework and metallurgy, there is evidence that the Mapuche have practiced these industries for quite some time. From the ancient Mapuche remains found at Monte Verde through present times, there exists a considerable amount of usage of chipped-stone artifacts, like arrowheads, and polished stone artifacts, including stone-celt axes and perforated rings (Dillehay, 2000; Steward ed., 1947: 718). With respect to metallurgy, there was some use of gold, silver, and copper that was referenced by the early conquistadors (Steward ed., 1945: 718). These were found in the forms of utensils, weapons, and most commonly, adornments. Adornments were principally found on females; however, headmen also wore large silver earrings to mark their elite status (Steward ed., 1947). Like the Shipibo and their pottery, the Mapuche are famous for their cold-hammered silver adornments.

Religion

The Mapuche are quite an amazing case in South America, as they have managed to maintain a very intact religious tradition in a country highly influenced by Western globalization (Bacigalupo, 2007; Faron, 1968). There are many spectacular

accounts of Mapuche mythology and shamanism, (Bacigalupo, 1999; 2007; Faron, 1968; Eliade, 2004), however, a short synopsis will serve for this chapter. The Mapuche's religion can be described as polytheistic, and their gods have varying importance (, 1968: 65). Sitting atop their pantheon of deities is the Supreme Being, *Ngünechen*, which is thought to govern the Mapuche and the rest of the other spirits (Bacigalupo, 2007: 6). *Ngünechen* is an active deity, rather than an otiose one, one who is prayed to for material favors. Future life is not dependent on the Supreme Being, as he is not concerned with moral order (Bennett in Steward ed., 1947: 742). The next step down in the Mapuche hierarchy of gods are those gods that are thought to govern specific phenomena, such as thunder, volcanoes, the sea, the sun, the moon, the wind, and so forth (Bacigalupo, 2007; Faron, 1968). Least important are the animal, vegetable, and inorganic substances, which are all thought to possess spirits of their own. Finally, there are the ancestral spirits drawn from the paternal lineage that are thought to be of very high importance, with the most important individuals being deceased chiefs. Although they are highly esteemed by the Mapuche, which ancestors are worshiped varies between different lineages and regions (Faron, 1968). The Mapuche concept of ancestral spirits is central to their religion since they think that their deceased ancestors dwell together in the afterworld and look after the living by serving as intermediaries between the mortals and the higher deities (Faron, 1968). This pantheon seems more representative of a state-level society than atribal one, and may have come from long-term association with the Andean polities to the north.

Religious rituals come in many forms with the Mapuche. They can function to

give offerings to the gods in order to restore social order or appease certain wishes of the community, they can be to heal an ill individual, or they could be for a celebration of a holiday, like the southern hemisphere's winter solstice, which falls on June 21st. But, in recent times, this has changed to St. John's Day on June 24th, the patron saint of the farmer, which shows that Christian influence does exist (Bacigalupo, 1999; Steward ed., 1947: 747).

Ceremonies are most typically led by a Mapuche shamaness, or *machi*, with the climax of the ceremony occurring when the *machi* enters trance (Bennett in Steward ed., 1947: 742). Mapuche shamans offer a unique case as they are most

Figure 17 Mapuche machi playing the kultrun wearing a silver choker necklace (Chilean Postcard)

commonly female shamanesses or transvestite men, although there are non-transvestite men that are shamans, as well (Bacigalupo, 1999; 2007). The high number of pre-menopausal female shamans is very rare cross-culturally, and one possible explanation, as Dr. Peter Roe (Pers. Comm., 2010) hypothesizes, could be due to the high prevalence of warfare in traditional times. It is very likely that due to the high mortality rate of males in battle, it became advantageous to have a female shaman as it offers stability to the community with respect to the supernatural realm. I have been told by informants that today, the number of male shamans is greatly increasing to be almost equal that of female shamanesses, which supports that hypothesis due to the fact that the Mapuche have been pacified for so long and death from battle is no longer of major concern.

Conclusion

The Mapuche truly do offer the anthropological community a very interesting case. On one hand they are a patrilineal society to be studied and on the other they are a unique culture in that despite heavy influence of external forces on their culture, they have largely managed to resist absorption and maintain their traditional set of practices and beliefs. Their claim to be the "people of the land" is absolutely merited, as their ancestors have lived on this land for at least 12,500 years, and, as far as the Mapuche are concerned, their children will continue to live on this same land for centuries more to come.

Chapter 8

ETHNOBOTANICAL FIELDWORK

"We crossed the line from being students to being anthropologists, from the voyeurism of reading ethnographies to the reality of experiencing a completely different way of life, a completely different mode of thinking, new ways of interpreting the world."

-Katherine A. Dettwyler, *Dancing Skeletons: Life and Death in West Africa* (1994)

Introduction

Coming from a society that lacks a concrete rite of passage into adulthood, I felt that my trip to South America would be the personal odyssey that would allow me to cross the threshold from a boy to a man. It had long been my dream to go to the Amazon Rainforest and live with a tribe there. As I grew older, I became interested in alternative medicine and I decided that a great way for me to combine my interests in South America and alternative medicine would be to learn Spanish and go to medical school, because that way I could study how South American cultures use plants for medicine. One night, I was up having some drinks with my old roommate, Nevin, and telling him about how this was my dream. He suggested that I enroll in an anthropology course since I was so interested in tribal populations. I enrolled in a

course with Dr. Peter G. Roe, who, by chance, specialized in South American indigenous groups. After I decided that the first day of the introduction course was the most interesting class I had ever been in during my time as a student, I went home and immediately enrolled in a second anthropology course and declared it as my second major. I was so inspired by Dr. Roe coming in to class wearing clothing decorated with Amazonian artwork and telling stories of shamans curing with plants and flying through the levels of the universe to fight against the spirits of rival shamans, that one day after class, I worked up the courage to ask him if I could accompany him to South America and study medicinal plants under one of these shamans. He agreed, and I began to plan how I would get there.

I applied for a University of Delaware Plastino Scholarship, which funds an off-campus, self-designed, learning experience. My original plan was to go to Peru and study with the Shipibo Indians, the group that Dr. Roe had worked with since 1969, in order to document and collect their medicinal plants. However, about a week before the application was due I had the idea that adding a laboratory aspect to my project would really help tie together my biology and anthropology degrees. So, I sent out an email to all of the different lab directors associated with the University of Delaware Plant and Soil Sciences department, and I received one response, that from Dr. Harsh Bais. When I went in to talk to Dr. Bais, he said he had the perfect project for me and my plant specimens. He said that I could test extracts from my dried specimens on the *Enterococcus faecalis* pathogen in his lab in order to see if they had any antibiotic properties (Unfortunately, the results from this will not be included in

this work until more legal issues are ironed out). Thrilled with this new addition I submitted my application and I found out in March of 2010 that I had won the award. On June 17th of that year I boarded my flight from New York City to Lima, and I was finally on my way to the place I had always dreamed of visiting: the Amazon.

Lima

Upon my arrival in Lima, I spent my first day exploring the area around my hotel. I was coincidentally there during the 2010 World Cup, so I had the experience of seeing the frenzy around the city caused by it. I was told by one of the doormen that I should remain within two blocks of my hotel, because anywhere outside of those limits I was risking putting myself in danger. I followed his advice, and just explored nearby sites. I walked to nearby plazas and churches to see some of the old Spanish architecture and historic landmarks in the city, and met some really nice people along the way. That night, I went to a sports bar next to the hotel to watch some of the World Cup games, and I couldn't help but to begin to enjoy soccer for the first time in my life.

Since it was my first time in Lima, and because I was unable to venture very far, I was hoping to find a way to experience other parts of the city. So, I made a phone call to a friend of George Watson's, the Dean of Arts and Sciences at the University of Delaware. His friend's name was Lucho, and he came on my second day to pick me up from the hotel. Lucho and his family took me in as if they had

known me for years. They brought me to their house for lunch, they took me for a tour of the city, fed me dinner, and then we spent the entire night just talking to one another sharing stories. The next morning, Lucho picked me up from my hotel and drove me to the airport to meet Dr. Roe and his wife, Amy. Dr. Roe and Amy gave me some last minute advice before we boarded the plane, and then we were off to Pucallpa, located just a short distance from the Shipibo village where we would be staying, San Francisco de Yarinacocha.

San Francisco de Yarinacocha—Round One

When the plane landed in Pucallpa, we had a large Shipibo greeting party waiting for us, and I was happy to see one familiar face in the crowd: the man who would be one of my main Shipibo informants during my time there, Manuel. Manuel and I had met at Dr. Roe's house a year prior to talk about my project and how we would carry it out. Dr. Roe had been able to fly Manuel (for the first time in his life) to Lima, and then to Baltimore-Washington to consult on an exhibition of Native American art that the Museum of the American Indian, Smithsonian Institution, was mounting. Manuel is a seasoned vet as far as working with anthropologists goes. He has worked with countless students and anthropologists including Dr. Roe since 1969, and before that he was Dr. Roe's professor, Donald Lathrap's, informant, as a young man in the 1950s.

After meeting the other people who accompanied Manuel to the airport, we went out into the street and hailed a taxi for the ride back to San Francisco. I remember being shocked that there was a road into the village, because I had thought that the only way to reach it was by crossing Lake Yarinacocha in boat. I found out that the road connecting San Francisco and Pucallpa had just recently been built and its construction had been the catalyst for a lot of change in the village. The two main changes that jumped out at me were that now trucks were able to bring modern commodities into the village, and that Shipibo and non-Shipibo were able to come and go in the village as they pleased, which resulted in increased tourism to the village and migration out of the village into the city.

We arrived at Manuel's house in the village and met everyone in his family. Manuel and I then walked around and he gave me a tour of the village. I was really taken aback by what I saw here. There were convenience stores, electricity in every home, Adventist churches, Evangelical churches, Catholic churches, cars driving around the village, and numerous bars. I also saw numerous tourists walking through the streets in the village. One of the main tourist attractions for the Shipibo is Westerners who travel there to visit "ayahuasqueros". These are individuals who take in tourists, give them the hallucinogenic *Ayahuasca* brew (*Banisteriopsis caapi*), and act as their guide during their hallucinations. I spoke to numerous Europeans and Americans who had traveled there specifically for that purpose. I remember thinking that it was so different from what I had always pictured in my head.

The active ingredient in ayahuasca, N,N-Dimethyltryptamine (DMT), is often times called the spirit molecule and its consumption was traditionally done in a very sacred ceremony. For me, seeing this plant now being marketed as a tourist attraction and a source of money to the Shipibo was a very sad statement on the modern tribal society. One thing I also noticed was that there was no forest in sight besides some isolated patches here and there. If the churches, bars, and ayahuasca tourists weren't upsetting enough, the fact that deforestation had been so prevalent here that there was barely any forest left was really upsetting for me as someone who had traveled there to investigate the plants.

When we returned to the house, I pulled Dr. Roe aside and told him that I was worried I wouldn't be able to carry my project out there because there was no forest and I asked him to talk to Manuel for me to see if we could maybe go to a different village. Dr. Roe returned and told me that we could go to a village that was a day's boat ride away which was much more isolated and still surrounded by rainforest. The village was called Callería, and I jumped at the opportunity. The next day, we woke very early to go back into Pucallpa to get some supplies for the trip. Around 10 o'clock that morning Dr. Roe, Amy, Manuel, a few others, and I piled into the *peque-peque* (a powered dugout canoe) and we began the seven hour trip to Callería.

Callería

When we arrived in Callería, we had yet another greeting party. Having an audience was something that I was going to get very used to in the next few weeks, as young Caucasian Americans are not very common in more isolated villages like Callería. We carried all of our luggage from the boat up the steep river bank and I met the family whose house I would be staying at. The owner of the house was an elderly woman, Dolores, and her house was chosen because she was Manuel's daughter-in-law's mother. She shared the house with her two grandsons, who helped her with general upkeep and maintenance around the house. Since Dolores was older, she was not required to attend school when she was younger, which is the main way the younger Shipibo learn Spanish, so her knowledge of Spanish was limited to words like "breakfast" and "lunch," but luckily her grandsons were able to help translate for me. This was difficult, as well, since my knowledge of Spanish at this time was pretty limited. I had studied Spanish for almost eight years up to that point, but my real world experience in speaking the language was limited to working in a restaurant and a month long study abroad program I undertook in Chile five months prior. The first week or so was a very difficult transition, but when you are surrounded by people that cannot speak English and the only conversations you have are in Spanish, you learn to speak the language fairly quick.

On my second day in Callería, I met the man who would be my main source of information about the Shipibo use of medicinal plants. His name was Pablo, and he was Dolores' son. Pablo, Dr. Roe, Amy, Manuel, and I all went into the rainforest one

day to develop my methodology for collecting the plants. For each plant I would begin by taking a picture, and to gage the size of the plant I would shove my knife in the ground next to it as a scale. I would then ask for the name in Shipibo, the common Spanish name, what illness the plant is used to cure, how the plant is prepared to be taken medicinally, what types of habitat the plant grows in, and if there are any types of spirits that shamans associated with the plant. I would then take a sample of the plant and wrap it in newspaper for transport back to the village. Once back in the village, I would take the plants out and place them in the sun to dry, which would take a maximum of two days for the wettest plants. I would then recopy my notes from my field notebook into a notebook where I could take my time to write legibly and not have sweat droplets all over the page smearing the ink. In the beginning, I also tried to corroborate what my informants told me with a Shipibo plant inventory I had assembled from various sources prior to going. However, after the first day when I sat down I realized that there was little to no corroboration between what I was told and what I had collected in my inventory. I remember feeling really discouraged by this, like I was being tricked or something, and I went to Dr. Roe to express my concerns. He made some good points to me about how most of the medicinal plant information was passed from individual to individual by means of oral communication because, until missionaries came, the Shipibo were non-literate; that is, they had no system of writing. This meant that there is bound to be a lot of variation from person to person, household to household, and village to village. He said for me the best way to collect my data would be to go to various individuals in the village and ask them how they

used the plant and then a few days later go back to them and ask them blind questions like "I forgot…how did you say you used this plant again?" to see if they changed their identification from one time to the next. I remember Dr. Roe saying to me "You're the anthropologist now. It is up to you to do the investigating." This gave me the renewed confidence that I would need in order to carry out the rest of my project on my own.

The next day Dr. Roe, Amy, and Manuel left to return to San Francisco de Yarinacocha, leaving me alone in Shipibo country for the first time. I was sad to see them leave, but excited for some real immersion. It was apparent from this first day on that Pablo would be not only my informant, but he and his family would be my closest friends, as well. That day Pablo took me to the central plaza to celebrate the Fiesta de San Juan, the patron saint of the farmer. There was a community-wide party with lots of food and non-fermented *chicha*, a drink made from manioc root (*Manihot esculenta*). One prominent man in the village was addressing the crowd and asked me to stand up and tell a little bit about my intentions in the village, which I did. They offered me a large amount of the food and *chicha*, which I happily accepted as I didn't want to appear rude. This was a decision I would come to regret for the next few weeks, because the *chicha* launched me into what Dr. Roe once referred to as the "Jungle Diet." The Jungle Diet entails a bad case of diarrhea, bad food that you don't want to eat, and extreme amounts of fluid loss from the heat and oppressive humidity.

