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Reverence and Reliance: Informing an Environmental Ethic

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Reverence and Reliance: Informing an Environmental Ethic

Malik Geraci

For Angela Upright and the Rice Fellowship team, who encouraged me to start and finish this project.

For Nativo and the people of Huama, who gave me community far from home.

For mom, who showed me the world.

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Clean Energy and the Spirit of the Sacred River

This story begins on the banks of a river, running deep in the heart of Naso territory in the forests of Panama. When I first came to this primitive boat dock in 2017, the river never looked like anything special. It bowed and curved and flowed consistently, but without rapids to make it fearsome or falls to make it sublime, this stretch presented as a fairly average, albeit beautiful river. It was my luck and my privilege that I would return to this dock, and spend the subsequent weeks truly getting to know this river. Swimming its waters, walking its shores, running its lengths and learning its intricate and sacred history from the people who have lived at its grace and mercy for hundreds of generations.

When I first arrived in Naso territory, one of the first things I was told is that the river was sacred. It was of the upmost cultural and spiritual significance to the people who lived there, and was thus not to be desecrated in any way. This concept of a holy site is something I am familiar with. It is commonplace for temples, churches, and other locations of spiritual significance to be held to a higher standard than the things around them and protected as such. In the world I came from, these sites were almost always man-made. Buildings as places of worship, statues or monuments to holy figures are all commonplace in cities around the Western world. What struck me about the reverence of the Naso for the Rio Teribe at first came from a mostly environmentalist perspective. To designate "holy" status to a running river that predates human influence and achievement would make conservation of such an important natural resource an easy appeal to whichever branch of government was in charge of that sort of thing in this area. At this time, I would be remiss to not mention that my heart was in the right place. Even so many years ago, I still held a fairly ecocentric view that held the environment and its protection in priority above almost everything, save for perhaps human need. I would soon realize however, that even this view of the world was missing something that would later come to seem obvious; that I was still seeing the river from my seat on the dock.

I spent the next few weeks immersed in the culture of the Naso people. I lived with a local family and spent my days learning and participating in the tasks of daily life in the community. There were elements of it that felt very familiar, such as playing soccer with my younger host brothers after they had finished school. They were 10, 8 and 5, but somehow always managed to best me when it was my turn to act as goalie. I ran errands with my host father and sometimes helped him with the work on their family farm parcel. The crops were all new to me, but the process of hard labor and dirt under my fingernails after a long day were the same as anywhere else. There were also aspects of my time in the community that felt strange and foreign. It was wet season in the tropics, which meant heavy rainfalls and even monsoons were commonplace. Despite this, umbrellas and rain jackets were extremely scarce. We would make plans for a day, but those plans were like pennies in a fountain. If the rains came that morning we would simply put the plans aside and spend the day in shelter, knowing that the sun would shine again and we would resume work whenever it did.

While working with my host father and other members of the community, I asked many questions about their methods. The monoculutre farming that was so common back home was nearly absent from their culture, and most of the people in Naso practiced some form of agroforestry. Many had simply learned to farm this way from their parents; this was the way that things were done in Naso. The traditions they practiced around farming were absolute. Some of those I spoke with did have experience with the monoculture I was used to, and had spent time on the factory farms outside of their ancestral territory. But I noted that even those who had the knowledge and ability, however, did not choose to bring these methods back to their community. They spoke of the damage to the air and water when the forest was not cared for properly. They urged me to understand that this was the water they drank, the water their families lived on. To pollute it with the chemicals found in the valley would be to pollute themselves.

When we weren't working, more often than not we were in or on the river. My host brothers and I would go for swims on hot days, and my youngest brother Johan was so adept I knew the river had been a way of life since birth for them. Some days my host mother would leave in the morning to visit her family in the village of Bonjiic a ways down the river, taking the family canoe as there are no roads between many of the Naso communities. On one occasion my host father even took us night fishing for *bocachica*, a native fish that we ate and traded for two days after a successful fishing trip. After all of these aquatic activities it seemed we alway found ourselves quietly sitting on a sandbar or a rock on the shore, making small talk about the day we had or the weather that was coming in, staring into the churning waters as if hoping to let them speak through us.

On one of these bankside communes, while the sky filled with cold clouds, my host father told me the story of Tjer-Di. I had long known of the river's sacred status to the community and its important historical role for the Naso people. I understood after spending time living by it that they harbored gratitude towards its flowing body and all that it provided for them. In the story of Tjer-Di I came to realize just how much I had missed in my understanding. My host father had always spoken highly of the Rio Terribe and of the need to protect it for the sake of the community. We sat shirtless in the sand, the nearby canoes stacked neatly, cut and crafted from the fallen trees that grew along the river's banks.

"There is a god that lives in this river." He said, his gaze never breaking from the rolling water. "We all learn the story of Tjer-Di when we are young, because it is important to understanding how we got here." He went on to tell me of a great serpent god who is said to have made a home in the deepest bed of the channel. Once its place was established, the serpent brought forth the water to flood the river and keep itself hidden within the water's depths. My host father considered himself Catholic. He wore a cross around his neck and hung photos of the virgin Mary in his home above the table where he ate dinner with his family

every night. In the eyes of Catholicism, talk of serpent gods giving life and power to humanity would be heresy of the highest degree. But for the Naso people of the Rio Teribe, they were able to coexist. There were elements to his life and experience that modern Catholicism was missing completely, values of environmental connection and stewardship that could not be reproduced through Western faith alone. To this day I don't know if he believed that Tjer-Di took a physical form, that if one dove deep enough into the river they would find the snake sleeping. What I do believe is that my host father's belief in this being and the community's retelling of it despite the Catholic church standing proudly a the epicenter of town means that for them it is necessary. Theirs is an existence dictated largely by the environment around them. Their food comes from the land, their water comes from the streams, and in the tale of their origin, their lives come from the river. In many ways, the Naso people have maintained an unbroken connection with their ecosystem the likes of which has been completely erased from the world I came to them from. The reverence and retelling of the serpent god living beneath the river not only maintained their cultural heritage, but gave spiritual form to the intimate relationship they held with the river and the land.

I sat on the bank of the Rio Terribe, a stone's throw away from the dock I had viewed the river as average from just weeks before. I was reeling from the story I had just heard, in some ways I would not come to understand until years later. Staring into the same river under that same cold sky, my host father told me about the proposed future of their sacred river. The king of their people had been in conversation with a Canadian company for the last year as they proposed various damn projects along the home of Tjer-Di and the people who lived by it. These projects were opposed by some and encouraged by others. They would bring jobs and wealth to the otherwise impoverished community. The companies planned to build roads into the villages, easing transport for their machines to build the dams more efficiently. This could bring commerce and resources like medicine to the community that it so desperately needed. The children would have more opportunity for education. The women would have more

opportunity for employment and autonomy. These dam projects were not unique to the Terribe, and they had been proposed and implemented throughout the densely forested regions of Panama and Costa Rica. These projects were growing in popularity, and propositions had been emerging in areas as remote as the lands of the Gaucho in Patagonia. Even with all of these proposed benefits, I could tell my host father was unconvinced. Having worked construction on one of these dam projects in the past, he was all too familiar with the disasters found in the fine print of these miracle contracts. He had seen valleys flooded, people displaced, environments ruined by an immediate and unprecedented change in an areas ecosystem. These projects would leave farms barren and trusted environmental resources extinct from the area, bringing work to communities but leaving them with no alternatives as their previous sources of livelihood were destroyed.

The Naso are people of the river. They rely on their Rio Terribe as much as they revere it and if it were ever to stop flowing, their way of life and centuries of environmental stewardship would likely go with it. In disbelief I asked him why a Canadian company would go through such trouble for such a destructive act. Did they not have their own rivers that they could put dams on? He responded simply, “They do it for power. The dams here are hydroelectric projects. They need to generate power for the electricity and everything, and I think their rivers are all dammed already.”