There were many negative results from my gastrointestinal dilemma. I felt physically weak from the dehydration and was bothered by the pain my stomach was

in. While going into the forest to collect plants I would have to stop every couple minutes to go to the bathroom behind a tree, and I was barely sleeping at night. The sleep problem was from two sources: The first reason was because each night I would hear scurrying around my tent because the rats and cockroaches that lived in the palm thatch roof would descend in the darkness searching for morsels of food. The second reason was that the little bits of sleep I got were always interrupted by me jolting awake to run to the hole in the ground designated for bathroom use. I began to feel emotionally drained from all of this. In addition, I felt really isolated and alienated. Once Dr. Roe and Amy left, I was really on my own and culture shock began to set in full force. This was really the first time in my life that I had no contact with my family, and I didn't have access to the modern commodities I had grown so accustomed to using in my day-to-day life. On top of this, I was having difficulty communicating with people, and I felt like that besides Pablo and his family, the only time people did want to talk to me was for a source of economic gain. I brought things like batteries and fishhooks to trade to people there if they helped me with my plant research, or for arts and crafts that they had, or any other reason, but once word got out in the village I had these things, I constantly had to deal with people who wanted to barter for these goods. I was sick, tired, lonely, and just in all-around bad spirits. If traveling to South America and conducting fieldwork was my rite of passage, this was my transitional stage marked by my suffering.

This overall bad feeling went on for some time, until one night I was awake in my tent writing in my journal by the light of my headlamp, and an idea came to me. I

was writing about my time in Chile and how I had expected my time with the Shipibo to be a similar experience, but it was so different. I was feeling very nostalgic thinking about my time there and the friends I had made in different parts of the country, and then it hit me. I realized that since I had been frugal with my spending of my scholarship money up to that point, I would be able to afford adding a whole different aspect to my original project by studying the two main indigenous groups in Chile: the Mapuche and the Atacameños. Although the idea was sparked because I wanted to go back to Chile to see my friends there, I was able to rationalize this decision with regards to my project, as well. Since I had conducted research in the wettest environment in the world, the Amazon, I could do a comparative study with the Atacameños and Mapuche who live in two markedly different environmental climates. The Atacameños live in the Atacama Desert, which is the driest desert in the world. The Mapuche live in the southern part of Chile in a temperate zone. This was a perfect way not only to return to Chile, but also to compare the medicinal plant use in the wettest place in the world, the driest place in the world, and a temperate zone that falls between the two. This was exactly what I needed to change my attitude, and from this night forward I had an entirely new disposition. As far as my rite of passage went, this was my rebirth into becoming a new person. It was also right around this time that my stomach problems went away and the nighttime vermin problems were solved after the kids from the village assembled a hunting party, per my request, and killed all the animals that were keeping me up at night. I also couldn't help but laugh afterwards as they proceeded to throw the dead tarantulas, rats, and cockroaches at one

another in a sort of roof-pest snowball fight. Manuel also came back right around this time and stayed in the same house as I did, which made it really nice to have some companionship at home.

After this, the rest of my time with the Shipibo went really well. I continued my collection of plants in Callería for about another three weeks. Pablo and I worked together every day and we went to different places each day to find certain plants that only grew in that area. We went to areas deep in the rainforest, far from human habitation, as well as areas closer to the village. We went to areas of higher elevation that did not flood during the rainy season as well as areas of lower elevation that did flood during the rainy season. We went to *chacras*, which are small slash-and-burn agricultural plots that each household possesses. *Chacras* are typically reserved for plantain trees and coconut trees, but there were medicinal plants in some of them, as well. We also traveled from hut-to-hut where I took an inventory of what medicinal plants everybody had in their house garden.

One day, we went out with someone who the village referred to as "*El Anciano*," which means "The Ancient One." Before meeting him I asked Pablo what I should call him, since I didn't think it was too kind to refer to someone as ancient to their face. Pablo told me that his name was actually Pablo. Carlos was from the Pisquibo tribe, a small isolated group of hunters and horticulturalists who lived deep in the woods on near the Peruvian-Brazilian border. He had moved to Callería 35 years before as a refugee after loggers massacred many of his people. While some members of his group sought refuge deeper in the woods, he had decided he had enough of

living in fear and so he came to Callería. Communication with him was difficult even for the Shipibo since he spoke Pisquibo, a different dialect from the Panoan-language family than they did. I remember Manuel and Pablo had to consult one another in order to try to figure out what it was that he was saying. He was able to show me some medicinal plants that were unknown to the Shipibo, but were used by the group from which he came.

One day, Pablo looked me in the eye and said "Unless you want to travel far away, I think that our work together is done. I don't know of any more medicinal plants around here." When I first arrived in the village Pablo told me that we would collect somewhere around 30-40 plants, but in total I left Callería with 64, so I was very pleased. On my last days in the village I spent a lot of time with a woman named Suimara and her father, Alejandro, consulting with them on how they used each of the plants I collected. Alejandro's father was a *meraya*, the highest rank of shaman in Shipibo culture and so Alejandro's knowledge of medicinal plants was encyclopedic. I also later asked Manuel how he used the plants for a third opinion. In some cases they used the plants the same way, but there was almost always variation from person-to-person on how they used each plant. In some cases, they wouldn't even agree on whether a plant was used for medical purposes, or not.

The day before I left, my Shipibo hostess took me by the hand into her house and her daughter told me that they wanted to adopt me as their godchild, which made me feel so happy and honored. They sat me on the floor and sang to me in Shipibo and bathed my head with water and gave me traditional Shipibo artwork as gifts.

Later that day I was in Pablo's house and his daughter was visiting from Iquitos with her newborn baby. She asked me if I would like to adopt the baby as my goddaughter. I agreed and I then performed a head bathing ceremony on her. I was so elated that night going to bed knowing that from that point forward I would be able to tell people that I have a Shipibo family.

The next morning Manuel and I woke before sunrise and boarded the *collectivo* (a communal river taxi) back to San Francisco de Yarinacocha. While traveling down the Ucayali River watching the sunrise, I was thinking about how sad I was that I was leaving Callería. Although my period of culture shock made things quite difficult at first, I had really grown fond of the village and the people who lived there. I did promise them that once I had finished my thesis I would return with a written manual of all the plants that I collected translated into Spanish to ensure that this knowledge will be preserved and passed on to future generations. I am very much looking forward to that day.

San Francisco de Yarinacocha—Round Two

My investigation of Shipibo medicinal plants continued in San Francisco after I left Callería. Pablo told me one day that the areas around Callería were at a much lower elevation than those around San Francisco and that I would be able to find some different species in San Francisco that didn't grow in Callería. As I mentioned before,

San Francisco did have high levels of deforestation, but people still farmed *chacras*, and there were a few isolated patches of forest that remained within the village.

The first informant I worked with in San Francisco was named Amelia. Amelia was an elderly woman whose specialty was magical plants, and she told me she was especially knowledgeable of those plants used for love. Manuel later told me that they can bring luck in other areas of life as well, such as fishing or hunting. She took us into an area of tall grasses and shrubs and we collected ten different plant species.

The next informant I used was actually Manuel. He took me into an area of primary forest behind his house and showed me different plants that were used to cure a number of different things. Although Manuel has been converted to Christianity by missionaries and has given up all of his old shamanic ways, he still gave me some good insights into what the traditional Shipibo shamanic vocation consisted of. He told me that during his initiation he would take a plant and make a concoction of tobacco juice, ayahuasca, *toé* (*Datura* sp.) and other powerful hallucinogens so that he could meet the plant's spirit during his visions. The spirit would then instruct him how to use the plant, what songs to sing while healing with it, and how to dance during the healing ceremony. He told me that he would do this for a minimum of three months, but, in some cases, he would consume the infusion everyday for up to a year, demonstrating how intensive the shamanic vocation was in the past. One night before I left, Manuel's grandson, Isaac, became ill and collapsed outside the house. We carried him inside and Manuel began massaging the boy's body and saying "bad

spirits, evil spirits, leave this boy." Looking skyward, he then called on god to help him to cast these pathogenic spirits out of him. After Isaac regained consciousness, Manuel turned to me and asked me for some pills for him, so it shows that when it comes to medicine he has more faith in Western medicine than traditional medical practices. I got to see a small glimpse of how shamans would've healed in the past, in the sense that Manuel attributed the illness to spirit intrusion, and asked his helper spirits (God) to aid him in casting the pathogenic spirits out. This pseudo-shamanic ceremony shows how Christianity and traditional religions are combined in various ways and the result is a syncretism of the two.

My third and final Shipibo plant informant was a man named Hildebrando. Hildebrando was the only person whose knowledge of the plants I questioned during my time with the Shipibo. I felt like he was making up the plants functions and names as he showed them to me. One plant was a phallic-looking vine that he called "*clavohuasca.*" -*Huasca* being the ending to the popular plant, *Ayahuasca*, and *clavo*- being the Spanish word for nail. Another plant had spines that stuck out of it that looked like a woman's breasts. He told me that if a woman's breasts are too large she will stab them with the spines of this tree in order to make them shrink. Despite my suspicions that this man may have been a fraud, I still collected the plants that he showed me with the hopes that one of them would prove effective in the laboratory, although none of the ones that I have tested thus far have.

After the last day with Hildebrando, I counted my Shipibo plant total at 96 plants. I spent a few more days in San Francisco before leaving so I could finish up

my notes, question Manuel about the plants I collected and how they were used, and write letters to my family and friends that I could mail before I was on the road again. I remember sitting in a bar, writing a letter to my mom on the Fourth of July while watching the World Cup Final. I had a little smile on my face thinking about how unpatriotic this Fourth of July was for me, but knowing that I wouldn't have rather been anywhere else in the world at that moment. Three days before I left, I went to Pucallpa with Manuel to buy my bus ticket for the trip back to Lima. While there we went to the zoo and saw all the animals that used to live in the region before they were pushed to the brink of extinction by exploitation of the rainforest. I remember Manuel chuckling as he pointed to all different species of endangered animals saying how he used to hunt them when he was younger. It's really sad to think that the only way that he can see them now is in cages. Two days later, it was time to go. Only Manuel and I went, which I was glad about because I got to buy him breakfast and just have a nice conversation before leaving. We hugged goodbye at the train station and I told him that I would see him again soon. I think about him often, and although he has long surpassed the average lifespan of the typical Shipibo individual, being in his late 70s, I feel like he will be around long enough for us to see each other one more time.

San Pedro de Atacama and Chiu Chiu

My journey from the rainforest to the desert was a long one. I took a 26 hour bus ride from Pucallpa to Lima. I spent a few days in Lima at a really sketchy hostel,

but I didn't mind since I was spending most of my time with Lucho's son and daughter, Alvaro and Camila, who are both around my age, so I really only went to the hostel to sleep. I was very much looking forward to taking my first hot shower in a month, but much to my chagrin there was no hot water there. From Lima, I traveled to a city in the Peruvian Desert called Tacna. A really kind taxi driver helped me out tremendously there. We spent hours going to the post office and different government buildings around the city in order to mail my plants back. I think they thought I was narcotrafficing rainforest drugs, but my USDA permit finally convinced them I did not pose a threat. The same taxi driver took me over the border to Arica, Chile and brought me to the bus station. I spent about six hours waiting around there for the bus to San Pedro de Atacama, Chile. The bus left late at night, and ten hours later we pulled into the bus station in San Pedro.

I had been to San Pedro six months before on a weekend excursion during my study abroad trip. Our professor hired a company called Ayllu Expediciones as our tour guides during our time there. I grew really close to the owner and our main tour guide, Michael, and so I contacted him from an internet café in San Francisco to see if I could stay with him, and he agreed. I walked to Michael's house from the bus station and I spent about five days there giving tours with Michael and translating for English-speaking backpackers. I also had to buy some new clothes for my wardrobe there because the clothes I wore in the tropical climate of the rainforest didn't offer much protection during the winter months in Chile. The fact that it was winter proved

a little problematic for my plant collecting since some of the medicinal plants that the Chilean groups used weren't in bloom during that period of the year.

After enjoying this five day mini-vacation, I had to figure out how to go about finding Atacameño villages to visit. In order to do this I visited an anthropologist at the local archaeology museum, called the Museo Arqueológico R.P. Gustavo Le Paige. It was named after a Jesuit priest and archaeologist who lived and worked in San Pedro. They gave me a map and pointed some villages out on it that would be useful for my investigation. The village that they thought would be best for me to go to due to its location next to a relatively large oasis was called Chiu Chiu. I arrived in Chiu Chiu and found a hostel to stay at for the night. I was speaking to the owner and her daughter about who I could consult about the medicinal plants in the village, but they told me that nobody there really knew much about medicinal plants anymore and that I would have to travel further north to the village of Caspana. This was my first glimpse at the amount of culture loss that the Atacameño people have undergone.

I knew I needed to get to Caspana, but the problem was that the bus rarely went there, so I had to figure out a different way of traveling there. Left with no other option, I walked on the road that left Chiu Chiu and I threw out my thumb hoping that someone would be kind enough to pick me up. I must've had beginners luck because I walked for about three minutes before a guy stopped and gave me a ride. He was an engineer from Santiago who was there trying to tap into the geothermal energy of the Andes, and he offered to take me halfway and I happily accepted. He dropped me off at the road that lead to Caspana, but I was still 18 miles away. I walked for about 10

minutes before lady luck struck again and a family that was going to Caspana picked me up and brought me there.

Caspana and Toconao

Caspana is an Atacameño village located in the Andean highlands. The family that picked me up dropped me off at the bottom of the hill leading into the village and I got out and began to wander around searching for someone who knew about plants. Unfortunately, it was extremely cold and windy outside, so nobody was outdoors. After about 30 minutes I found a man and told him why I was there and he told me there was a woman who lived up the hill who would be able to help me. I started walking up the hill not knowing who this woman was or where she lived when this dog ran out from behind a house and began chasing me. A woman ran out of her house and picked up some stones and began to throw them at the dog, which luckily made it retreat. I was really happy to find out that this woman who saved me from the angry dog was the woman the man told me could help me. It worked out perfectly, too, because she also had a two room hostel and a restaurant at her house, so I killed three birds with one stone.

The woman's name was Cecilia and I would stay at her house for the next three days. This wasn't because it took three days to show me all of the plants; rather, Cecilia said it was too cold to go outside. Finally, towards the end of the second day, we went out into the desert to collect samples. We climbed up a mountain behind her

house to gather a few plants, and then we descended into her garden. The cultural influence of the Inca can be seen in Caspana with the terraced gardens that are carved into the sides of the mountains surrounding it. We went into Cecilia's terraces and collected a few more samples, but many were plants that we have here in the U.S., like rosemary (*Rosmarinus officinalis*) and mint (*Menta* sp.). When we were done and were sitting talking to one another back in the house I asked her why there were so few plants and she told me that it was for two reasons. The first was that it was winter so some plants don't grow during that time. The second reason was that she said much of that knowledge has been lost, which is exactly what the woman in Chiu Chiu told me. I began to ask her more about the loss of Atacameño culture and she told me of how their native language of *Kunza* had been lost. She said that there have recently been efforts to teach the language to younger generations, but nobody converses in the language anymore. This is a sad reality, but one that many indigenous groups have faced throughout history and will continue to face as the Western world encroaches on their way of life more and more.

The following day I left Cecilia's house so that I could return to San Pedro and start planning my next visit to another Atacameño village. Since I had such an easy time hitchhiking into the village, I thought that I would try my luck again, but my return did not go as well I had expected. Only three cars passed me that day and none of them stopped to pick me up. I had only a liter and a half of water and an apple to hold me over, and even though it was winter, the desert sun was still extremely harsh, and I had no sun block to protect me from it. After 18 miles my legs were tired, I was

fried to a crisp, and my lips were as cracked and dry as the desert ground I was walking on. Luckily, a truck driver stopped and picked me up right around the time when I was starting to get really nervous that I would be walking into the frigid desert night. He took me back to Calama where I caught the bus back to Michael's. My body was pretty beat up after the trek, so I rested there for a few days and figured out which village I would travel to. I wanted to go to one that was located at a lower elevation, as I did with the Shipibo, to see what types of different flora grew there. There was a village I could get to by bus called Toconao that was a few hours from San Pedro, and so I purchased a ticket and went there.

Again, I had no direction when I arrived in this village and wasn't sure who could provide me with the information I needed for my study. I asked around the village and no one really seemed to know of anyone with medicinal plant knowledge. Finally, I went into an artisan shop and asked an elderly woman named Luisa if she knew anything about the subject, or knew of anyone who did. She stared at me for a while with a very stern face and said to me "I'll show you the medicinal plants we have here if you pay me." I agreed and we spent the rest of the afternoon walking to different houses in the village, and I collected seven different plant specimens to bring with me. In total I collected 18 plants from the Atacameños, and although I collected 96 in the rainforest, I was still happy with this result as it was winter and I was in quite possibly the harshest environment in the world. I returned to Michael's house and left two days later for the 24 hour bus trip to the capital city of Santiago de Chile.

Santiago

In Santiago, I was met at the bus station by some friends I had made during my last visit there on my study abroad trip. Their names were Kenji and Felipe, and I stayed in Felipe's apartment with them for the next few days. It was in Felipe's apartment that I enjoyed my first hot shower in a month and a half. I remember just standing there letting the water hit me for 30 minutes before Felipe yelled to me and asked me if I was dead.

During my time there I visited old friends, my "Mama Chilena" (my host mom during my study abroad), and different tourist sites in the city. My time in Chile was running out, though, and I had to figure out how I was going to find a Mapuche individual to work with. I remembered that there was a weekend on my study abroad trip where we were allowed to do whatever we wanted, and while other students from the group went to beach resorts, I went south with my roommate to visit the Mapuche. This visit was facilitated by a company that specializes in setting foreign students up with a Mapuche cultural experience. The company was called Ruka Kimun, and I called the owner of the company, Kamal, to ask him to help me find me someone to work with. A few days later he called me back and said he found the perfect person for my project and that I could stay with a Mapuche *machi* (shaman) and his family. Again, I boarded another bus for a ten hour trip south to the city of Temuco where there is the largest collection of Mapuche individuals in the country.

Temuco

Kamal met me in Temuco and we went to the country to meet the *machi* with whom I would be staying for the next week. His name was Miguel and he owned a Mapuche herbal pharmacy in Temuco. He made all the medicinal infusions with plants he collected from his house in the country. When we arrived at his family's farm, Miguel came out with his mother and his brother. After exchanging greetings, he took me by the hand to join the family in a prayer to the high god in the Mapuche pantheon, *Ngünechen*, which he recited in the indigenous language, *Mapudungun*. He had a concoction he made of coconut water and some special plants which he poured on the ground as an offering to the spirits. This is something that we did each morning before going out to search for plants. Once we began talking about plant medicine and how they work on the body it was clear that Miguel knew what he was talking about. Miguel's knowledge of how the body worked and how all of the systems were interconnected was astonishing. He told me how he would combine certain plants for the synergistic effect of working on different body systems and organs. He also told me how in order to heal a person's body, you must first heal their soul. I was really pleased to hear this since it was the first time any of my informants had even acknowledged this aspect of curing.

Miguel's acknowledgment of the spirit world continued during our time collecting plants, as well. For each specimen we collected he would say a prayer in *Mapudungun* thanking that plants spirit. He would pour an infusion on the plant's roots to feed the spirit. He would then turn to the sun and thank the sun for allowing

this plant to grow. I remember after a few days with Miguel I was sitting up one night thinking about the time before when I had visited the Mapuche. I felt disappointed that members of a tribe were living in and around a major city, driving cars, and living a seemingly Western lifestyle. There was one time when Kamal took me to a ceremonial hut, a *ruka*, and at the same time we were there, a man was installing a Direct TV dish on top of the house next door to the *ruka*. Because of this and a few other things, I was thinking how I couldn't wait to go to the rainforest to see what a real tribe lived like. However, during my time with Miguel and his family, I had a profound realization: despite the fact that the Mapuche live in and around the city and live a modern life, they had the most intact culture out of any of the three groups I studied with. To this day, the Mapuche are a strong people who proudly defend their land and culture. Before the Spanish arrived, it was where Mapuche territory began that the powerful Inca Empire's territory ended. This is because the Inca were unsuccessful in all of their attempts to absorb the Mapuche. It took the Spanish three and a half centuries to pacify the Mapuche, and even today the Mapuche still occasionally bomb government buildings or set up roadblocks to show that the land is still theirs. They have managed to successfully maintain their religious practices, their language, and their sense of identity in what is perhaps the most economically well-off country in all of Latin America, something that is truly remarkable.

Our plant collection took place in Miguel's garden, in the low-lying forest around his house, higher up in elevation around the Chilean coastal mountain range, and on little patches of brush separating different individual's farming plots. As

expected, the number of plants collected in the temperate zone was in between what was collected in the rainforest and desert climates, but again the weather affected the outcome of the collection. We collected 26 plant specimens in total, but he assured me that if I returned during the summer we could collect a lot more. Unfortunately, I was not able to travel to the Mapuche that live in the higher altitude Andes to see what plants grew there like I did with the Shipibo and the Atacameños. This was mostly because my time was running out along with my money. I wasn't disappointed even though there were some shortcomings with this leg of my project. This is because my time with the Mapuche restored my confidence that an indigenous population could still exist with a strong culture in the modern world. I've sent Miguel emails since I left, but I've yet to receive a response. While I know that the day will come when I return to see my *machi* friend and his family again, whenever I'm missing him I just go to YouTube, search "farmacia herbolaria mapuche makewelawen," and I can watch a video of him being interviewed in his pharmacy…I guess there are some perks to a tribal society living in the modern world, after all.

Conclusion

I returned to Santiago after spending a week with Miguel, and the next day I mailed my plants back. My return flight to the US left that night. I had collected 140 plants in all, but not all of them passed the USDA inspection, so not all of them were able to be tested for antibiotic properties here in the laboratory. My expectation that this would

be my coming of age journey was accurate. I returned home and saw the world through a different set of eyes. In the process of learning about other people and how they lived, I ended up learning so much more about myself. My favorite quote of all time is from the revolutionist Ernesto "Che" Guevara. "Deja que el mundo te cambie...y podrás cambiar el mundo", in English this translates to "Let the world change you…and you can change the world." I can definitely say that I was changed by this experience, and I hope that through testing these plants in a laboratory setting I am able to find something that has the potential to change the world. I think about my South American journey and the people I met along the way every single day and I can't wait for the day when I can see them all again.

Chapter 9

MEDICINAL PLANT INVENTORY

The inventory presented below is an inventory of the medicinal plants which I collected during my fieldwork in South America during the summer of 2010. I spent June-July with the Shipibo, one week in July with the Atacameño, and one week in July with the Mapuche. I have compiled three tables below, one for each group. Each table contains the information I gathered from asking questions to my informants while in the field. For each plant I tried to gather what its name was in the indigenous language (if it existed), what the translation from the indigenous language was, what its common name was in the *lengua franca*, what illnesses the plant was used for, how it was prepared, dosages, where it grew, and if there were any magical connotations associated with the plant. In addition to these things, I included a list of informants who told me about the plant. In some cases, there are many different consultants for a plant. This is because I wanted to ensure that proper intellectual property rights were credited to those individuals who gave me the information, including the person (or people) who initially told me about the plant, the person (or people) with whom I cross-referenced the plant and how it was used, prepared, etc., and, in the case that the plant was collected from a house garden, I included the name of the people to whom the garden belonged. I found out the hard way during the process of this research just

how complex of an issue intellectual property rights actually are, so I wanted to make sure that I covered all grounds.

There are, without a doubt, limitations with the data that I am presenting below. These limitations will be discussed further in the Conclusion Chapter. However, I wanted to offer the interested reader a short list of more comprehensive and detailed ethnobotanical studies for each of these three groups. If the reader is interested in a general overview of South American medicinal plants, they should refer themselves to James Duke's (et al. 2009) comprehensive work, *Duke's Handbook of Medicinal Plants of Latin America.*

With respect to this Shipibo, a general overview of medicinal and toxic plants of the Northwest Amazon can be found in Schultes and Raffauf's *The Healing Forest* (1990). More detailed accounts of Shipibo medicinal plants can be found in Thomas Lamar's *Medicinal Plant Use of the Shipibo Indians of the Peruvian Montaña* (1985). Lamar does a wonderful job with associating the Shipibo's plant use back to their rich mythology. Another great piece of literature on Shipibo medicinal plants comes from the 1984 work by Tournon and Reátegui, *Investigaciones sobre las Plantas Medicinales de los Shipibo-Conibo del Ucayali* (Investigations Surrounding the Medicinal Plants of the Shipibo-Conibo of the Ucayali [translation by the author]). Another interesting list of medicinal plants can be found in Guillermo Arrevalo's (1994) *Medicina Indigena-Las Plantas Medicinales y Su Beneficios En La Salud Shipibo-Conibo* (Indigenous Medicine-The Medicinal Plants and Their Benefits in

Shipibo-Conibo Health [translation by the author]). Arrevalo, a Shipibo native, offers tremendous insight to the medicinal plant use of the people, as only an insider could.

For further readings on the Atacameños, one should first consult the book by Aguirre (et al. 1958) *Notas Etnobotanicas del Pueblo Atacameño de Socaire* (Ethnobotanical Notes from the Atacameño Village of Socaire [translation by the author]). This gives a good account of ethnobotanical practices as they existed more than fifty years ago. For more recent ethnobotanical accounts, see Villagrán (et al. 1998:16n. 7), Villagrán (et al. 1998:16n. 107), and the excellent work by Domingo Gómez Parra (et al. 2004), *Medicina Tradicional Atacameña* (Traditional Atacaman Medicine [translation by the author]). Another really interesting work is by Bustos & Blanco (2009) who describe that the Atacameños ethnobiological knowledge is critical in order for them to reestablish an ethnic identity in the Chilean state.

To learn more about the Mapuche's use of medicinal plants, one should refer primarily to the Luca Citarella (ed. 1995) book *Medicinas y culturas en La Araucanía* (Medicines and Cultures in Araucania [translation by the author]). To understand more about how the Mapuche link sociocultural and religious values to their medicinal plants, see Torri (2010: 15(3): 132-148) and Bacigalupo (2007). For information on Mapuche use, knowledge, and transmission of medicinal plants, see Molares & Ladio (2012: 21: 1079-1093), Ladio & Lozada (2004: 13: 1153-1173), and Lozada, Ladio, & Wigandt (2006: 60(4): 374-385).

Table 1: Inventory of Shipibo Medicinal Plants

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
	Anestesia	Anesthesia	This plant is good to either heal tooth pain, or a stomach ache. For tooth pain, take the leaves and squeeze the juice onto the sore area. For a stomach ache, boil the leaves in water and drink the tea.	Pablo Silvano Barbaran, Elias Rodriguez Campos and Dalia Guimarayas: Callería	House Garden
	Menta	Mint	Cook these leaves in water and drink as a tea to help with stomach pains and diarrhea.	Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería;	House Garden
	Limón	Lemon	Lemon juice is good for helping with diarrhea and cough. The leaves of the tree are good for all stomach problems when they are boiled, mixed with sugar, and drank as a tea.	Pablo Silvano Barbaran, Rita Silvano: Callería	House Garden
	Malva	Mallow	When you have a sore throat or a dry cough, chop these leaves up, put them in cold water, and drink it.	Pablo Silvano Barbaran, Alfonso Canallo, Luisa Ochabano: Callería	House Garden
	San Pedro	St. Peter	This hallucinogenic cactus is mashed and put on tumors with a bandage to remove them. This can also be done for bone pain.	Manuel Regnifo: San Francisco de Yarinacocha	Highland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
1)Yami Rao 2)Jaciman Rao 3)Paca Tsëhua Rao		1) Yami Medicine (Rao=Medicine) 2) Bird Medicine (Jaciman=Bird, Rao=Medicine) 3) Tree Wound Medicine (Paca=Cane-like Tree, Tsëhua=Wound, Rao=Medicine)	1) For diarrhea, rasp the bulb and mix it with lemon and water and drink it. For wounds, rasp the bulb and put it directly on the cut. 2) When someone is hemorrhaging, cut the bulb and boil it with water, and drink it to stop the bleeding. 3) Put the rasped bulb on a wound to help it to heal quicker.	1) Suimara Mori, Alejandro Mori: Callería 2) Pablo Silvano Barbaran: Callería 3) Manuel Regnifo: San Francisco de Yarinacocha	House Gardens
Abocomoa Nui Rao	Limosacha	Bird Love/Luck Medicine (Abocama=Bird, Nui=Love/Luck, Rao=Medicine)	When someone needs friends, they bathe in the leaves of this plant once a day for five days.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest
Anáh	Catahua	Barbasco (Common name in the lengua franca)	This tree is used to make boats. The sap can also be beaten into streams and used as fish venom. This plant can be used medicinally when cooked; however, the sap of this tree is very poisonous and can kill someone in less than 3 hours. Cook it until it is a cream, and then rub it on an area with pain. It can also be rubbed on tumors. Apply 3 times each day.	Pablo Silvano Barbaran: Callería; Manuel Regnifo: San Francisco de Yarinacocha	Lowland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Ani Boains	Ajo Sacha	Big Boains (Ani=Big) (From Shipibo)	Used as a preventative medicine, the leaves and rasped bark of the stem are boiled in water and drank once they have reached room temperature. This is done in the early morning after bathing. It is also good for diabetes, good luck, and stuck up the noses of children to make them better workers.	Pablo Silvano Barbaran,, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería	House Garden
Aó			1) The rasped bark of this aquatic tree is good for all types of pain when placed over the afflicted area. The rasping can also be placed on the throat to help with a cough. It is important to only use a little.	Pablo Silvano Barbaran: Calleria	Várzea Flood Plain
Arabanca			The leaves of this plant are cooked and drank while still hot to help stop vaginal hemorrhaging.	Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería	House Garden
Arabanca			1) The leaves of this plant are cooked and drank while still warm. The plant acts as an anticoagulant to help stop vaginal hemorrhaging. 2) The leaves are made into a tea to help with menstrual cramps.	1) Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería; 2) Suimara Mori, Alejandro Mori: Callería	House Garden