A month later I was back in my own world and my time in Naso had faded into what felt like some vivid fever dream. I had returned to my parent’s home in Maryland for the summer, and had landed an internship position with an advocacy group for clean energy in Washington, D.C. Throughout my life I have found that returning home from expeditions to places in which I was a stranger was more shocking than leaving in the first place. This time around was no exception and although I had only been away from home for a few months, the smooth surfaces and sharp corners of my city were already feeling unfamiliar and foreign. I felt good

about the work that I was doing with my internship. Being at the center of political power in the United States, being able to advocate for a cleaner energy grid to those who had the position to make real change felt like the definition of "the good fight." Despite this warm feeling for the work I was a part of, something always felt off as I rode the Metro into the heart of downtown every day. I was lost in a sea of people drowning in their own personal narratives without more than a glance towards the world around them. Washington D.C. is a city blessed with a proud river running through it, and even the times that I did make it to the Potomac it felt wrong. The river was there, shinning in the summer sun and flowing as strong as ever. But the reverence was not. There was no god in this river; it was admired by thousands of people from all over the world every day, but seemingly none of them held any connection to it. It did not provide them with water to drink or a place for their children to learn to swim, or with transport to their families far away. Thus most simply walked by, the occasional tourist stopping to take a photo with the Jefferson Memorial in the background. Unaware of the river, they continued about their busy urban lives and pretty soon I followed suit.

I had spent the summer back home in the various pockets of my modern life. I took the train into Downtown every morning and back out every afternoon. I meshed with my sea of people until those sharp corners of my city began to soften and eventually blur into the background. I enjoyed the amenities of urban life, as I aways had before. It was a welcome change to get my food from a grocery store and wash my clothes in a machine. I spent my days working towards the advocacy group's goals and my afternoons in the comfort of my home or out to eat and drink with friends. I was no longer at the mercy of the elements, and on days when it rained I brought a jacket along with me and continued about my schedule. This is how life was meant to be, how it had always been for me. After my brief stay in Naso, I came to see that there was intention behind living this way. Modern life was a constant choice. Every day we chose to cozy up to the comforts of indoor living, and in turn moved a step further from the world outside. Surely there was a balance to be found between the harsh

concrete of the city and the harsh living of the jungle, but from where I stood they seemed all too separate. I thought about these separate worlds often while I made my daily subterranean commute. For the first time, I thought about the familiar Metro from a different perspective. What would my host father think of this underground bullet as it tunneled its way downtown? Would he welcome its convenience, or prefer to walk and watch the world as he went? When we went underground, everyone was forced to look up, and this made the walls of the train prime real estate for advertisements of all kinds. The latest model of Nissans, the new exhibit at the art gallery, an urge to share the bike lane; any and every message to and from humanity had its turn on the curved walls of public transport. One day I found myself across from an advertisement for water. A nouveau riche rebrand of the oldest substance known to mankind had been meticulously photographed advertising perfect mineral balance. I stared at that giant plastic water bottle just across the aisle from me. I examined its minimalist design and remembered how it felt to drink from the waters of the Rio Terribe. I pictured myself wading out past the bank, pants rolled up past my knees and hands cupped just below the surface. I thought about bringing my hands up to my face and taking a drink, but I could not remember the taste. I could not feel the current flowing around my bare shins, below me I could only feel the weathered wood of the dock, its chipped paint bending beneath my palms. Still staring at that giant water bottle, I could feet my feet hanging off the dock's edge, just inches from Tjer-Di's cool waters.

Classroom's Closing Days

I returned to my role as a student for my 4th and final year at Ursinus College. Coming back to sleepy Pennsylvania after such a formative experience abroad made the little campus feel smaller than ever. I had completed most of my Environmental Studies major by the start of my last year, and filled my schedule with classes that simply piqued my interest. I had fallen into a routine throughout my time at Ursinus; a routine that Naso had shaken irreversibly. I spent time with my friends, stayed active in the greater Collegeville community, and generally bided my time until graduation. Panama was always on my mind, and there was a part of me that knew it wouldn't be long before I was once again filling my backpack full of necessities and embarking into a new unknown. When a friend approached me about a year-long fellowship that she had just returned from, I was immediately excited by the prospect. That excitement, however, was quickly followed by a wave of apprehension, as I had never considered myself to be "fellow material." This friend was an overachiever to say the least, having involved herself in nearly every opportunity taking place on campus. I was also aware of some of the other applicants for the 2019-2020 fellowship year, and felt outcasted by their long list of achievements while studying at Ursinus. In contrast to these academic superstars, I believed my time in college to be humble and unimpressive. I was a good student and engaged with my studies, but never believed that I held the indefinable qualities that made these other students stand out. After some light pushing from my recently repatriated friend, I agreed that I had nothing but time on my hands, and would apply for the position in the following weeks.

My mind would not stray from questions still left unanswered in Naso. I had only spent a few weeks in the area, and it was just enough time to split a crack in my perspective from which curiosity flowed through. I wanted to know more about the many people living secluded from the wills of the world I knew. I was interested in their experience, but more so, I was interested in how they could surpass us in the goal of living sustainably despite the huge

disparity in resources between us. My Spanish was still quite strong from my many months in Panama, and I felt I could achieve a level of true fluency if I dedicated my time on this project to the Latin world. With these parameters and curiosities in mind, I put together a proposal with no expectation of hearing anything back.

My senior year continued to crawl on, as the fateful graduation date grew ever closer. Long had I complained about the dull lifestyle of the rural Pennsylvania hills, always claiming to prefer the eclectic concrete of the city. In those waning days of my last year of school, something shifted in my relationship with the bland agrarian landscape. Maybe it was my time spent following the theme of the outdoors. I had focused my academic pursuits on the environment, and a community farm had been my most consistent community service site for 3 years running. Maybe it was the simple fact that I knew I was leaving soon, and the open spaces I had stubbornly refused to call home would soon be far away from me. Either way, my final spring in college saw the world look softer, the grass feel fuller, and the budding trees smell sweeter. I had grown to truly love this place, and as it turns out, leaving it would send me much farther than I anticipated. I had chosen drawing as the art elective that would bring my time on campus to a close, and in its dusty studio I found immense peace in my final days as an undergraduate. During a free period, in a trance of artistic expression, I received a shocking email that would change the trajectory of my young life. I had been reviewed and accepted as a Charles Rice Fellow, and would be able to live out the project that I had proposed as a pipe dream.

Three Kings of the Sacred Valley

What struck me most when I first arrived in Peru was the prevalence of indigenous influence even in the bustling city center of Lima. Peru's various indigenous groups make up about 25% of the country's total population. As I would quickly learn from experience, this number was incredibly skewed. This number only accounts for those formally demarcated within an indigenous community, meeting the long list of requirements in place for primarily census and government funding reasons. The number of people who identify as indigenous is astronomically higher, as there is a strong sense of indigenous pride in the country and any amount of native heritage usually brings strong affinity with it. This was overwhelmingly the case in the province of Cuzco, where I would spend most of my time while in the mountainous country.

Cuzco is home to the former capital city of the Inkan empire. This City is the epicenter of indigenous culture and heritage in the sacred valley, and its effects are truly tangible. By the time I arrived in the ancient city, I felt strong and confident in my Spanish speaking ability. I had spent the months leading up to my departure brushing the rust off of my sentence structure and conjugations, which I had already honed to a near fluent level during my time in Panama. My time spent practicing was validated in Lima, where I was able to hail taxis, converse with locals, and generally understand the world around me. In Cuzco, I had not yet made it outside of the airport before I overheard two pharmacy attendants making casual conversation in a language so unique I could not even guess what it might be. This language was Quechua, spoken widely in the city, and almost exclusively in the more rural communities of the surrounding mountains.