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Aŝhë	Sacha Culantro	Sacha Coriander (From Spanish)	When someone has diarrhea, the leaves of this herb can be made into a tea. Also very good in soup.	Pablo Silvano Barbaran, Ida Silvano García: Callería	House Garden
Aŝho	Capirona		The rasped bark of this tree is used on burns and cuts to help heal the skin back to normal again.	Pablo Silvano Barbaran: Callería	Highland Forest
Atapani Nui Rao		Chicken Love/Luck Medicine (Atapaini=Chicken, Nui=Love/Luck, Rao=Medicine)	Take this plant and dry it. Once dry, mix with perfume and another type of *Nui Rao*, which are dry too. Put it on your hands and your body to make someone fall in love with you. Also good for general luck.	Amelia, Manuel Regnifo: San Francisco de Yarinacocha	Grassland
Bahuan Nui Rao		Parrot Love/Luck Medicine (Bahuan=Parrot, Nui=Love/Luck, Rao=Medicine)	Take this plant and dry it. Once dry, mix with perfume and another type of *Nui Rao*, which are dry too. Put it on your hands and your body to make someone fall in love with you. Also good for general luck.	Amelia, Manuel Regnifo: San Francisco de Yarinacocha	Grassland

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Bari Rao	Icoja		1) This plant is used for the construction of houses. The bark can be boiled and consumed as a tea for tuberculosis or anemia. For lazy children, the bark is cut and put in a jar full of water and drank to act as an emetic. After vomiting, he won't be lazy anymore. 2) Drink the leaves of this tree for body pain. Drink one cup in the morning and bathe immediately after. To prepare the beverage, take the bark, mix with *aguardiente*, honey, *Ŝhoná*, and *Ŝhanáh*. Allow this to ferment for eight days before drinking.	1) Pablo Silvano Barbaran: Callería; Manuel Regnifo: San Francisco de Yarinacocha 2) Suimara Mori, Alejandro Mori: Callería	Lowland Forest
Bocoŝh Taco			1) The stem of this plant is chewed to make your teeth stronger and whiter. Before they become whiter, though, they will turn black for two weeks. After this they will come back a brilliant white. 2) Take the bark of this plant, rasp it, and drink the liquid to help with asthma.	1) Pablo Silvano Barbaran: Callería; Manuel Regnifo: San Francisco de Yarinacocha 2) Suimara Mori, Alejandro Mori: Callería	Lowland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Bonŝhiŝh	Aceite de Copaiba	Copaiba Oil (From Spanish)	1) The oil is obtained from the heart of the tree and is placed on wounds to help heal them, especially after operations. Three drops of the oil can be placed in boiling water and consumed to help with tuberculosis and inflamed liver. Both are done once in the morning. 2) Take one spoon full of the oil for all classes of regular illnesses and cancer, as well.	1) Pablo Silvano Barbaran: Callería; Manuel Regnifo: San Francisco de Yarinacocha 2) Suimara Mori, Alejandro Mori: Callería	Highland Montaña
Buena Nui Rao		Good Love/Luck Medicine (Buena=Spanish word for good, Nui=Love/Luck, Rao=Medicine)	This tree is studied by shamans for six months in order to learn the tree's spirit. They must diet during this time. It is also good for overall good luck. These good fortunes are brought by the spirits of the tree.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest
Canŝhan	Palo Blanco	White Stick (Palo=Stick, Blanco=White)	When someone has cancer the bark can be cooked into a tea to be drank in the morning to help it get better.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest
Caŝhi Montis Rao		Bat Claw Medicine (Cashi=Bat, Montis=Claw, Rao=Medicine)	Take this plant and dry it. Once dry, mix with perfume and another type of *Nui Rao*, which are dry too. Put it on your hands and your body to make someone fall in love with you. Also good for general luck.	Amelia, Manuel Regnifo: San Francisco de Yarinacocha	Grassland

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Chaki Mesti Rao		Baby Fear Medicine (Chaki=baby, Mesti=fear)	Cut the leaves, boil them, and hold baby above the vapors to make him walk faster	Pablo Silvano Barbaran, Suimara Mori, Alejandro Mori: Callería	House Garden
Cheshon Pui			When a woman has postpartum, make this into a tea. Drink this while still hot to calm the pain. Do this until the pain goes. Also, rub the wet leaf on her belly when it is still hot to help.	Amelia, Manuel Regnifo: San Francisco de Yarinacocha	Grassland
Chitari	Canela	Cinnamon (For both)	Rasp the bark of this tree and make it into tea for stomach pains, diarrhea, vomiting, and bad air.	Suimara Mori, Alejandro Mori: Callería	House Garden
Chuchua-sha			1) The bark of this tree is mixed with liquor and honey from a beehive. This mixture is then put in the ground for 8 days to ferment. It is then consumed to help with rheumatism, warmth, and to stop diarrhea. 2) Take the bark of this tree and mix it with *aguardiente*, honey, *Ŝhoná*, and *Ŝhanáh*. Put in the dark for eight days to ferment. Good for body pain, including arthritis.	1) Pablo Silvano Barbaran: Callería; Manuel Regnifo: San Francisco de Yarinacocha 2) Suimara Mori, Alejandro Mori: Callería	Lowland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Conëhua Tepuco		Eel Gills (Conëhua=Eel, Tepuco=Gills)	1) Boil the roots in water and drink as needed for arthritis. 2) The boiled leaves are drank and are good for helping alleviate a woman's postpartum illnesses, which includes diarrhea and morning sickness.	1) Pablo Silvano Barbaran: Callería; Manuel Regnifo: San Francisco de Yarinacocha 2) Suimara Mori, Alejandro Mori: Callería	Lowland Forest
Conron	Incira		When you have tooth pain, you make a small incision and drip the sap of this tree into the incision. Birds and fish are also very fond of the fruit of this tree.	Pablo Silvano Barbaran: Callería	Highland Forest
Huaca Jana Nui Rao		Cow Tongue Love/Luck Medicine (Huaca=Cow, Jana=Tongue, Nui=Love/Luck, Rao=Medicine)	Take this plant and dry it. Once dry, mix with perfume and another type of *Nui Rao*, which are dry too. Put it on your hands and your body to make someone fall in love with you. Also good for general luck.	Amelia, Manuel Regnifo: San Francisco de Yarinacocha	Grassland

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Huanahu-ana	Guanagua-na		1) When the leaves of this plant turn yellow, eight of them are taken and cooked in water. The mixture is allowed to cool and then is consumed to help with hepatitis. 2) Make the leaves of this tree into a tea and drink at room temperature to help the kidneys.	1) Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería; 2) Suimara Mori, Alejandro Mori: Callería	House Garden
Huaŝhman	Algodón	Cotton (For both)	The leaves of this plant are made into tea for postpartum illness, menstrual cramps, and for stomach problems.	Suimara Mori, Alejandro Mori: Callería	House Garden
Huaste	Piri Piri		The bulb of this group of plants can be used to make you love your wife again if you stop loving her. Can also be used for good luck with fishing, hunting, cultivating plants, and harvesting.	Pablo Silvano Barbaran, Deni Rodriguéz, Merri Ochavano: Callería	House Garden
Huchito Jana Rao	Lingua del Perro	Cow Tongue Medicine	Take this plant and dry it. Once dry, mix with perfume and another type of *Nui Rao*, which are dry too. Put it on your hands and your body to make someone fall in love with you. Also good for general luck.	Amelia, Manuel Regnifo: San Francisco de Yarinacocha	Grassland
Huini Rao	Clavohuasca	Erection Medicine (Huini=Erection, Rao=Medicine)	When a man has erectile dysfunction, he must mix the bark with *aguardiente* and drink it every morning before he bathes.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Huiso Pionis	Pion Negro	Black Pionis	1) The leaves of this tree are put in water and the head is bathed with it in the early morning to help headaches. For scars, break the branch and drip the sap into the healing wound. 2) Bathe with the leaves of this tree for all types of illnesses.	1) Pablo Silvano Barbaran, Cecilio Silvano del Aguila and Elita Barbaran Maynas: Callería 2) Suimara Mori, Alejandro Mori: Callería	House Garden
Iporoni	Ipururu	Mother of the Catfish (Ipo=Catfish, Roni=Anaconda) (From Shipibo).	1) This plant helps an individual with an enlarged prostate to urinate well again. Prepare the leaves from the crests of the branches of the tea. Drink when the tea reaches room temperature. For arthritis, put the bark in a bottle with *aguardiente* and allow it to ferment for 8 days before drinking. Also helps with sexual potency. Drink in the morning and bathe after. 2) Take the bark and mix it with *aguardiente*. Put this away for seven days to ferment. Drink it in the morning to help with rheumatism and diarrhea.	1) Pablo Silvano Barbaran: Callería 2) Suimara Mori, Alejandro Mori: Callería	Riverbank

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Ishanca	Ishanga	Stinging Nettles (From both)	The thorns from this plant are rubbed over a painful part of your body as a local analgesic. Bad kids can also be whipped with it.	Pablo Silvano Barbaran, Cecilio Silvano del Aguila and Elita Barbaran Maynas: Callería	House Garden
Jaŝhon Alambre		Jaŝhon=Deer, Alambre=Spanish for "barbwire"	1) This vine is used to stop hemorrhages. To prepare it, cut the vine into pieces, grind it up, and make it into a tea. Drink this while it is still hot. 2) Boil the bark and drink it to become strong and lift big things.	1) Pablo Silvano Barbaran: Callería 2) Suimara Mori, Alejandro Mori: Callería	Lowland Forest
Jibi Jaci Cuŝhiti	Atún	Defense Strength Plant (Cuŝhiti=Defense, Saci=Strength, Jibi=Plant)(From Shipibo) Tuna (From Spanish)	The bark of this tree, which smells like tuna, is drunk in an infusion every day for ten months mixed with strong tobacco juice by a shaman. During which time strict dietary taboos are followed. After hallucinating enough times from this plant, you will have learned how to heal from the spirit and you will have received the strength to defend yourself and others.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest
Joŝhin Pataquina		Red Pataquina	Hardly anyone uses this plant because in order for it to work an extremely strict diet must be followed. That being said, it is very good for pain, arthritis, and all illnesses in general. Boil water and put one spoonful of the resin in the water before drinking it.	Pablo Silvano Barbaran, Cecilio Silvano del Aguila and Elita Barbaran Maynas: Callería	House Garden

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Joŝho Pionis	Pion Blanco	White Pionis (For both)	1) The resin from the branch of this tree is dripped directly on a wound in order to prevent scarring and make wounds heal faster. 2) For diarrhea and cough, drink some of the resin of this mixed with water.	Pablo Silvano Barbaran, Cecilio Silvano del Aguila and Elita Barbaran Maynas: Callería	House Garden
Joŝho Ŝhino Rao		White Capuchin Medicine (Joŝho=White, Ŝhino=Capuchin, Rao=Medicine)	Take this plant and dry it. Once dry, mix with perfume and another type of *Nui Rao*, which are dry too. Put it on your hands and your body to make someone fall in love with you. Also good for general luck.	Amelia, Manuel Regnifo: San Francisco de Yarinacocha	Grassland
Mamé			Take the bark of this tree and boil it in water for around 40 minutes before drinking it. This is good for colicky babies. It is also good for bad lungs and ovarian cancer.	Manuel Regnifo: San Francisco de Yarinacocha	Highland Forest
Maquë Rao		Piranha Medicine (Maquë=Piranha, Rao=Medicine)	Take this plant and dry it. Once dry, mix with perfume and another type of *Nui Rao*, which are dry too. Put it on your hands and your body to make someone fall in love with you. Also good for general luck.	Amelia, Manuel Regnifo: San Francisco de Yarinacocha	Grassland

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Marosa			1) The leaves of this plant are ground up and placed on a painful area to reduce pain. 2) Shamans bathe with this plant to see visions.	1) Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería; 2) Suimara Mori, Alejandro Mori: Callería	House Garden
Maŝhë	Achoté		1) The leaves of this tree are placed in cold water and used to bathe the head in the early morning for good luck. It is placed on the tips of arrows for good luck with hunting, also. In addition, the pigment from the seeds can be used to paint the body and artesian goods. 2) Bathe with the leaves for success against enemies.	1) Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería; 2) Suimara Mori, Alejandro Mori: Callería	House Garden