This prevalence of the native tongue contrasted with the lands along the Rio Teribe. In the case of the Naso, the disappearance of their language was seen as one of the most existential threats to their culture. The Naso language is scarcely written, and the parents and

elders of the community feared that a loss of the language would lead to a total loss of the culture's history. In the United States, the government reeducation program for Native Americans is one of the most sinister atrocities committed in the nation's history. As a part of this ethnic cleansing, native children were sent to boarding schools, often taken or bought from their parents, where they were forced to assimilate to rapidly developing American culture. Many accounts of this system include the prohibition of native tongues in the schools, where children were chastised and beaten if caught communicating in the languages of their people. This silencing of native language in the U.S. is regarded as one of America's most effective strategies of historical erasure, and many organizations today are dedicated to reteaching what was lost in this period of linguistic silence. In contrast, the language of Quechua was alive and thriving in the sacred valley, and its resonant effects on culture, tradition, and history were immediately perceptible.

As with any Latin American city, flags to the nation's pride and heritage could be seen flying openly throughout the city's skyline. Often next to these flags however, was something far more intriguing and unique to the Cuzco. Flags depicting vibrant pixelated rainbows often neighbored the Peruvian flags above houses, in shops, and even flying above government buildings. This colorful symbol denotes the many nations of the Quechua people, and it would continue to make its presence known regularly over the course of my time in its ancestral territory. So strong is the indigenous influence in Cuzco that the same flag's likeness has been mimicked in the provincial flag of the region, modifying slightly to a more horizontal rainbow pattern as an homage to the original. These vibrant symbols waved in the mountain air above a city that wore its history on its sleeve. I spent my first days in Cuzco enthralled by the sheer age of the city itself. The Inka were masters of stonemasonry and as such, built their prominent capital city with the skill and care to outlast war, conquering forces, and the unstoppable march of time. Many of the streets were built from cobblestone, puzzled together in a ceaseless weaving of granite pieces. Above these streets rose the buildings. Many of

them took the form of more modern structures, housing stores and built in styles reminiscent of any tightly packed urban center. Interspersed among these modern structures were monoliths of stone, seemingly sealed together with only the perfect geometric unions between each stone and its adjacent building blocks. These ancient buildings, once temples and royal living quarters, had been repurposed into everything from bars to banks to museums. Every few blocks the buildings would open up, revealing European style plazas, equip with benches and parks that might seem more at home in Madrid or Florence.

Sitting at the city's center was the regal Plaza de Armas, a gathering place for events and communities for centuries. In this central location, the many faces of the city's history could be felt staring back at you all at once. Catholic cathedrals, museums housing Inkan artifacts, Irish style pubs, and a prominently featured McDonald's stand equally dominant as pillars to the ruling empires that have influenced the city since its ancient conception. Like the rings in the trunk of a tree, the architecture of the ancient Inkan city reveals its history in eras and dynasties, the latest one exemplified in the swirling masses throughout great plaza. Any time of day or night, any season of the year, foreign tourists swarm the Plaza. From all corners of the globe, they bring with them a veritable rainbow of international bills. They come bearing cameras and cash, and the locals indigenous meet them dressed in traditional garb to subject their photos in exchange for tips. The tourists engage in this dance, enthralled by the sheer abundance of this strongly preserved showing of ancient culture. This keeps the tourists entertained while they pass through, but many of them are on their way to somewhere even older.

Machu Picchu is a site on any antiquarian's bucket list, and rightfully earns a spot as one of the seven wonders of the new world. Being such a proud testament to the achievements and iron will of the Inka, one would think that the site would emirate the same heritage as the former capital city of Cuzco. However, the Lost City of the Inka emanates the

source of a very different dynasty that reaches its way throughout the sacred valley. As if twisting from the cracks between the stonework, the tendrils of capitalism spread their way like a vascular network throughout Peru's sacred valley. These tendrils follow the money through every major historical, cultural, and archeological site back to the Cuzco airport, creating what tourists and locals alike refer to as the "Gringo Trail." The dynamics of the Gringo Trail and the effects that it produces throughout the sacred valley are something I still grapple with years later. From an optimists perspective the trail and resources that it brings have an undeniable role in preserving the ancient customs, architecture, and dress of the Andes. On the other hand, tourism accelerates environmental and archeological degradation in this unique and sacred place. In seeing this ancient history and the modern market that it creates, I often found myself asking if the cost outweighed the benefits; and if they did not, could anything be done to stop what had already been established? It was at this confluence of culture, colonial conquest, and capitalism that I found myself as I stood in Cuzco's Plaza de Armas for the first time.

Pachamama

I boarded a *collectivo*, as the local buses are known, bound for a town an hour to the northwest where I would be working for the next month. In contrast to Cuzco, the small town of Ollantaytambo had a much less overarching Spanish influence. This was immediately apparent in its lack of European style churches, giving the town a far more ancient and untouched feel. The streets were entirely stone, and along their sides ran water from the nearby mountain stream; an Inkan aqueduct system predating even those found in Rome. Even more impressive, was the fact that these waterways were still full. While most of the town's residents got their water from much more modern in-home water systems, the aqueducts themselves were still fulfilling their delegated function hundreds of years after their creation.

The heritage of the Inka flowed just as unbroken through the narrow streets of the town, and could be felt around every corner. The women who worked the market stalls were adorned in the leather Yanqui sandals and intricately woven *mantas* that had been in use since the walls of the city were erected over a millennia ago. Around the town square people of all ages could be heard chattering in a dizzying mix of Spanish and Quechua, with even signs around town displaying the vibrant language of the Inka in its semi-familiar characters. The outskirts of town held the secret to the prosperity of the Inka for so many years. Tiered terraces of ancient stone climbed up the hill into town, only stopping when Ollyantaytambo's insurmountable city walls allowed them to rise no further. This tiered system is what allowed cities like Ollyanta to produce sufficient and even abundant crop yields even in the area's dry season. As I would shortly learn, much of the viable agricultural land within the mountains was found on steep slopes covered with high altitude native grasses, some of the highest growing of their kind. If these grasses were removed to make way for agriculture, the steep incline of the slopes combined with the heavy rainfalls of the wet season would cause uncontrollable erosion and even dangerous landslides without ground cover to hold the soil in place. In

response to this, the Inka developed a tiering system in which they could flatten the mountain slopes in leveled rows, preventing erosion, easing gravity-fed irrigation, and creating defined layers in which to experiment with different crops at different altitudes. This innovation, along with a strictly ordered work ethic, would allow the Inka to develop a rotation of crop diversity at altitudes normally reserved for fairly homogenous agriculture. Most notably it would allow them to cultivate over 4,000 varieties of potato which would be passed down to their Quechua descendants and serve as a staple of the northern Andean diet to this day.

The daunting walls and strategic position of Ollyantaytambo kept the Spanish conquistadors at bay for almost 50 years after the most of the Inkan empire fell. For a long time, the small military outpost city stood as a symbol of the determination of an ancient civilization to never fall to those who would try to take it. The city's lack of Spanish influence is a testament to the strength of its constitution as well as its people, but even an unbreachable fortress is far from invincible. When the next wave of conquistadors came knocking at the city's gates, they came not bearing spears and rifles, but credit cards and cash. A city that had held its own against some of the most brutal and fearsome conquerors that history had ever seen opened its gates gladly to the new dynasty and the incredible things that it promised.

Ironically, the introduction that would have the greatest impact on the town was the same that had just tamed the uncontrollable American west. A railroad built with the goal of connecting Cuzco to Macchu Picchu through the ancient mountain towns of the Inka would make Ollyantaytambo the portal that it is today. The Inka Rail, which would pass directly through the impenetrable town, turned the journey to the Lost City of the Inka from a perilous two week trek to a leisurely day-long tram ride, opening up the gem of the Sacred Valley to anyone with the money for a ticket. Although Ollyanta's walls had largely kept the Spanish influence from the city's culture and architecture, the Inka Rail created a main line from which modern Western influence spread through the town. Gift shops and pizza parlors occupied

many of the ancient residences that lined the town square, with signs and menus written in English. Day and night, taxis circled the edges of the square ready to ferry outsiders to or from their next cultural destination. Every hour the Inka Rail station deposited a new wave of tourists by the river, and they crawled their way uphill towards the square in search of pizza, outsourced trinkets, and an authentic cultural experience.

I had come to Ollyantaytambo to partner with an organization called Awamaki. Awamaki was founded by an American woman with the goal of empowering women in the surrounding native communities by bringing a market to their traditional weaving practices. Weaving is a timeless and coveted cultural practice among Quechua women, and Peruvians from the Sacred Valley are known for their mastery of the craft and the intricacy of their designs. Like many traditions of the Quechua, the deep-rooted practice of weaving is at risk of being lost. As Westernization stretches through the sacred valley, more cost-effective market alternatives have been taking the place of this time-consuming practice. Many of the things traditionally woven by the native women are now factory made in other parts of the world, and can be bought cheaply at markets in Cuzco. In attempt to combat this, Awamaki was formed to highlight the traditional process of Quechua weaving and add market value to the continuation of the cultural practice. They hoped to develop a market for sustainable tourism in attempt to protect the traditions of the scared valley while simultaneously benefiting from the million dollar industry that is Peruvian tourism. My role in Awamaki's mission was as a tour guide and translator for the visitors who wished to learn more about the tradition of weaving as well as life in the mountain communities. Armed with an ever growing Spanish vocabulary and a notebook full of fun facts, I spent the next month doing just that.

My first tour was without question my most important, as it would start me down the path to understanding the complex relationship that the Quechua shared with their environment. I had to be trained before I was allowed to lead tours on my own, and this first

tour would have me assisting a veteran guide while also learning from their process. The lead guide Anna and I set off for the community of Huioc Bajo along with our two clients for the trip. We chatted about their lives and their time in Peru so far. The women on the tour were both named Rachel and had met working for SpaceX, the commercial space travel endeavor headed by notorious techno-capitalist Elon Musk. Elon had recently become the second richest person in the world and had his sights set on humanity's expansion to Mars in the next 100 years. As an environmentalist, I take issue with this goal and what it stands to promote. In the wake of irreversible climate change, a potential escape to a "planet B" would allow continued destruction of the earth without fear of human extinction. I believe this fear to be a huge driver of environmental reform, and a necessary evil if we ever hope to encourage sustainability in a capitalist world. But these women were not the global supervillain that I believe Elon Musk to be, they just worked for him.

When we arrived in the community we were treated with tea and traditional Quechua clothing to wear during the weaving lesson that would follow. This traditional dress was not just a part of the tourists experience, as it was worn by most other members of the community; including those not involved with Awamaki's tours. The lesson took place in the courtyard of a home belonging to a woman named Marta, who had been working with Awamki for several years. She greeted Anna with a hug and the familiar laughter reserved for an old friend. The space was a rustic mixture of indoor and outdoor, lacking any of the grandeur and stonemasonry that was iconic to Ollynataytambo in the valley below. Chickens would periodically weave their way out of the house, strutting through the grassy courtyard before hopping over the entryway back into the house. Through the open doorway to the courtyard, sheep, dogs, and even the occasional alpaca could be seen accompanying their guardians as they went about their daily tasks. This was far from the bustling life in Cuzco; this was a place where human, plant, and animal still lived largely in occupation of one another's space.

When the weaving demonstration began it turned out to be not just a lesson teaching us a skill, but a crash course in human ecology. The weaving practices that ultimately provided clothing to almost every Quechua in the sacred valley could not be possible without the environment that birthed it. The wool is sheared from sheep and alpaca, both of which could be seen roaming the hills above the community. It is then spun and washed in clay basins hand crafted by the women who wove with them. These clay pots are then fired with an earth oven method that has been used to cook food long before the introduction propane, now common to the region. The spun wools are dyed various colors using a variety of ingredients. To achieve a green hue, the wool is steamed above boiling leaves from the native *chilca* (*Baccharis latifolia*) plant. For a yellow hue, buds from the *q'olle* (*Buddleja coriacea*) plant are crushed and boiled in with the wool. For red hue, *cochinillia* grubs found in the fruit of the prickly pear cactus (*Opuntia ficus-indica*) were dried and crushed into a grey powder. This powder creates a deep red color when mixed with water and added to the wool. Chunks of limestone that can only be found at altitudes over 12,000 feet can be crushed and added to any of these hues to deepen their color. As the demonstration went on, the roots of the Quechua people's connection to their environment seemed to dive deeper and deeper. Looking around the courtyard, it became clear that everything from the bench we sat on to the clothes on our backs to the tea in our cups would not be possible without this environmental connection. Everything around us was made possible only by the hills, streams, and valleys that surrounded the village like cupped hands, sheltering the community from the usual inhospitality of such high altitude climates.

The next morning we were greeted by Marta's husband to more tea. We listened with tired eyes as he informed us that sheep breeding season had just begun. In order to ensure a strong crop of new lambs, we would be taking two of his paired sheep to a sacred site to preform a fertility ritual. The five of us hiked outside of the community and up a short grassy path with the two sheep in tow. We walked for a half an hour until the grassy hillside began to

spring up with stone ruins. These were the remnants of a ritual site from the time of the Inka, still considered a sacred place despite the dilapidated condition of the walls. I asked Marta's husband why. He explained that it was the land itself that was sacred, and the structures had been built to honor that. From the center of the site he turned and pointed to the mountain peaks in the ranges beyond the valley. They were not carpeted in grass like the smaller mountains around us, but jagged and blanketed in snow. He pointed out three different peaks to the north, south, and west as the sacred mountains for which the site was built.

These peaks were categorized as Apu; a term denoting the peaks as well as their sacred status for which there is no exact English or Spanish translation. The Inka believed these peaks to be gods residing in the spaces where the heavens met the earth, and continued to be of utmost spiritual significance to the Quechua. Ceremonies often took place in these revered ruins so that these rituals could be witnessed by the Apu, and the prayers they sent to them could be heard more clearly. The ceremony began with *q'antu* flowers tied around the necks of the sheep. These flowers have spiritual significance to the Quechua and, as an homage to this divine connection, are now used as the national flower of Peru. A prayer was spoken in Quechua for the fertility of the sheep, and within the prayer thanks was given. This thanks was first given to God. Despite the strong cultural continuation of the Inka way of life in the valley, most people in Peru are Catholics. This included the community members of Huioc Bajo, and a gracious thank you was given first to the Christian God introduced by the Spanish so many years ago. The next thank you was given to the Apu, along with a request to protect and watch over his flock and family. Finally, a thank you was given to the Pachamama. The Patchamama is a holy entity that doesn't occupy the same role or realm as the Apu, but instead one closer to humanity.

During my time in Peru, Pachamama was described as everything from the hills and mountains in the distance, the earth below our feet, the trees and streams from which life flows

in the valley, and life force from which the crops are able to grow. To this day I have no one exact definition that Pachamama falls into, but I understand it to occupy somewhere between the mother earth and the holy spirit. The thank you to the Pachamama was different from the other two. For God and the Apu, it was more of a request that we be cared for in the future. To the Pachamama, the prayer seemed more like an understanding and vocalization of all the ways we were being cared for already; from the dawn of man to the moment we were in right now. To the Pachamama we gave thanks, and a bundle of sheep fat, *agua rosada*, gold flakes and *muña* were burned at her altar.