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Matsi Rao		Cold Medicine (Matsi=cold, Rao=medicine)	When one has a fever, the leaves of this plant are put in a bucket of water and bathed in. For pain, the leaves are broken in the hands and rubbed on the spot that hurts.	Pablo Silvano Barbaran, Pablo Campos Sangama ("El Anciano"): Callería; Manuel Regnifo: San Francisco de Yarinacocha	Lowland Forest
Matsi Sanvan		Cold Sanvan	After a woman has a baby, she has leftover cold in her. For three days in the early morning she must take the leaves, boil them in a pot, and squat above the pot while covering herself with a blanket to absorb the vapors. The same can be done for someone with arthritis.	Pablo Silvano Barbaran, Pablo Campos Sangama ("El Anciano"): Callería; Manuel Regnifo: San Francisco de Yarinacocha	Lowland Forest
Misho Montis	Uña del Gato	Cats Claw (Misho=Cat, Montis=Claw)(From Shipibo) (Uña=Claw, Gato=Cat)(From Spanish)	1) When this vine is cut open and held vertically, water flows out of the end. In order to clean the urinary tract and the kidneys, the bark of this vine is boiled in water from inside the vine and drunk cooled. 2) The bark of this vine is good for healing all illnesses, especially body pain and rheumatism, when cooked in water and drank.	1) Pablo Silvano Barbaran: Callería 2) Suimara Mori, Alejandro Mori: Callería	Highland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Nacan Nui Rao		Fly Love/Luck Medicine (Nacan=Fly, Nui=Love/Luck, Rao=Medicine)	Take this plant and dry it. Once dry, mix with perfume and another type of *Nui Rao*, which are dry too. Put it on your hands and your body to make someone fall in love with you. Also good for general luck.	Amelia, Manuel Regnifo: San Francisco de Yarinacocha	Grassland
Nahua Rao	Albaca	Basil (From both)	1) When someone has bad luck, they can put the leaves of this plant in a bucket of water and bathe themselves in it in the early morning. 2) For stomach pains, menstrual cramps, and diarrhea, boil the leaves and roots into a tea and drink it.	1) Pablo Silvano Barbaran, Pablo Campos Sangama ("El Anciano"), Melita Campos: Callería 2) Suimara Mori, Alejandro Mori: Callería	House Garden
Nanë	Huito		When a child is weak and skinny, feed him the seeds of this plant to make him vomit out all of his weakness and clean his stomach. This will make him gain weight after. The seeds can also be used to dye hair.	Pablo Silvano Barbaran, Ida Silvano García: Callería	House Garden
Nia Boains	Mokura	Small Boains (From Shipibo)	Used as a preventative medicine, the leaves and rasped bark of the stem are boiled in water and drank early in the morning once they reached room temperature. Also good for diabetes, good luck, and stuck up the noses of children to make them better workers.	Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería	House Garden

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Nipa	Corta Corta	Cut Cut (From Spanish)	1) This spiny plant grows tall and its roots can be boiled in water and consumed to help with tumors. 2) Boil the leaves of this plant and place them on a sore area to help with arthritis.	1) Pablo Silvano Barbaran: Callería; Manuel Regnifo: San Francisco de Yarinacocha 2) Suimara Mori, Alejandro Mori: Callería	Lowland Forest
Noma Nui Rao	Paloma Mesanjero	Small Bird Love/Luck Medicine (Noma=Small bird, Nui=Love/Luck, Rao=Medicine)(From Shipibo) Messenger Pigeon (Paloma=Pigeon, Mesenjero=Messenger)(From Spanish)	This aromatic vine is rasped and put in a bucket. It is then bathed with for someone trying to find friends, love, or luck.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Noni			1) For body pain, put the fruit in a bucket and let it sit and ferment for fifteen days. During this time, a liquid will come out. Put this liquid in a bottle and drink one glass three times a day until the bottle is finished. 2) Chop the leaves of this plant, mash the fruit and drink the mixture to help with cancer, cysts, and other illnesses.	Pablo Silvano Barbaran,, Dolores Barbaran Maynas: Callería	House Garden
Nui Rao de Amelia		Love/Luck Medicine (Nui=love/luck Rao=medicine)	2) When a woman hates her husband so much she wants to divorce him, she must bathe in the leaves of this to love him again.	Amelia	Grassland
Nui Rao de Callería		Love Medicine (Nui=love/luck Rao=medicine)	1) When your spouse hates you, bathe in these leaves in the early morning and at night for five days. After this you'll be allowed to renter the bed again. The same plant will help you to become a better fisherman.	Pablo Silvano Barbaran, Pablo Campos Sangama ("El Anciano"): Callería	Lowland Forest
Nui Rao de Manuel		Love/Luck Medicine (Nui=love/luck Rao=medicine)	The leaves of this plant are bathed with in secret for five days in the early evening.	Manuel Regnifo: San Francisco de Yarinacocha	Highland Forest
Nuino Mëquën			Boil the leaves and roots of this herb in water for around 30 minutes and place your hands over the vapors to become a better fisherman.	Manuel Regnifo: San Francisco de Yarinacocha	Highland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Pacho			When someone has a hemorrhage of the bowls, prepare the bark like a tea and drink it.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest
Paerinin Santira	Sandía	Priest Santira (Paerinin=Priest, Santira=Watermelon)(From Spanish) Watermelon (From Spanish)	When a child has a constant fever and breaks out in hives, take the leaves of the vine, prepare them as a tea, and give it to them to drink. In addition, the child should be bathed in water with the leaves added to it.	Pablo Silvano Barbaran, Ida Silvano García: Callería	House Garden
Paico			If someone has parasites, they can drink a mixture of the leaves of this plant and water. Just a spoonful is taken around 5:00 AM for three days. The parasites will then be secreted in the feces.	Pablo Silvano Barbaran, Pablo Campos Sangama ("El Anciano"), Melita Campos: Callería	House Garden
Paón	Pandisho		1) If you have an intestinal hernia, place this plant on your stomach to help raise the hernia back into your stomach. It will do the same for umbilical hernias. 2) Drink the resin in water to help with diarrhea.	1) Pablo Silvano Barbaran: Callería 2) Suimara Mori, Alejandro Mori: Callería	Chacra

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Paranta	Platano	Plantain (From Both)	1) The herbaceous plantain tree is cut down and the pulpy center of the trunk is dug out and covered with a leaf in the early morning. Later in the day, the person will return to the tree to drink the liquid that has accumulated to help with kidneys and tuberculosis. These trees are found in everyone's chacras. 2) The resin of this tree is good when drank for helping with diarrhea and a prompt birth.	1) Pablo Silvano Barbaran: Callería 2) Suimara Mori, Alejandro Mori: Callería	Chacra
Pariniri	Parinari		Boil the bark as a tea for thirty minutes and drink one spoonful for pellagra.	Manuel Regnifo: San Francisco de Yarinacocha	Highland Forest
Pataquina			1) When someone has body pain, they can smash the leaves of this plant and place them on the afflicted area. 2) Bathe in the leaves if a shaman has done you harm	1) Pablo Silvano Barbaran, Dolores Barbaran Maynas: Callería 2) Suimara Mori, Alejandro Mori: Callería	House Garden
Pino Rao		Humming Bird Medicine (Pino=Humming bird, Rao=Medicine)	If a woman has breasts which she doesn't want to grow larger or sag, she stabs herself in herself in her breasts with the spines of this tree after she loses her virginity.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Rimón Ininti	Yierba Luisa	Lemon Verbena (From Spanish)	For a bad stomach, put the leaves of this herb in boiling water, boil it, and add sugar. Drink it like tea.	Pablo Silvano Barbaran, Manuel Buenapio, Rosa Silvano Barbaran Masedo: Callería	House Garden
Romé	Tobacco	Tobacco (From Both)	The leaves of this plant are used as an emetic when rubbed in the mouths of misbehaving children to make them vomit and change their ways. If there are subcutaneous parasites, the juice from the leaves can also be rubbed onto the blister as an insecticide.	Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería;	House Garden
Rono Ïwa Tsëhua Rao		Rono=Boa, Ïwa=Big, Tsëhua=Wound, Rao= Medicine	1) The bark of this vine is rasped and used for its anti-inflammatory properties. It is placed over the swollen area and wrapped in a poultice made from a leaf. This is repeated once the bark raspings dry until the pain is gone. 2) Take the rasped bark, mix it with *aguardiente*, and drink it to help with tuberculosis.	1) Pablo Silvano Barbaran: Callería 2) Suimara Mori, Alejandro Mori: Callería	Highland Forest
Rono Rao	Jergón Sacha	Snake Medicine (Rono=Fer-de-Lance, Rao=Medicine)(From Shipibo)	Use the bulb of this small tree to help with stomach or liver pain.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Rosasisa (AKA Amasisa)			1) This plant is good for both children and adults with stomach problems. When vomiting, take the leaves and boil them in water and drink it. When one has diarrhea, they must crush the leaves to extract the liquid, and then drink this. 2) Take the leaves and the root as a tea for bad air.	Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería 2) Suimara Mori, Alejandro Mori: Callería	House Garden
Santico	Santiago		The stalk of this plant is taken, mashed, and used to wash the hair to make it grow.	Pablo Silvano Barbaran, Elias Rodriguéz Campos, Dalia Guimarayas: Callería	House Garden
Ŝhanáh	Tamamuri		1) The sap of this tree is put on sprains and fractures to help the pain. For arthritis, the sap and bark are mixed with *aguardiente* and consumed. 2) Take the bark of this tree and mix it with *aguardiente*, honey, and *Misho Montis* bark. Good for all illnesses.	1) Pablo Silvano Barbaran: Callería; Manuel Regnifo: San Francisco de Yarinacocha 2) Suimara Mori, Alejandro Mori: Callería	Lowland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Shanënva-na	Suelda con Suelda	Shaded Bird (Shanën=Species of Bird, Vana=Shaded) (From Shipibo)	This vine is very good for bone pain when the leaves are smashed and put on the sore area with a bandage. This plant is also very important for shamans.	Manuel Regnifo: San Francisco de Yarinacocha	Highland Forest
Shënan	Guava	Guava (from both)	1) When someone has fuzzy vision, they must cut the bark, rasp the inner pulp, and put one drop in each eye. 2) Not medicinal	1) Pablo Silvano Barbaran, Ida Silvano García: Callería 2) Suimara Mori, Alejandro Mori: Callería	House Garden
Ŝheŝhon	Hubo		1) Boil this plant well and place on wounds to help heal and dry them. It can also be used to help with cancer, and it is especially good for postpartum vaginal infections. This infusion should not be drunk. 2) Rasp the bark and put it on skin cancer.	1) Pablo Silvano Barbaran: Callería; Manuel Regnifo: San Francisco de Yarinacocha 2) Suimara Mori, Alejandro Mori: Callería	Lowland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Ŝhoco (Caocho Maŝha)			1) Put the resin of this plant on tumors. 2) Rub the resin of this plant on a hernia.	1) Pablo Silvano Barbaran: Callería 2) Suimara Mori, Alejandro Mori: Callería	House Garden
Ŝhomi	Ojé		Early in the morning, the milky sap from this tree is taken and mixed with *aguardiente*. This mixture is then placed in the ground to ferment for 8 days. This is then drunk in order to purge and clean the stomach of small bugs. You can also put the sap on wounds to help heal them.	Pablo Silvano Barbaran: Callería	Highland Forest
Ŝhoná	Renaquilla		1) This vine is mixed with *aguardiente* and used to become strong, help with arthritis, and as a stimulant. 2) Make tea out of the bark of this tree to help with pain. Also rasp the bark and put it on the painful area.	Pablo Silvano Barbaran: Callería	Highland Forest
Ŝhono	Lopuna	Ceiba (Common name in the lengua franca)	When one is becoming a shaman and wishes to know the spirit of this tree, he will drink the bark in the morning for six to eight months and drink it with tobacco. This tree's spirit will be seen if he does this.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Ŝhoro	Requia		1) For any type of pain, rasp the bark and put it where it hurts. This plant can also be used by a woman to have an abortion by placing the raspings on her belly for two or three months. 2) Rasp the bark of this tree, mix it with water, and bathe in it for pain and when a witch has done you harm.	Pablo Silvano Barbaran, Pablo Campos Sangama ("El Anciano"): Callería; Manuel Regnifo: San Francisco de Yarinacocha	Lowland Forest
Socaba			The white resin of this tree is placed topically on the stomach to remove a tumor or bad spirits.	Manuel Regnifo: San Francisco de Yarinacocha	Highland Forest
Tanoni			1) The branch of this plant is broken and the sap is dripped on the snake bite. The sap, though, is extremely venomous and will kill you if ingested. 2) Apply the resin to hemorrhoids.	1) Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería 2) Suimara Mori, Alejandro Mori: Callería	House Garden

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Tashba Coshon Tama	Sangre de Grado	Peanut Bird Tashba (Coshon=bird, tama=peanut) (From Shipibo); Blood Grade (From Spanish)	1) The sap of this tree is blood red and good for helping people with anemia and respiratory problems when the boiled sap is drank. Women use to stop vaginal hemoraging. 2) Good for cuts, wounds, and mouth ulcers. Just rub the leaves on the area.	1) Pablo Silvano Barbaran: Callería; Manuel Regnifo: San Francisco de Yarinacocha 2) Suimara Mori, Alejandro Mori: Callería	Lowland Forest
Tipo			This aquatic plant is good for stomach problems. For children under two or three years of age, make a tea from the leaves and give them a spoonful to help stop diarrhea. For adults, a full cup is drunk for stomach pains.	Pablo Silvano Barbaran: Callería	Riverbank
Tobi Rao		Fracture Medicine (Tobi=Fracture, Rao=Medicine)(From Spanish)	For sprains and fractures, mash the leaves of this plant up and put them on the pain. When these dry, replace them and keep repeating until better.	Pablo Silvano Barbaran, Roger Mori Vargas, Elva Barbaran Sanchez: Callería	House Garden

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Toé	Canachiari		1) This magical plant is thought to be able to help someone find a thief. 2) Shamans put the leaves on their foreheads in order to see visions.	1) Pablo Silvano Barbaran, Cecilio Silvano del Aguila, Elita Barbaran Maynas: Callería; 2) Suimara Mori, Alejandro Mori: Callería	House Garden
Vacuati Jacun Jibi		Good Baby Plant (Vacu=Baby, Jacun=Good, Jibi=Plant)	For a pregnant woman, the bark of this plant is cooked and put on the stomach for a quick birth. This is done each new moon during the pregnancy.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest
Vacuati Rao		Baby Medicine (Vacuati=Baby, Rao=Medicine)	When a woman can't get pregnant, she will drink the bark of this tree to help her conceive a child. It can also be drunk for a cold and rheumatism to ease the pain.	Manuel Regnifo, Hildebrando Amasifuen: San Francisco de Yarinacocha	Highland Forest
Vocon	Setico		In the afternoon, take the rasped bark of this tree and put it into a gallon of water. The next morning, drink around two cups of it and do the same for the next seven days. This is good for liver inflammation, cleaning the kidneys, and cleaning the urinary tract.	Pablo Silvano Barbaran: Callería	Highland Forest

Table 1: Inventory of Shipibo Medicinal Plants (Ct'd)

Shipibo Name	Spanish Name	English Translation	Uses	Informant(s) and Home Village	Habitat
Yangman Nui Rao		Tick Love/Luck Medicine (Yangman=Garrapata, Nui=Love/Luck, Rao=Medicine)	Take this plant and dry it. Once dry, mix with perfume and another type of Nui Rao, which are dry too. Put it on your hands and your body to make someone fall in love with you. Also good for general luck.	Amelia, Manuel Regnifo: San Francisco de Yarinacocha	Grassland
Yona Rao		Fever Medicine (Yona=Fever, Rao=Medicine)	When a child has a fever, break the leaves of this small shrub up and put them in hot water. The child must then take three spoonfuls, immediately. Also, put the leaves in a bucket and wash their heads with the water the next morning.	Pablo Silvano Barbaran, Felipe Campos, Florina Castro: Callería	House Garden
Yonó	Moaina		1) When someone is bitten by a snake, they cut the bark of this tree and rasp the inner-layer. The liquid from the raspings is extracted and dripped on the bite. The raspings themselves are then put on the bite. 2) Drink the highland variety of this plant as a tea to help cure cancer. 3) This plant is not medicinal.	1) Pablo Silvano Barbaran: Callería 2) Manuel Regnifo: San Francisco de Yarinacocha 3) Suimara Mori, Alejandro Mori: Callería	1) Lowland Forest 2) Highland Forest