I spent the next three weeks guiding tours to Huioc and learning from the women who lived there. Beyond the processes and natural resources utilized in traditional weaving, I learned about the nuances of the ancient art in a changing world. Weaving as it was done by the women in Huioc demonstrated a highly interdependent relationship with the the surrounding ecosystem and the spirit of Pachamama. Even weavers within that community feared for the future of their practice as a whole. Traditional weaving is extremely time consuming, and there is no piece that demonstrates this more than the Peruvian *manta*. The *manta* is an iconic and versatile piece used by most native women in the sacred valley, boasting intricate patterns that often relate to the flora and fauna that hold important cultural significance to the Quechua. Essentially a large blanket, this item is tied around a woman's shoulder's similar to a heavy wool shawl. From this resting position, it can be used to cary harvested crops, securely hold babies while the women weave or work in their fields, or be laid out like a picnic blanket to eat lunch outdoors without one's food touching the ground. Just one of these *mantas* can take up to a year to make using a traditional method, and this was worrisome to the women who hope to keep tradition alive. A *manta* was originally given as a gift, with a woman receiving one after marriage or the birth of a child. A new *manta* would only be gifted once every few years, giving the weaver ample time to put the time and care in that it takes to spin, dye, and weave the intricate piece. Tourism has brought the market to even the

farthest reaches of the sacred valley, and many *mantas* are now made to be sold as souvenirs to foreigners passing through the country. While this does provide a new source of income and potential livelihood to those dedicated to the craft, it is also effecting how the weaving is done. In order to cut costs and time on the spinning and dyeing, many weavers are now buying synthetic thread from the markets in Cuzco. While this allows them to churn out *mantas* and other woven artisanal products quickly enough to meet demands, it removes the material connection to the ecosystem and its services that it promotes. The traditional method requires a certain degree of biodiversity in a community's ecosystem to provide the various colors needed for a complete *manta*. Furthermore, alpaca are raised in many cases for their wool exclusively, and their grazing and subsequent fertilization is an essential component to keeping the fragile Andean mountain ecosystems healthy. As weavers make the transition to synthetic fibers, the need for these natural resources is declining. In some communities weavers are hard pressed to find the resources that once grew abundantly. This loss of biodiversity acts in cyclical nature with the loss of traditional weaving, as those women who no longer have access to the dyeing plants that they require in their community then have no choice but to turn to the markets for synthetic alternatives.

In speaking with the women about the market-based future of weaving, my faith in Awamaki's mission began to waver. It is undeniable that they are doing a good thing by encouraging traditional weaving practices in the sacred valley. However, Awamaki works with three communities in the Ollyantaytambo area out of the hundreds that dot the sacred valley. While those communities that they work with saw undeniable economic benefit to the introduction of cultural tourism, I eventually began to feel as though I was selling these women to the tourist market. What had originally amazed me about the women and their ancient practice was its reliance on the strength of their ecosystem rather than the strength of its market connections. The art of traditional weaving was ultimately made possible by a deep connection to the Pachamama and all that she provides, revealing an existential connection

and informing a cultural value of ecosystem health. By marketing a cultural experience and converting the strength of these traditions into dollars, the act of weaving would likely stay alive longer, but the important values of subsistence and ecosystemic dependence through the practice would inevitably fall away. The longer I stayed with Awamaki and the more I spoke with the women they worked with, the less convince I was that "sustainable tourism" could actually exist in practice.

As I grappled with feelings of dissonance in my position at Awamaki, I was also seeking to further my understanding of Pachamama, the Apu, and the Quechua ideas of the sacred as it exists on earth. These concepts felt like they came from a similar cultural place as the Naso's relationship to Tjer-Di and their sacred Rio Teribe, and they were ideas that I was absolutely burning to explore. This curiosity led me to connect with an agency called ECOAN, a natural science collective who were Peruvian and indigenous led. They had worked on conservation and restoration projects all throughout the sacred valley, and demonstrated an outspoken understanding of the importance of human-environmental relationships. On a free weekend I boarded another *collectivo*, and headed for the small community of Huayafara, located 65 Km from Cuzco. At a lake above this village ECOAN was hosting a community-driven reforestation event, where I would have my first introduction to *Polylepis rosaceae;* the Andean q*ueña* tree.

The Tree of Life

The *Polylepis rosaceae* or Queña tree as it's known in Quechua, is an unmistakable red-barked tree found in the high Andes of Peru, Bolivia, and Chile. It is able to survive at higher altitudes than any other tree in the world, and is largely responsible for making the high Andes hospitable for human life above 14,000 feet. Like most endemic tree species in the 21st century, this species is critically endangered. Initially I believed that the tree's endangered status was enough to prompt ECOAN's relentless reforestation projects within higher altitude communities, but upon arriving at their Huayafara planting I doubted this to be the case. The endangerment of endemic species is and extremely niche concern that is usually only enough to rally environmentalists who promote things like biodiversity for biodiversity's sake. At this tree planting however I found myself to be among very few in the former category, with the vast majority comprised of Huayafara community members as well as natives from surrounding villages. During my time in Huayafara and the surrounding communities I would quickly learn two things: The first is that the *queña* tree was responsible for an entire way of life to the Quechua people, and the second is that the Quechua had been devout environmentalists for hundreds of years before the term was even coined.

After a demonstrative dance and an offering to the Pachamama, we set about planting the saplings provided by ECOAN. Our planting site covered a large semi-circle around the alpine lake, and went all the way down to the very banks of that lake. Preparing my first hole for the sapling, I could immediately feel the crushing effects of the altitude. I had come from Ollyantaytambo which rested at 9,000 ft, higher than any point on the east coast of the United States where I had lived previously. The lake above Huayafara sat at just below 13,000 ft, and just the simple act of walking uphill with my shovel left me utterly winded. Still I pushed on and worked hard, motivated by the scene playing out around me. Along the length of the planting section and halfway up its incline were vibrant dots of unified action. Still dressed in their traditional *mantas*, ponchos, and leather sandals, the Quechua of the high Andes attacked the

task as if one coherent mass. This was the first real example of the Inkan system of reciprocity I would later come to know as *ayni*. This ideal puts almost all work done in Inkan society into a communal pot. Translating loosely to “today for you, tomorrow for me,” this ethic of reciprocity built the once thriving Inkan empire and is still alive in Quechua culture today. In most cases, agriculture is designated to plots of land owned and reaped by a single household or family. The work that is done to produce on these fields however, is much more often done with the work of several members of a village or community. If a community member was ready to till their field one day, they would bring with them a cohort of friends and neighbors to spread the work among more hands. These helpers may be fed or offered corn beer (called *chicha* in Quechua) while the work is completed, but they are never paid for their efforts. Instead, the community works under an unspoken ethical contract that when any of them inevitably needs a helping hand in return, it will be extended without question. This was the dynamic at play for the duration of the tree planting. Work that would have taken the ECOAN staff over a week was completed in just a few short hours.

After the planting, I had a chance to speak with a Huayafara native named Secundino about his community and the importance of queña to his people. He relayed to me that he was indeed aware of its endangered status, and that he felt it was of the upmost importance to save it from extinction. He did not speak of biodiversity for biodiversity’s sake, but instead aimed his focus at the health of his people. He explained to me that the *queña* tree provided water for high Andean settlements like his. Peru does not experience the four seasons that are standard to more temperate latitudes. Proximity to the equator provides it with a two season weather cycle of “wet” and “dry” seasons. The *queña* tree is so well adapted to its environment that it is able to optimize itself to these seasons, not only to its own benefit, but to the benefit of the greater ecosystem around it. During the wet season the tree’s roots act as straws, drawing as much of the excess moisture in the soil to the plant as it can. This water is stored in the trunk and root system until the dry season, where it not only has enough stored

for itself, but enough to release any excess water not used by the tree out into the soil around it. This provides the grasses, shrubs, and most importantly crops that surround *queña* groves with much needed hydration during periods of low precipitation.