Table 2: Inventory of Atacameño Medicinal Plants

Atacameño Name	Spanish Name	English Translation	Uses	Informant and Village	Habitat
	Bailahuén		Leaves made into a tea for throat pain and bronchitis	Cecilia Colomar: Caspana	Mountains
	Cedrón		The leaves are made into a tea for heart problems.	Luisa Suleta: Toconao	Gardens
	Chañar		Cook this tree's nuts until a thick syrupy liquid. This is taken for a sore throat and cough. Also very sweet and delicious.	Luisa Suleta: Toconao	Gardens
	Copa Copa	Cup Cup	For stomach pain, vomiting, or problems with the gall bladder, the leaves of this plant can be made into a tea to help. It's important to just use a little, as this plant is very strong.	Cecilia Colomar: Caspana	Gardens
Komi	Espina Blanca	White Spine (From Spanish)	The fruit of this plant is mashed and the pulp is put on the gums to help with molar pain.	Cecilia Colomar: Caspana	Mountains
	Matico		The leaves of this plant are good for internal and external wounds. For internal, make the leaves into a tea and drink. For external, put the leaves in warm water and bathe. Also helps reduce scarring.	Cecilia Colomar: Caspana	Gardens
	Menta	Mint	The stem and leaves of the mint plant are made into a tea to help with relaxing, or to alleviate a headache.	Cecilia Colomar: Caspana	Gardens

Table 2: Inventory of Atacameño Medicinal Plants (Ct'd)

Atacameño Name	Spanish Name	English Translation	Uses	Informant and Village	Habitat
	Naranjo	Orange	Make the leaves of this tree into a tea for help sleeping or to help the heart.	Luisa Suleta: Toconao	Gardens
	Nogal	Walnut	Make the leaves into a tea and mix with honey for sore throat.	Luisa Suleta: Toconao	Gardens
	Olivo	Olive	The leaves help with stomach pain when consumed as a tea.	Luisa Suleta: Toconao	Gardens
	Palque		Put the leaves and bark into hot water and wash cuts with it.	Luisa Suleta: Toconao	Gardens
Tumé	Pingo Pingo		Make the leaves of this into a tea to help clean the kidneys.	Cecilia Colomar: Caspana	Mountains
	Rica Rica	Rich Rich	The leaves are made into a tea to help with stomach pains and diarrhea.	Cecilia Colomar: Caspana	Mountains
	Romero	Rosemary	For molar pain, heachache, or "bad air" take the plant as a tea or wash the body with it.	Cecilia Colomar: Caspana	Gardens
	Ruda		For head pain, you can either drink as a tea, or you can wash your head with it.	Cecilia Colomar: Caspana	Gardens
	Tola Tola		To eliminate body fat, make the leaves into a tea and drink.	Cecilia Colomar: Caspana	Mountains

Table 2: Inventory of Atacameño Medicinal Plants (Ct'd)

Atacameño Name	Spanish Name	English Translation	Uses	Informant and Village	Habitat
	Tolilla		For fractured bones, the dried branches and leaves of this plant are crushed until they become a powder. After this they are moistened with a little water to make into a paste. This is then put on the painful area and once dried a towel is placed over the area and hot water is put on it.	Cecilia Colomar: Caspana	Mountains
	Toronjil Cullano		Drink the leaves as a tea for stomach pain and for illnesses in general.	Luisa Suleta: Toconao	Gardens

Table 3: Inventory of Mapuche Medicinal Plants

Mapuche Name	Spanish Name	English Translation	Uses	Informant and Village	Habitat
	Yierba de San Juan	St. John's Wort	The flower of this plant is made into a tea to reinforce the immune system and for depression.	Miguel Licanqueo	Non-vegetal Lowland Plains
	Limpia Plata	Clean Silver	This grass is good for cleaning the kidneys when taken as an infusion or cooked with the whole plant.	Miguel Licanqueo	Quebrada
	Yierba de San Juan	St. John's Wort	The flower of this plant is made into a tea to reinforce the immune system and for depression.	Miguel Licanqueo	Vegetal Plains
	Eucalyptus	Eucalyptus	The leaves of this introduced tree can be drank as an infusion for sinuses, bronchitis, throat pain, colds, and any respiratory problems in general.	Miguel Licanqueo	Vegetal Plains
	Pica Pica		The flower of this non-native bush can be made into a tea to help with high fever and cough.	Miguel Licanqueo	Vegetal Plains
Curimatra		Black Legs	This herb is taken as an infusion or cooked for oxygenating the blood.	Miguell Licanqueo	Quebrada
Dafecono		Relaxant	For nervousness and/or headaches, take the roots in an infusion or cooked in order to relax.	Miguel Licanqueo	Quebrada
Fillkiñ Lahuén		Crocodilian Remedy	The whole epiphyte is cooked or made into a tea for the heart, hypertension, or irregular heartbeat.	Miguel Licanqueo	Non-vegetal Highland Plains

Table 3: Inventory of Mapuche Medicinal Plants (Ct'd)

Mapuche Name	Spanish Name	English Translation	Uses	Informant and Village	Habitat
Folo	Boldo		The leaves of this tree are made into a tea to detoxify the liver and lower the body's cholesterol.	Miguel Licanqueo	Vegetal Plains
Foye	Canelo		It is very good for helping with the immune system, rheumatism, muscular pain, and cough. Either cook the bark or make the leaves into tea. The leaf can also be heated on put on the skin.	Miguel Licanqueo	Vegetal Plains
Huingán		To Start New	The leaves and branches of this bush are good for fractures, internal and external bruising and as an anti-inflammatory when taken as a tea, cooked, or rubbed as a paste on the afflicted area.	Miguel Licanqueo	Non-vegetal Lowland Plains
Kolle Mammull	Arrayan	Red Wood (From Mapudungun)	This tree's bark can be cooked or made into a tea for problems of the liver, kidneys, to improve eyesight, and clean the blood.	Miguel Licanqueo	Non-vegetal Lowland Plains
Kurri			This small herb's leaves are made into an infusion to help with arthritis, rheumatism, and can also be used to increase memory.	Miguel Licanqueo	Vegetal Plains
Llaupangue		Pain Reliever	This herb can calm the pain of any part of the body, especially the liver. It can be prepared three ways: First, for intestinal pain, as an infusion. Second, the roots can be mashed and put in the mouth to calm tooth/molar pain. Third, the leaf can be sucked on to relieve tooth pain.	Miguel Licanqueo	Quebrada

Table 3: Inventory of Mapuche Medicinal Plants (Ct'd)

Mapuche Name	Spanish Name	English Translation	Uses	Informant and Village	Habitat
Mulul	Sasaparilla	Protection (From Mapudungun)	This bark is good to oxygenate the blood and to increase the elasticity of the veins to help with hypertension. Can make into an infusion, or cook it. However, cooking is better because the root is the best part. Can also drink the plant for skin allergies, or mix with leaves of *Canelo* and put directly on the skin for the same thing.	Miguel Licanqueo	Vegetal Plains
Murta			This bush is good for both anemia and problems with the kidneys. For anemia, both the root and fruit are used, while for kidney problems, only the root is used. For both illnesses, the primary method is by cooking it, but a tea can also be made.	Miguel Licanqueo	Vegetal Plains
Notro			For problems with the kidney, the bark of this tree is prepared primarily by cooking it in water and then drinking it as a tea.	Miguel Licanqueo	Non-vegetal Lowland Plains
Oroqoi			This bush's roots are good for indigestion, gastritis and problems with the esophagus. The roots are primarily cooked, and often times mixed with *Paico*.	Miguel Licanqueo	Non-vegetal Lowland Plains

Table 3: Inventory of Mapuche Medicinal Plants (Ct'd)

Mapuche Name	Spanish Name	English Translation	Uses	Informant and Village	Habitat
Peumo			This tree's bark is cooked, or the leaves can be made into a tea, to restore function to the liver and pancreas. Also helps people to stop drinking alcohol.	Miguel Licanqueo	Vegetal Plains
Poleo			When someone has problems with their intestinal tract, this plant can be used as antibiotic or in order to give heat to the person to loosen the intestinal tract. Mix with *Matico* and *Paico*.	Miguel Licanqueo	Vegetal Plains
Pulu	Pilu Pilu		For arthritis or rheumatism, take the bark of this tree (an older one) and drink it as a tea, or cooked, at the end of the winter. For best results, mix this plant with the bark of *Canelo* to lower the pain. For long term effects, mix with plants that oxygenate the blood like sarsaparilla or C*urimatra.*	Miguel Licanqueo	Vegetal Plains
Quintral		About	This epiphyte is good for regulating menstruation, and hypertension. Take the flower or the leaves either cooked or as an infusion.	Miguel Licanqueo	Non-vegetal Highland Plains
Raral	Radal		This tree's bark is good for respiratory system and related illnesses including bronchitis, athsma, cough, and, in particular, dry cough.	Miguel Licanqueo	Non-vegetal Lowland Plains
Triwé	Laurel		Make this tree's leaves into an infusion to oxygenate the blood. This will lower a fever, and can be bathed with to relax the nervous system.	Miguel Licanqueo	Vegetal Plains

Chapter 10

CONCLUSION

Issues and Variables with the Data

While some extrapolations can be made from the results, I first need to mention some of the shortcomings to the research methods. First, the length of my stay in each group was a contributor to some discrepancies in my results. I was with the Shipibo for about four times as long as I was with the other two groups. This allowed me to conduct proper ethnobotanical fieldwork by doing things like interviewing more informants, cross-referencing informants, and conducting an inventory of all the house gardens in a village. While I had plenty of time with the Shipibo in the beginning to travel as I wanted to far off places, I had some time restrictions with the other groups that skewed my results. With the jagged mountain ranges of the Andes, I really wanted to make sure to travel to two different elevations with each group because the biomes change so much with the differences in elevation. I was able to go to villages at two different altitudes with the Shipibo and Atacameños, but I was not able to do the same with the Mapuche. Also, the fact that I was there during the winter months had negative implications for my results. While this was actually beneficial with the Shipibo, who I visited during the dry season, it was an

issue with Atacameños and an even larger issue in the temperate rainforest where the Mapuche live.

Another negative temporal limitation was that I was unable to stay in each village for as long as I would have needed to build proper rapport with my informants. Usually fieldwork should last for a minimum of six months, but it often times lasts for a year or more. Unfortunately, I was not in a position where I was able to do that, which very likely affected my results. There is often reluctance for people on the "inside" of a culture to give the anthropologist-outsider esoteric information. A great example can be seen with Plotkin (1993: 126) who says "To the ethnobotanist, curare represents a sort of Holy Grail…Its preparation often shrouded in secrecy and ritual." In addition, I was required to offer money and trade goods to those who helped me, so I'm sure my informants knew that they could take the gringo's money and just make things up as they went along…I can't help but have my Shipibo informant Hildebrando jump to mind.

The second major problem that I faced, which is a problem that many anthropologists face, was variation in information between informants. I saw variation as a result of many different factors. One such factor was where my informants lived. Pablo lived in the backwoods of Callería and was fairly self-sufficient, drawing subsistence from his agricultural plot, hunting, and fishing. He told me that he hardly ever saw gringos, and, as far as I could tell, he was just excited to meet me and teach me a bit of his culture. His mom and sister adopted me as their godson, I adopted his

granddaughter as my goddaughter, and I spent countless hours just sitting and talking with him, his wife, and son. I didn't get to spend as much time with Hildebrando, who, on the other hand, lived in San Francisco de Yarinacocha, the most acculturated Shipibo village of all. Not only is he used to seeing white people on a daily basis who have traveled there from Europe, Australia, or the US to visit *ayahuasqueros* (Lamb, 1986), but he also has minimal access to natural resources due to deforestation, meaning there is much more of a need for money to buy goods from Pucallpa to support him and his family. Therefore, I think that rather than wanting to get to know me like I felt Pablo did, I think he just wanted saw me as more of a source of income. On the other hand, Miguel, who lived in Temuco, Chile, the most acculturated place I went to during the entirety of my fieldwork, seemed indifferent about my money. Although I still had to pay him because I went through the Ruka Kimun Company, he really didn't need my money since he owned a pharmacy in the city. He wanted to teach these plants to me to instruct me about his culture, as well, just the same as Pablo did. Perhaps a correlation can be drawn that individuals who do not feel such heavy economic burdens, like Pablo and Miguel, are more likely to be reputable informants.

Age was definitely a source of variation, as well, which I estimate is from what type of education they received, or if they received any formal education at all. Out of my main Shipibo informants, I worked with two older individuals: Manuel and Amelia. The bulk of the plants that Manuel and Amelia told me were magical in

function; something that Pablo hardly ever told me. Instead, the majority of plants that Pablo showed to me were geared to help biological disease, rather than spiritual illness. This is most likely a result of the fact that he probably finished school about 25 years ago, while neither Manuel nor Amelia ever received a formal education. My Mapuche informant, Miguel, had a staggering knowledge of biological systems, even more so than Pablo. He knew all about the physiological systems in the body and how to mix the plants in a way that each would affect different body systems to heal the patient in a synergistic way. This is most likely a result of him finishing school recently, but he also has further knowledge from working in a pharmacy.

Finally, I saw variation between how people used the plants, but only with the Shipibo, as that's the only village I was able to cross-check informants with. One such plant was *Yami Rao*. When I showed the plant to Suimara, Pablo, and Manuel, each told me a different name for the plant, each told me a different illness it was used for, and each told me a different way to take it for an illness. I would have people disagree on whether or not a plant was even medicinal, such was the case with *Yonó*. Some of these types of problems could have been alleviated had I been properly trained in plant taxonomy, or had I worked with a taxonomist upon my return to the US. Unfortunately, I did not, which is also why there are no Latin binomials in my plant inventory. In looking through previous ethnobotanical literature on the groups I worked with, I realized that there were many discrepancies between published sources. Therefore, I did not want to assign the wrong scientific name to a plant.

Although I did not personally see any other causes of variation, they most certainly exist. It is inevitable for both the research participant and the researcher to have the results changed by things like their background, gender, what information the participant wants to share with the researcher, and how information is interpreted.

Results

Although there were some shortcomings with my research, the results from the above inventory present a somewhat accurate representation of the differences between these three groups. 140 plants were collected in total, and, as I expected, I collected the largest amount of plants from the Shipibo in the rainforest, totaling 96; I collected the least amount of plants from the Atacameños in the desert, at 18; and I collected 26 plants from the Mapuche in the temperate forest. However, Miguel told me that the total number of plants from the Mapuche would be much higher if I had gone in the spring or summer. These new additions would put the Mapuche more closely in the middle of the two extremes of the desert and the rainforest. There was a lot of variation between what types of plants were used, as shown in Table 4 below.

Table 4: Number of Each Tribe's Plants Addressing Various Illnesses

Medicinal Plant Purpose	**Number of Shipibo Plants**	**Number of Atacameño Plants**	**Number of Mapuche Plants**
Abortion Medicine	1	0	0
Allergy Relief Medicine	0	0	1
Analgesic Medicine	12	0	1
Anemia Medicine	2	0	1
Antidepressant	0	0	2
Anti-inflammatory Medicine	1	0	1
Antiobesity Medicine	0	1	0
Antiparasite Medicine	3	0	0
Arthritis Medicine	10	0	3
Asthma Medicine	1	0	0
Baby Colic Medicine	1	0	0
Bad Vision Medicine	1	0	1
Blood Cleansing Medicine	0	0	1
Blood Oxygenator	0	0	3
Breast Reduction Medicine	1	0	0
Burn Medicine	1	0	0
Cholesterol Lowering Medicine	0	0	1
Cicatrizant	7	2	0
Cold Medicine		0	1
Cough Medicine	4	0	3
Cyst Medicine	1	0	0
Detoxification Medicine	0	0	1
Diabetes Medicine	2	0	0
Diarrhea Medicine	11	1	0
Erectile Dysfunction Medicine	1	0	0
Esophagus Health	0	0	1
Fertility Medicine	1	0	0
Fever Medicine	3	0	2
Fracture Medicine	2	1	1
Gall Bladder Health	0	1	0
Gastritis Medicine	0	0	1
Hair Growing Medicine	1	0	0
Headache Medicine	1	3	1
Heart Problems	0	2	1
Hemorrhaging Medicine	3	0	0

Table 4: Number of Each Tribe's Plants Addressing Various Illnesses (Ct'd)

Medicinal Plant Purpose	Number of Shipibo Plants	Number of Atacameño Plants	Number of Mapuche Plants
Hemorrhoid Medicine	1	0	0
Hepatitis Medicine	1	0	0
Hernia Medicine	2	0	0
Hypertension Medicine	0	0	3
Immuno-booster	0	0	3
Indigestion Medicine	0	0	1
Kidney Health Medicine	4	1	4
Laxative	0	0	1
Liver Medicine	3	0	3
Memory Boosting Medicine	0	0	1
Menstruation Cramp Reliever/Regulatory Medicine	2	0	1
Mouth Ulcer Medicine	1	0	0
Ovarian Cancer Medicine	1	0	0
Overall Good Medicines	5	1	0
Pancreas Health	0	0	1
Postpartum Medicine	4	0	0
Preventative Medicine	2	0	0
Prostate Medicine	1	0	0
Rapid Birth Medicine	2	0	0
Relaxant	0	1	2
Respiratory Medicine	1	2	2
Scar Removing Medicine	1	1	0
Sexual Potency Medicine	1	0	0
Sinus Medicine	0	0	1
Skin Cancer Medicine	1	0	0
Sleep-Aid	0	1	0
Snakebite Medicine	2	0	0
Sore Throat Medicine	1	3	1
Sprain Medicine	2	0	0
Stimulant	1	0	0
Stomachache Medicine	9	4	1
Teeth Whitener	1	0	0
Toothache Medicine	2	2	1
Tuberculosis Medicine	4	0	0
Tumor, Cancer Medicine	9	0	0

Table 4: Number of Each Tribe's Plants Addressing Various Illnesses (Ct'd)

Medicinal Plant Purpose	Number of Shipibo Plants	Number of Atacameño Plants	Number of Mapuche Plants
Urinary Tract Cleanser	1	0	0
Vaginal Hemorrhaging	3	0	0
Vaginal Infection Medicine	1	0	0
Vomiting Medicine	1	1	0

This chart helps to demonstrate that each group has adapted to their environment in an amazing way, utilizing their local flora for nearly seventy-five different types of illnesses. There were an additional 15 types of magical plants collected. However, I only collected medicinal plants from the Shipibo, and so I chose not include a chart of them here. While some groups use plants for some medical reasons that other groups do not, the two most common areas of need were for gastrointestinal problems, like vomiting, stomachache, and diarrhea, and also for general body pain, including arthritis. Knowing that plant-derived pharmaceuticals make $20 billion dollars a year, it is very exciting to wonder just how many of the 140 plant specimens I collected have the potential to be used clinically in Western Medicine

Discussion

There were a lot of topics that I attempted to cover in constructing this thesis. I wanted to show how adaptive the people in South America are to the wide variety of

climates and biomes found there. I tried to display how these first people to cross the Bering Land Bridge brought over with them well-defined animistic and shamanic traditions from Siberia over 20,000 + years ago. While there were many survivals from the traditions of the ancestors, a distinct religious tradition developed in South America that is unlike any other in the world. It is within the animistic and shamanistic traditions of groups like the Shipibo, Atacameños, and Mapuche, that the ethnobotanical knowledge of their three distinct environments are so deeply embedded. However, traditional religious beliefs, and, as a result ethnobotanical knowledge, in tribal South America are disappearing at an alarming rate due to acculturation into European society. Therefore, this type of research is extremely important to bring attention to these issues, and to show how relevant these so called "stone-age" people are in the modern Western world. There have been many cases of plants collected from tribal peoples that are effective in a laboratory setting against Western Biomedically defined diseases, with annual worldwide sales of plant-derived pharmaceuticals at currently over $20 billion each year (curare, quinine, etc.) (Schultes and von Reis eds., 2008: 47). However, I think that plants are just half the story of what we could learn from tribal peoples.

For instance, why is it that not every plant used by these people is effective in a laboratory, yet they have still persisted so long through the generations? There are a few explanations that I will offer to answer that question. One very possible reason may be that they have effectively managed through thousands of years of

experimentation to discover plants that complement each other synergistically in ways that make them effective. This is something we have not yet managed to do in our sophisticated Western laboratories, and so we need a way to measure the efficacy of these mixtures. For example, throughout the rainforest, the preparation of the *ayahuasca* brew is a complex infusion of many more jungle plants other than just the vine itself. The other plants added to the brew all combine synergistically with one another, and the result is that they block certain enzyme receptors in the brain, which makes the hallucinations last hours longer than they otherwise would (Schultes and von Reis eds., 2008). Another possible reason is what state the plants are in when they are tested. For instance, all of the specimens that I brought back were dried; some had been dry for up to eighteen months before they were tested. Would the biochemistry of the plants and the results be different if they were fresh specimens? What if the root secretions were tested? One other possible source of variation is how they were prepared. Some of the plants are bathed with, some are drank as a tea, some are drank in alcoholic beverages, and some are just applied externally. These are all variables that Western laboratories have not yet begun to account for in testing these plants, yet these could be significant.

While the scientific community has yet to figure out the many complex ways that these plants could work, how is it that these so-called "stone-age" societies have been using these cures for millennia? Could it have just been that by the luck of the draw shamans were able to figure these complex mixtures out through

experimentation? Schultes and von Reis (eds., 2008: 48) say that it is very unlikely that the mixture of such diverse plants, which are so morphologically different from one another, could be mere chance of trial and error. They would argue that it is the result of the shaman's extreme sensitivity to nature, which they have due to their "highly specialized perceptual skills." While it goes against all empirical logic that we have in our positivist Western view, quantum physics also goes against empirical logic, yet that field is constantly gaining more prestige. However, since we do not have the technology to test this hypothesis yet, the validity of this statement remains to be seen. That being said, if shamans really do have highly specialized perceptual skills with respect to nature, this would perfectly explain why tribal peoples view them as the link between the cultural world and that of the spirits. The cosmologies of tribal peoples all around the world are laden with spirits of were-animals, talking plants, dead ancestors, helper spirits, and malevolent spirits. To them, the supernatural realm is equally as important as the natural world, and both are responsible for things like health, sickness, and death. If tribal peoples place such an emphasis on these two realities, and the shaman is that person who is the intermediary between the two realities, perhaps the biochemical activity of the plants is only half of the battle in healing a sick individual. As Plotkin (1993: 141) states: "The secret of healing does not lie only in the biochemical weaponry of the plants themselves. Healing of serious ailments…almost always involves ritual."

Now is the perfect time to return to the distinction from the Shamanism Chapter between illness, disease, and sickness. Disease deals with abnormalities of organs and body systems, illness is concerned with the patient's subjective experience of mental and/or physical states, and sickness is a combination of the two. In most cases, it is sickness which must be cured, which means that there are two main aspects of curing an individual: the psychological and the biological. Tribal health practitioners acknowledge and understand that there is more to humans than just a series of reactions happening inside our bodies. They know that although the biological aspect is an extremely important aspect of health, it is not the only one.

Our Western method of healing people by just pumping them full with drugs is often not entirely effective. There is an entire other piece to the puzzle, a symbolic piece, which we need to address. As Daniel Moerman has shown with his two works *The Anthropology of Symbolic Healing* (1979 20(1): 59-80) and *Meaning, Medicine, and the Placebo Effect* (2002) it is well documented that humans who are given a placebo drug or a placebo surgery yet still think that they have been given the real thing, are often times able to heal themselves back to full health. We know that the opposite is true, as well. Often times, people take drugs and get surgeries yet they still are unable to get better and end up dying. The Placebo Effect shows just how important the mind-body connection can be in humans. The intermediary in this mind-body relationship is our neuroendocrine system, which is directly under the influence of human emotions like trust, intimacy, and bonding (Konner, 1985). This is

why patients need to have a trust-relationship with their medical-practitioner, rather than the sterile doctor-patient relationships fostered by so many hospitals and doctor's offices in our culture.

In addition to the abundance of medicinal plants, maybe we need to start trying to adopt some of the actual healing practices from non-Western societies. Perhaps the same "highly sensitive perceptual skills" that Schultes attributed to shamans with respect to the natural environment holds true with respect to people, as well. Maybe shamans know that there is an everlasting tug of war between mind and body, nature and nurture, biology and psychology, and that for a person to get better both sides of the spectrum must be addressed. I hope that through this work I was able to show that we, in our culture of Western Biomedicine, need take a page out of the tribal book and start healing by addressing both our biological and psychological needs.

REFERENCES CITED

Abe, Shige

2002 The Driest Place on Earth. Electronic document, http://astrobiology.nasa.gov/articles/the-driest-place-on-earth/

Aguirre, C.M., Lüer, H.G., and Barona L., R.

1958 Notas etnobotanicas del pueblo atacameño de Socaire. Santiago de Chile: Universidad de Chile; Centro de Estudios Antropológicos; Publicación

Anderson, E.N., Pearsall, D.M., Hunn, E.S., Turner, N.J.

2011 Ethnobiology. Hoboken: John Wiley & Sons, Inc.

Aparicio, P.M., Bodmer, Richard

2009 Pueblos Indígenas de la Amazonía Peruana. Iquitos: Centro de Estudios Teológicos de la Amazonía (CETA). Electric document, http://atlasanatomiaamazonia.uab.cat/pdfs/PueblosIndigenasAmazoniaPeruana.pdf

Arevalo, G.V.

1994 Medicina Indígena—Las Plantas Medicinales y Su Beneficio en la Salud Shipibo-Conibo. Lima: AIDESEP.

Bacigalupo, Ana M.

1999 La Voz del Kultrun en la Modernidad: Tradición y Cambio en la Terapéutica de Siete Machi Mapuche. Chile: Salesianos S.A

2007 Shamans of the Foye Tree: Gender, Power, and Healing Among the Chilean Mapuche. Austin: University of Texas Press.

Bennett, Wendell C.

1947 The Atacameño. *In* Handbook of South American Indians, vol. 2. Julian H. Steward, ed., Bureau of American Ethnology Bulletin 143. Washington, D.C.: U.S. Government Printing Office, pp. 599-618

Berlin, Bret

1992 Ethnobiological Classification. Princeton, Princeton University Press.

Bierlein, J.F.

1994 Parallel Myths. New York: Ballantine Books.

Blanc, Francois

2010 Trance and Shamanic Cure on the South American Continent: Psychopharmacological and Neurobiological Interpretations. Anthropology of Consciousness 21(1): 83-105. Electronic document. http://onlinelibrary.wiley.com/doi/10.1111/j.1556-3537.2010.01022.x/abstract

Boas, Franz

1955 Primitive Art. New York: Dover Publications, Inc.

Bonvillain, Nancy

2006 Cultural Anthropology. Upper Saddle River: Pearson Education.

Boorstin, Daniel J.

1983 The Discoverers: A History of Man's Search to Know His World and Himself. New York: Random House, Inc.

Brooker, R.J., Widmaier, E.P., Graham, L.E., Stiling, P.D.

2008 Biology. New York: McGraw-Hill.

Bustos, B.G. and Blanco, H.P.

2004 Patta hoiri and Likanantay people: rescuing the knowledge of the land. Document prepared for the conference on epistemologies of the MA, Alexandria, Egypt. Santiago de Chile: RIDES. Electric document, http://dspace.cigilibrary.org/jspui/bitstream/123456789/22361/1/Patta%20hoiri%20and%20Likanantay%20people%20Rescuing%20the%20knowledge%20of%20the%20Land.pdf?1

Campbell, Joseph

2008 The Hero with a Thousand Faces. Novato: The New World Library

Castillo-Feliú, Guillermo I.

2000 Culture and Customs of Chile: Culture and Customs of Latin America and the Caribbean. Westport: Greenwood Press.

Central Intelligence Agency

2012 The World Factbook: South America:: Chile. Electronic document, https://www.cia.gov/library/publications/the-world-factbook/geos/ci.html

Chagnon, Napoleon A.

2009 Yanomamo. 5th Edition. Belmont: Wadsworth.

Christopherson, Robert W.

1999 Geosystems: An Introduction to Physical Geography. 4th Edition. Upper Saddle River: Prentice Hall

Citarella, Luca, ed.

1995 Medicinas y culturas en La Araucanía. Santiago de Chile: Editorial Sudamericana

Conklin, H.C.

1954 The Relation of Hanunóo Culture to the Plant World. Ph.D. dissertation, Yale University.

Conklin, William J. & Quilter, Jeffery

2008 Chavín: Art, Architecture, and Culture. Los Angeles: University of California Press.

Coon, Carleton S.

1963 The Origin of the Races. New York: Alfred A. Knopf, Inc.

Cooper, John

1947 The Araucanians. *In* Handbook of South American Indians, vol. 2. Julian H. Steward, ed., Bureau of American Ethnology Bulletin 143. Washington, D.C.: U.S. Government Printing Office, pp. 687-760.