Secundino spoke not only of the need for water for the community's crops, but of its benefit to the ecosystem as a whole. He spoke of clean air, clean water, and enough abundance of both for the plants, animals and humans alike. In this conversation I could see that the Quechua were true environmentalists; they prioritized environmental health for existential reasons, at depth that I did not yet truly understand.

After the tree planting, the volunteers from the communities made their way down the mountain to the valley town below. I was offered a ride in the bed of a pickup truck with an Australian man named Scott who had been living in the Sacred Valley for the last two years. It was his first time volunteering with ECOAN, but he noted that the owner of the cafe in which he had been working partnered with the organization often. When we arrived in Lamay, food and drinks were provided by Huayafara for the neighboring community members who had helped with the planting that day. We ate and drank in the field near town while the community members danced and played instruments as a celebration of a hard days work. Scott introduced me to Franco, the owner of his cafe, and we spoke at length about conservation in valley. Franco was born in Lima but, like many Peruvians from the larger cities, identified as ethnically indigenous. He spoke to me about his problems with the capital city, many of which were mirrored in my own bittersweet relationship Washington D.C.

I told him about my dilemma with my current organization, and how I wondered if their model was of "sustainable tourism" was truly culturally aware in the ways that it needed to be in order to mesh the ends of its mission that seemed at odds with each other. I told him about my project and my desire to understand the connection between Quechua culture and how it

seemed to lead naturally to a strong conservation ethic. I mentioned Segundino and my interest in knowing more about the community we had just come from, to which Franco responded that the two of them had a long standing relationship. Franco had been leading trips in adventure tourism, and was hoping to expand his ventures to include ecotourism as well. He was familiar with Awamaki and agencies like them. He appreciated the work that they were doing to advance communities economically, but believed they were lacking in the ecological aspect of Quechua culture which he agreed was pivotal.

We agreed on a partnership in which he could connect me to communities for my project if I agreed to compile the natural resource guide I was developing into a medicinal plant guide to use for his ecotours. Medicinal plant use was something of great interest to me, as I hypothesized that they shared a similar role as plants used for dyes in traditional weaving. I believed that the reliance on medicinal plants within a community would encourage biodiversity in much the same way that reliance (or lack thereof) in weaving materials had effected abundance of certain plant species in Huioc Bajo. With this new connection I made a plan to end my work at Awamaki and begin answering my burning questions, the answers to which would take me far from the safety and familiarity of the gringo trail.

Growing Medicine

My first homestay would take place in Huayafara, the village directly below the lake of the *queña* planting. The village itself was lower in elevation, and thus was not able to grow *queuña* where most of the residences were constructed, but the agriculture of the community would still benefit from the reforestation project. The town was rural, and there was not a *collectivo* that would take me as far up the mountain as I needed to go. I was dropped off at a fork in the road and instructed to continue upwards until I found myself in small settlement. I hoisted my large backpack onto my shoulders while the rusty *collectivo* sputtered around the mountain bend and eventually out of sight. I continued up the hill as instructed, taking in my surroundings as I went. Huioc Bajo was a rural community, but it's proximity to the tourist hub of Ollyantaytambo had afforded it many improvements in infrastructure. Making my towards Huayafara on foot, it was clear that this town did not share such influences. As I climbed up from the valley I could see ridges along the slopes of the surrounding mountains, like green waves blown by the wind across a still lake. I may not have known what to make of these ridges had they not also been cutting across the mountain that I was climbing. From such a close angle I could see that they were terraces; a much less developed system than the stone terraces that surrounded Ollyantaytambo, but serving the same agricultural purpose.

As I climbed higher, I saw the agricultural microclimate technology of the Inka still in full effect, beginning with corn and rising into quinoa and other leafy crops. As I continued higher still, the diversity of the crops tampered off, and past this point the terraces were filled with nightshade blooms at various stages which I could only assume sprouted from potatoes growing beneath the soil's surface. In the distance I saw herds of sheep roaming freely in the highest and unterraced reaches of the mountains. It was this level I began to see simple stone structures, and was greeted by a pair of small, friendly dogs. After being sniffed out by the pair, I filled them into the small settlement and arrived at a larger structure marked

“*Hospidage*.” This was the home of Benigno, a Huayafara community member who I would be staying with for the next few days while learning about medicinal plants in the area. Benigno’s family had been expanding his home for generations, and rented the spare rooms to mountain trekkers once his children moved away. The room I was provided was humble, including a mattress atop a raised platform of clay and mud. I would be spending most of my time outdoors, and as far as sleeping arrangements, this was more than sufficient.

Benigno and I sat down for *muña* tea as was customary when receiving a guest in the valley, and our conversation began immediately. I asked him if he grew the *muña* himself since he was situated so remotely from any market in town. He informed me that he did not grow it, but rather that it simply grew here. When he or his wife were out walking they would often find it on the side of the trail and harvest it for later. I asked him if that was the case with other medicinal plants as that they used, as I’m sure some would be less common than others. He told me that it varied. In some cases he encouraged growth where plants would naturally be found, in some cases he transplanted plants he found on the mountain closer to home. He also spoke of some plants that were only able to grow in certain places and for those he had learned over the years where to find those resources, and would go out to harvest them as needed.

As we finished our tea, he let me know that he planned to take me on a walk to see the community. We left from the back of his house and were immediately immersed in a forest of eucalyptus. This is a species of tree that I had become very familiar with during my time in Peru. I knew that it was not native to the Andes, and that it had been introduced from Australia in the early 1900’s. Their leaves have menthol-like properties when steamed, and work well to relieve congestion and ease breathing. I was interested to see how the Quechua people had adapted uses for the invasive species, and wanted to know more about its relationship as a relatively new natural resource to the communities that utilized it. He responded that this

particular plot belonged to all of the members of the community. It was a public plot, and anyone in Huayafara who wished to utilize the stand for lumber or leaves was free to do so.

Benigno explained that there had been a time when the introduction of eucalyptus was highly regarded; it grew fast and straight and made for an ideal renewable building material in this rural setting. In more recent years, the tone towards the trees in the community had changed. He described eucalyptus as “too thirsty for these mountains,” and noted that at this point many members of the community had seen its effects on the potency of streams and health of the native plants. Furthermore, many of the existing eucalyptus stands had been *queña* stands previously, and were cleared to make room for this new perceived miracle species. Because of its short maturation period in relation to the *queña*, eucalyptus was chosen as the new source material to make tools and houses. This became the case for most communities in the sacred valley. While it increased the valley’s capacity for development, they would learn with time that this came at the cost of access to water in the dry season and overall ecosystem health.

Along with the current push to reforest *queña* groves, there was a movement to replace eucalyptus with pine as a primary building material. Although it doesn’t grow with the same ferocity as the eucalyptus, it grows straight and produces harder lumber than eucalyptus, making it a more sustainable alternative for new development. Most importantly, pine uses a fraction of the water as its Australian counterpart, which is incredibly appealing to the Quechua from an ecological health perspective. Telling the Quechua people that they have to stop using a natural resource is an uphill battle. Use of eucalyptus has become a part of the culture in the sacred valley, and for such a naturalistic society, it has become essential to their way of life. He explained that for some Peruvians, telling them not to plant eucalyptus is like telling them not to drink *muña*. Pine projects in the valley are only 20 years old at even their earliest sites of

introduction, and Benigno believes that once they can rival the eucalyptus in abundance the community will be more open to this shift.