Cortes, A.B., and Santander, R.L.

2002 History of the Atacamenian People. Minera Escondida Foundation.

Denevan, William M.

1996 A bluff model of riverine settlement in prehistoric Amazonia. Annals of the Association of American Geographers 86(4): 654-681

2001 Cultivated Landscapes of native Amazonia and the Andes. Oxford: Oxford University Press.

Dettwyler, Katherine A.

1994 Dancing Skeletons: Life and Death in West Africa. Long Grove: Waveland Press, Inc.

Diamon, Jared

1999 Guns, Germs, and Steel: The Fates of Human Societies. New York: W.W. Norton & Company.

Dillehay, Tom D.

2000 Settlement of the Americas: A New Prehistory. New York: Basic Books

Duke, J.A., Bogenschultz-Godwin, and M.J., Ottesen, A.R.

2009 Duke's Handbook of Medicinal Plants of Latin America. Boca Raton: CRC Press.

Eakin, L., Lauriault, E., and Boonstra, H.

1986 People of the Ucayali: The Shipibo and Conibo of Peru. Dallas: International Museum of Cultures.

Eliade, Mircea

1959 The Sacred and the Profane: The Nature of Religion. New York: Harcourt, Brace & World, Inc.

2004 Shamanism: Archaic Techniques of Ecstasy. Princeton: Princeton University Press.

Erickson, Paul A., and Murphy, Liam D.

2010 Readings for a History of Anthropological Theory. 3rd Edition. Toronto: University of Toronto Press.

Escobar, Ticio

2007 The Curse of Nemur: In Search of the Art, Myth, and Ritual of the Ishir. Pittsburg: University of Pittsburg Press.

Evans-Pritchard, E.E.

1976 Witchcraft, Oracles, and Magic among the Azande. Oxford: Clarendon Press.

Fadiman, Anne

1997 The Spirit Catches You and You Fall Down: A Hmong Child, Her American Doctors, and the Collision of Two Cultures. New York: Farrar, Straus, and Giroux

Faron, Louis C.

1961 Mapuche Social Structure: Institutional Reintegration in a Patrilineal Society of Central Chile. Urbana: University of Illinois Press.

1986 The Mapuche Indians of Chile. Prospect Heights: Waveland Press, Inc.

Foster, George M.

1976 Disease Etiologies in Non-Western Medical Systems. American Anthropologist 78(4): 773-782

Frazer, James George

2009 The Golden Bough. Oxford: Oxford University Press

Geissler, Wenzel, and Pool, Robert.

2009 Medical Anthropology: Understanding Public Health. New York: Open University Press.

Parra, D.G., Ahumada Charcas, J., Necul Tello, E.

2004 Medicina Tradicional Atacameña. Santiago de Chile: Lom Ediciones Ltda.

Harner, Michael J., ed.

1973 Hallucinogens and Shamanism. Oxford: Oxford University Press.

Hart, D. & Sussman, R.

2005 Man the Hunted: Just Another Item on the Menu. Boulder: Westview Press. Electronic document, http://www.artsci.wustl.edu/~anthro/articles/Hart%20-%20Sussman%20Man%20the%20Hunted.pdf

Hertenstein, M.J., Verkamp, J.M., Kerestes, A.M., and Holmes, R.M.

2006 The Communicative Functions of Touch in Humans, Nonhuman Primates, and Rats: A Review and Synthesis of Empirical Research. Genetic, Social, and General Pyschology Monographs 132(1): 5-94. Electric document, http://www.depauw.edu/site/learn/lab/publications/documents/touch/2006_Touch_The%20communicative_functions_of_touch_in_humans.pdf

Hume, David

1976 The Natural History of Religion. A. Wayne Colver & John Valdimir Price, eds. Oxford: Carendon Press

Jung, Carl G.

1959 The Archetypes and the Collective Unconscious. Princeton: Princeton University Press

Jung, Carl G., von Franz M.-L., Henderson, J. L., Jacobi, Jolande, and Jaffé Aniela

1964 Man and His Symbols. Garden City: Doubleday and Company, Inc.

Konner, Melvin

1985 Transcendental Medication. The Sciences 25(3): 2-4. Electronic document, http://www.melvinkonner.com/images/PDFs/magazines/Sciences/Transcendental%20Medication.pdf

Ladio, A.H., and Lozada, M.

2004 Patterns of use and knowledge of wild edible plants in distinct ecological environments: a case study of a Mapuche community from northwestern Patagonia. Biodiversity and Conservation 13(6): 1153-1173. Electronic document, https://www.metapress.com/content/u315731270257235/resource-secured/?target=fulltext.pdf

Lamar, Thomas Clayton

1985 Medicinal Plant Use of the Shipibo Indians of the Peruvian Montaña. M.S. thesis, Washington State University.

Lamb, Bruce F.

1986 The Story of Manuel Córdova-Rios Wizard of the Upper Amazon. Berkley: North Atlantic Books.

Latcham, Ricardo E.

1938 Arqueología de la Región Atacameña. Santiago de Chile: La Universidad de Chile.

Lathrap, Donald W.

1970 The Upper Amazon. New York: Praeger Publishers, Inc.

Levi-Strauss, Claude

1963 Structural Anthropology, vol. 1. New York: Basic Books Inc.

Lewis-Williams, David

2002 The Mind in the Cave: Consciousness and the Origins of Art. New York: Thames and Hudson.

Lindholm, Charles

2007 Culture and Identity: The History, Theory, and Practice of Psychological Anthropology. New York: Oneworld Publications.

Llagostera, A.M.

2008 San Pedro de Atacama: Guía cultural sobre el pueblo atacameño, Museo Arqueológico R.P. Gustavo Le Paige S.F., Atractivos turísticos. Santiago de Chile: Pehuén Editores.

Lozada, M., Ladio, A., Weigandt, M.

2006 Cultural Transmission of Ethnobotanical Knowledge in a Rural Community of Northwestern Patagonia, Argentina. Economic Botany 60(4): 374-385. Electronic document, http://www.bioone.org/doi/abs/10.1663/0013-0001%282006%2960%5B374%3ACTOEKI%5D2.0.CO%3B2?journalCode=ebot

McTiernan, John, dir.

1992 Medicine Man. Hollywood Pictures. Hollywood.

Medina, José Toribio, ed.

1988 The Discovery of the Amazon. New York: Dover Publications.

Meggars, Betty J.

1971 Amazonia: Man and Culture in a Counterfeit Paradise. Chicago: Aldine.

Moerman, Daniel E.

1979 Anthropology of Symbolic Healing. Current Anthropology 20(1): 59-80. Electronic document, http://www.jstor.org/discover/10.2307/2741861?uid=3739592&uid=2129&uid=2&uid=70&uid=4&uid=3739256&sid=56193861073

2002 Meaning, Medicine and the 'Placebo Effect.' Cambridge: Cambridge University Press

Moiseyeva, I., Romanov, M., Nikiforov, A.A., Sevastyanova, A.A., Semyenova, S.K.

2003 Evolutionary relationships of Red Jungle Fowl and chicken breeds. Genetics Selection Evolution 35: 403-423. Electronic document, http://www.biomedcentral.com/content/pdf/1297-9686-35-5-403.pdf

Molares, S. and Ladio, A.

2012 Mapuche perceptions and conservation of Andean *Nothofagus* forests and their medicinal plants: a case study from a rural community in Patagonia, Argentina. Biodiversity and Conservation 21(4): 1079-1093. Electronic document, https://www.metapress.com/content/8363722772m335q7/resource-secured/?target=fulltext.pdf

Moore, Jerry D.

2009 Visions of Culture: An Introduction to Anthropological Theories and Theorists 3rd Edition. Lanham: AltaMira Press.

Moseley, Michael E.

2008 The Incas and their Ancestors: The Archaeology of Peru. New York: Thames & Hudson Inc.

Naranjo, Claudio

1973 Psychological Aspects of the *Yagé* Experince in an Experimental Setting. *In* Hallucinogens and Shamanism. Michael Harner, ed. New York: Oxford University Press, pp. 176-190.

Narby, Jeremy.

1998 The Cosmic Serpent: DNA and the Origins of Knowledge. New York: Jeremy P. Tarcher/Putnam.

Núñez, L.

2005 La naturaleza de la expansión aldeana durante el Formativo Tardío en la cuenca de Atacama. Revista de Antropología Chilena 37(2): 165-193. Electronic document, http://www.ifeanet.org/temvar/rev6413725.pdf

Oliver, José R.

2008 The Archaeology of Agriculture in Ancient Amazonia. *In* Handbook of South American Archaeology. Helaine Silverman and William H. Isbell, eds. New York: Springer Science + Buisness Media, LLC., pp. 185-216

Oster, Gerald

1970 Phosphenes. Scientific American 222(2): 82-87. Electronic document, http://www.nature.com.proxy.nss.udel.edu/scientificamerican/journal/v222/n2/pdf/scientificamerican0270-82.pdf

Pearsall, Deborah M.

2008 Plant Domestication and the Shift to Agriculture in the Andes. *In* Handbook of South American Archaeology. Helaine Silverman and William H. Isbell, eds. New York: Springer Science + Buisness Media, LLC., pp. 105-120

Plato

1992 Republic. G.M.A. Grube and C.D.C. Reeve, trans. Indianapolis: Hackett Publishing Company, Inc.

Plotkin, Mark J.

1993 Tales of a Shaman's Apprentice: An Ethnobotanist Searches for New Medicines in the Amazon Rain Forest. New York: Penguin Books.

Prithiviraj, B., Weir, T., Bais, H.P., Schweizer, H.P. and Vivanco, J.M.

2005 Plant models for Animal Pathogenesis. Cell Microbiology. 7(3): 315-24.

Rabinow, Paul

2007 Reflections on Fieldwork in Morocco. Berkley: University of California Press.

Reichel-Dolmatoff, G.

1971 Amazonian Cosmos: The Sexual and Religious Symbolism of the Tukano Indians. Chicago: The University of Chicago Press.

1975 The Shaman and the Jaguar: A study of Narcotic Drugs Among the Indians of Colombia. Philadelphia: Temple University Press.

1987 Shamanism and Art of the Eastern Tukanoan Indians. Leiden: Brill.

Rivera, Mario A.

1977 Prehistoric Chronology of Northern Chile. Ann Arbor: Xerox University Microfilms.

Roe, Peter G.

1982 The Cosmic Zygote: Cosmology in the Amazon Basin. New Brunswick: Rutgers University Press.

1995 Arts of the Amazon. London: Thames and Hudson

1998 Paragon or Peril? The Jaguar in Amazonian Indian Society. *In* Icons of Power: Feline Symbolism in the Americas. Nicholas J. Saunders, ed. Pp. 171-202. London and New York: Routledge.

2011 "Enlightened" Pottery: Shipibo-Conibo Ceramics and its Polychrome Tradition Connection. Paper presented at: Marajo and the Ancient Amazonian World, Denver Art Museum, Denver, Colorado.

Schultes, Richard Evans, Hofmann, Albert, and Rätsch, Christian.

2001 Plants of the Gods: Their Sacred, Healing, and Hallucinogenic Powers. Rochester: Healing Arts Press.

Schultes, Richard Evans and Raffauf, Robert F.

1990 The Healing Forest: Medicinal and Toxic Plants of the Northwest Amazonia. Portland: Dioscorides Press.

Schultes, Richard Evans and von Reis, S.

2008 Ethnobotany: Evolution of a Discipline. Portland: Timber Press, Inc.

Silverman, Helaine and Isbell, William, eds.

2008 Handbook of South American Archaeology. New York: Springer Science + Buisness Media, LLC.

Simpson, Lesley Byrd

1966 The Encomienda in New Spain: The Beginning of Spanish Mexico. Berkeley: University of California Press.

Stahl, Peter W.

2008 Animal Domestication in South America. *In* Handbook of South American Archaeology. Helaine Silverman and William H. Isbell, eds. New York: Springer Science + Buisness Media, LLC., pp. 121-130

Steward, Julian H. (ed.)

1947 The Andean Civilizations. Handbook of South American Indians, vol. 2. Bureau of American Ethnology Bulletin 143. Washington, D.C.: U.S. Government Printing Office

1948 The Tropical Forest Tribes. Handbook of South American Indians, vol. 3. Bureau of American Ethnology Bulletin 143. Washington, D.C.: U.S. Government Printing Office.

Steward, Julian H., and Métraux, Alfred

1948 Tribes of the Peruvian and Ecuadorian Montaña. *In* Handbook of South American Indians, vol. 3. Julian H. Steward, ed., Bureau of American Ethnology Bulletin 143. Washington, D.C.: U.S. Government Printing Office, pp. 535-656.

Swanson, Guy E.

1996 The Birth of the Gods: The Origin of Primitive Beliefs. Ann Arbor: University of Michigan Press.

Torri, M.C.

2010 Medicinal plants used in Mapuche traditional medicine in Araucanía, Chile: Linking sociocultural and religious values with local health practices. Complementary Health Practice Review 15(3): 132-148. Electronic document, http://chp.sagepub.com/content/15/3/132.full.pdf+html

Tournon, Jacques and Reátegui, U.

1984 Investigaciones sobre las Plantas Medicinales de los Shipibo-Conibo del Ucayali.Amazonía Peruana 5(10): 91-118. Lima: Centro Amazónico de Antropología y Aplicación Practica.

Towsend, Patricia

2009 Environmental Anthropology: From Pigs to Policies. 2nd Edition. Long Grove, Waveland Press, Inc.

Tylor, E.B.

1958 Religion in Primitive Culture: Part II of "Primitive Culture." New York: Harper & Brothers Publishers

van Gennep, Arnold

2004 The Rites of Passage. New York: Routledge

Villagrán, Carolina, Castro, Victoria, and Sánchez, Gilberto

1998 Etnobotánica y Percepción del Paisaje en Caspana (Provincia de El Loa, Región de Antofagosta, Chile): ¿Una cuña atacameña en el Loa Superior? Estudios Atacameños 16: 107-170.

Villagrán, Carolina, Castro, Victoria, and Sánchez, Gilberto

1998 Etnobotánica del área del Salar de Atacama (Provincia de El Loa, Región de Antofagasta, Chile). Estudios Atacameños 16: 7-106.

Vivanco, Carolina

2008 Historia de Chile y El Mundo. Copesa Editorial S.A

Wilbert, Johannes

1987 Tobacco and Shamanism in South America. New Haven: Yale University Press.

Wilhem, O.E.

1978 The Pre-Columbian Araucanian Chicken (*Gallus inauris*) of the Mapuche Indians. *In* Advances in Andean Archaeology. David L. Browman ed. Pp. 189-196. Chicago: Aldine Publishing Company.

Wright, Robert.

2009 The Evolution of God. New York: Little, Brown and Company.