We exited the eucalyptus grove and headed out a lightly beaten trail up the ridge leading out of the town. The grove had felt congested and unnatural. Apart from the eucalyptus, there were not canopies at this altitude. The trees had been planted by the community, and they stood in equidistant lines that felt at odds with the rest of the environment. They grew straight and uniform from the ground, which gave the forested section a strangely transplanted feeling. Even the few remaining endemic *queuña* groves in the high Andes grew shrubby and twisted, seeming to come up from the soil at random intervals. Even those that were supplemented by large-scale community plantings took on a wild demeanor with the passage of time. Along the ridge we could see all the way down to the valley and straight across to the mountains on the other side. Shrubs, bushes, and taller grassy plants grew randomly above the carpet cover of coarse alpine grasses that reached up past even the highest peaks in the range. The natural biodiversity created a muddled green camouflage from afar, with ancient and modern settlements strewn throughout the valley. Other taller eucalyptus groves could be seen from this perspective shading areas in a taller, darker green than the rest. From a distance these structures and groves were the only breaks in the sea of mountain green, and stood out identically from the ecosystem at large.

About halfway up the ridge traverse, Benigno bent down and plucked what I recognized as *muña* from the side of the trail. He held the tiny textured plant between his weathered fingers, and my education into the medicinal plants of the andes began. *Muña* (*Minthostachys mollis*) is a plant that I had become very familiar with after living in the valley for over a month. This mint-like herb was used primarily in tea, but its usage was extremely widespread. It was not sold in the typical tea bags that I was used to being from the west, but rather steeped in hot water as it was plucked from the earth. This was the case not only in the Quechua

communities of the high Andes, but in every cafe and restaurant I had eaten in from Cusco to Ollyantalltambo to Lamay. Had it not been for the deep historical significance of *chicha*, *muña* tea would likely be the most popular drink in the valley.

Benigno explained that, like the mint I was familiar with, *muña* had appetite suppressant properties and was able to quell stomach aches temporarily. He told me that it always grew abundantly and in his lifetime had never been in short supply. Thinking back to the dyeing plants of Huioc, I asked him if he believed that *muña's* popularity might contribute to its natural abundance in the valley. He believed it did. He explained that it was customary among the Quechua to never finish a beverage, but to instead leave the last dregs in their cup before splashing what was left in the bottom onto the ground in a sweeping motion. His next words lit me up with a newfound curiosity for the thesis that had brought me to this remote village to begin with.

This custom, he said, evolved from an offering act to Pachamama. He explained that returning this last bit of one's meal or drink to the earth from which it came acted as a showing of gratitude to the Pachamama, so that she may continue to stay healthy and provide for her people. Looking at this from an ecologist's perspective filled me with joy and wonder. In the same act of offering thanks to this spiritual entity, the Quechua people cast the last of their tea (and more importantly the leave and sprigs in it) to the earth. Not only would this allow any remaining organic material to biodegrade back into the earth and fertilize the soil, but this custom could theoretically act as a form of seed dispersal. Through this symbiotic relationship, the *muña* would be able to spread its influence throughout the sacred valley in much the same way that a fruiting tree species uses predation by tropical birds to spread itself throughout the jungle. Through the offering at the sheep fertility ceremony, I had seen how the spiritual significance of Pachamama could create an ethic of conservation and natural health. In this simple act and the spiritual significance behind it, I had seen for the first time how the religious

traditions of the Inka could effect ecosystemic health in a functional and objective way. How this ethic that had evolved through the Quechua people had a real effect on their environment.

From this elucidating introduction to the free-growing *muña*, I was shown the incredible diversity that Quechua use of medicinal plants was able to promote. Just a short walk later, Benigno knelt down and pointed out an herb called *mola huacatay* (*Tagetes minuta*), a potent diarrhetic used to cleanse the stomach of those who had eaten bad or poisonous foods. He showed off the thistle-esque *chiri chiri* (*Grindelia boliviana*), which was crushed and mixed with *callia ucho* plant to help heal burns and cuts. The later of these plants was made up of pods that excreted a gelatinous substance when broken from the main body. Later research identified this strange plant as *Autrocylundropuntia subulata,* falling in the same order as the aloe vera, which is commercially sold around the globe as a treatment for sunburn.

We continued up the hill until our path became flanked on the mountain side by a rocky face. Without hesitation, Benigno began to scramble up the rocks, which were still covered in moisture from low clouds that had moved in that morning. He arrived at his objective, and began picking a cluster of pink flowers that grew from the vegetated cracks in the face. Standing on small wet nubs jutting out form the rock, it never ceased to amaze me what the villagers were able to accomplish in the humble leather sandals that were almost unanimously worn among them. He descended the short face just as easily, and returned to me bearing two handfuls of pink flowers. The *ach'carai* (*Begonia rubricaulis*) and *flor de pannie* (*Cosmos peucedanifolius*), were some of the rarer medicinal plants that could only be found at the higher altitudes. He explained that both varieties were coveted for their fever-reduction properties in a tea, which was often given to sick children in the community due to limited access to pills like acetaminophen.

We reached the top of the ridge and sat down to eat lunch. The clouds that rolled in during the morning had given way to a light rain, and Benigno unwrapped the *manta* from his shoulders to lay on the wet grass as a blanket. Wrapped inside lay our lunch for the day. It was simple, a few pieces of bread and some Peruvian sweet corn, but would treat us well after our hike up the ridge. We sit and share the food while I offered him some water from the large bottle in my backpack. As we sat and ate he told me about his community. He told me that the traditional ways of agriculture and living with the land are still intact in Huayafara, and he believes that this is largely due to their remoteness from the more modernized towns. He takes a lot of pride in the traditions of his people, and shows particular fondness for the organic methods with which they raise crops here. The crops are grown without the chemicals that are becoming popular farther down in the valley. He attributes this lack of chemicals to the good health of the people and the animals in his community. He spoke with excitement when I asked him about the terracing system of agriculture and expressed my curiosity for this organic style; he is an expert agrarian and was glad that someone my age expressed interest in his craft. He explained that the crops here are grown on a cyclical system, in which different crops such as potatoes, quinoa, corn, tarwi, fava, and various tubers are planted and harvested for a period of five to six years before lying fallow for another three to four years. These first planting cycles are often overlapping, and provide benefits to one another.

The corn for example, is planted along with the quinoa, and acts as a nursery for the crop as it matures through its fragile seedling phase. The fava is planted in the years after the corn harvest, as the legumes fix nitrogen into the soil that the corn seeps out while it grows. I think it is important to point out that in his explanation, Benigno does not use most of this technical terminology; these are concepts that I learned while pursuing a college-level degree in environmental science. But Benigno and his family have been working the same plots of land for generations, and have learned the concepts behind these cyclical scientific processes through time committed and a reliance on the land they work with. He explains that he does

not have much of an education, and left school after the 4th grade to work with his father in agriculture. It is clear that through a lifetime of working and mentorship from his community's wealth of knowledge, His family has achieved a sustainable means of agricultural production. Many of these concepts that he claims to have been utilizing since he was a child are agricultural techniques that have only recently been recognized and implemented by western farmers on small scale farms in places like the U.S. and Europe.

This generational knowledge is something that brings a lot of anxiety to Benigno's life. He explains that it is paramount to pass down these practices so that the people of the community will not have to resort to the chemical practices of the valleys below. The younger generation is becoming increasingly uninterested in traditional agriculture, and he worries that it will become lost with time. Throughout my time in Huayafara, I noticed that any community members within my young adult age range were almost completely absent from the community. Most people I saw in the village were over 50, like Benigno and his wife. Along with them were a few children, but none of them seemed any older than grade school age. Benigno told me that many of the young people in the community leave Huayafara once they finish school, which only goes through 9th grade at the school in the nearby town of Huama. After this, many leave for Cuzco to find work or continue their education. While he values the importance of education, he is sad to see that not many of them return, and those who do bring with them a more urban mindset that he believes is incompatible and even detrimental to the traditional way of life that he holds dear.

The next day we gathered some tools and went to meet Benigno's friend for the day. The tools were primitive hand picks made from wood and steel, both of which had noticeable inconsistencies letting me know they were most likely made by hand. Benigno explained that the wood in these simple tools were made from eucalyptus branches, and I could see the similarities in the tightness of its grain. The owner of the plot we would be working in came out

of his house with two friends and his son, who had visited from outside the community. After an initial meeting over *muña*, the five of us set out the grassy walking path towards his plot. After about two miles of ridge walking, we came to a large square plot of sloping exposed soil where we would be working for the day. We set about creating rows with our simple hand picks, digging out the loose soil and dropping it to the side. This created thin gulleys where we dug out the soil, and raised beds from the linear piles where we relocated the soil. About halfway through we took a break to drink *chicha*, and the plot's owner explained that this format was a very intentional decision. The slope of the plot meant that irrigation would be required so as to not drown the potatoes in the rainy season. The gullies that we dug would help the water run down the hill during the wet season without pooling, and the raised beds would house the planted potatoes so that their roots could access the surplus of water in the gullies without damaging the tubers themselves.

We finished our *chicha* and continued our work in the field. I was excited to be learning about their methodology in agriculture, as well as participating once more in the ethic of *ayni*. However, I began to feel a fatigue come over me as we reached the end of the process that I could tell was unrelated to the physicality of our current labor. By the time we sat down to eat lunch, this fatigue had grown to slight delirium and a full blown fever. We returned to Benigno's house, and by the end of our hike back I was stopping every 10 feet to regain my energy. I decided it was in my best interest to retreat to Lamay and deal with whatever was going on in a less remote environment, in case it turned out to be persistent. This would mean making the walk back down the mountain to the nearest stop on the route of the *collectivo*, and for this I no longer had the strength. I decided to rest and drink water in hopes that my energy would return.

I was sitting in the dining room of Benigno's home when his wife came into the room bearing a cup of tea. I received the tea with gratitude and looked inside to see the floating pink

petals of the *ach'carai* flower we had picked the day before. In a moment I gained a real insight into the level of reliance that the Quechua still held with their environment. In my brief stay in Huayafara, not only had I learned about and worked to cultivate the natural resources that were vital to the Quechua of this village, but I had benefited directly from them as well. The potatoes I had eaten with my dinner came from the field we had worked or one like it. The wood from the tools we swung came from the eucalyptus groves that we walked through. Most poignantly, the medicine that allowed me to safely return to the valley below could only be harvested in these Andean wilds. None of the things we had accomplished during my stay, and life itself for the Quechua people on the mountain, would not have been possible without the health and prosperity of the surrounding environment. When I descend the trail and finally boarded the *collectivo*, I stared out the window in my fevered haze at the world around me. As I watched the mist curl around the ridges of the mountain, I gave quiet thanks to the Pachamama, as I finally knew how much I truly owed her.

I spent a few days recovering from my fever and restocking my supplies before heading up to my second, much longer homestay in the town of Huama. I had found a house with a spare room in the nearby town of Calca with two local women and their cat. The house was a simple two story building with a small backyard, where I would often spend my time reading and writing in my journal. It wasn't extravagant by any means, but the perspective I would gain in the surrounding Quechua communities up the mountain would leave a fond imprint of contextual luxury on the humble abode.

The town of Calca sat just a few miles west of Lamay and although developed, was primarily absent of tourist influence. It boasted a central town square and a few block around it with shops, restaurants, lodging, and an open air covered market at which I would become a regular. The market opened at 7:00 every morning and its vendors remained in their stalls until nightfall. Many of the vendors came from the villages on the mountain, selling the excess from

an abundant harvest to those in the valley who lacked the land or knowledge to farm on their own. There was no grocery store in town, and my diet changed drastically as the market became my primary source of sustenance during my time in Calca. I ate what could be grown in the valley, which was essentially the same as what the Quechua who brought their food down to sell ate. Occasionally a truck would arrive with things commodities like milk, chocolate, and cans of soup from Cuzco, but these were rare and in time I stoped buying them even when they were available. I was slowly adapting to life in the valley, and developing a deeper understanding of how people lived there.

After a few days of rest, my fever broke and I resupplied for my next community stay. Since I had left Ollyantaytambo, I had been hearing the name "Huama" from Franco, Benigno, and one of the women in my house as one of the largest Quechua communities in the area. This faraway town seemed to be a hub of Quechua culture in these mountains, and I formulated a plan to visit. Franco connected me with a man named Nativo, who was an elder in the village and had organized an ongoing council to focus on the environmental goals of the community. I organized with Franco to stay in Huama for a week, conducting interviews and learning about the various projects that the environmental council had implemented. My last homestay and the fever that cut it short worried me, but I was determined to have my questions answered and complete my stay. I relied my things and headed for the *collectivo* stop that would take me up the mountain. The packed van proceeded up the mountain on the route that had become quite familiar to me after a few rides. I began to recognize the mountain's curves and could identify my location through the farms and landmarks that littered the hillsides. We passed the stopping point for Huayafara and continued ever upwards, climbing even higher than I had for the Queña planting weeks before. As the vehicle continued to climb the winding dirt road, the herds of sheep became farther between, and we began to see the strange fluffy silhouettes of roving groups of alpaca on the hillsides. We continued to climb until we reached the elevation where even the eucalyptus could not grow, and we

climbed higher still. The *collectivo* rattled through sprawling fields of meticulously curated agricultural projects, some of which were situated at startling angles on the rising hills of the town. Some of the homes outside of town had fenced off sections containing cattle and more domesticated llamas. Finally we arrived in Huama, and I could see immediately that it was much larger than its neighboring Huayafara. The structures seemed a bit grander, and were made of stone and sometimes concrete rather than the adobe structures I had stayed in before. At a bend in the winding road at the base of town, I dismounted the van at the site of a large adobe building. It was built in the same manner as many of the structures in town, but bore a large cross above its heavy wooden doors. This was Huama's Evangelical church, where I would begin my stay in the community.

Huama

Nativo was a rather short man, as many of the Quechua tended to be. He had bird-like features and a look of quiet understanding in his eyes, which he sometimes fixed to faraway places on the horizon when he spoke. Other times he would close his eyes and speak with his hands when coming to a head on one of his long talking points, as if searching for the words in the dark behind his eyelids. His Spanish was strong, and tinged with the skipping cadence of a native Quechua speaker. He brought me to his home, and shortly after to a blue building on he top of a hill, which acted as a community center and meeting place for SECAS, the environmental council Nativo was heading in the community. There was a spare room on the second floor of the building in which I would be staying for the week. It lacked nearly all furniture, save for a bed and a framed picture on the far wall next to the window. I put my bag down and examined the contents of the frame. It was a drawing, seemingly done by a child in crayon or colored pencil, of a vast natural landscape. Within this landscape was a road that wound through sections of forest, pasture, terraces full of various crops, and stone structures reminiscent of those left behind by the Inka. A sky blue river rand down from the mountains in the background and a few figures in Peruvian woven hats could be seen working their fields with cattle and tractors. I asked Nativo what the picture meant, and why it had been hung so prominently in the room. He responded in his distant stare that this scene was the collective dream of the community. It was drawn by a classmate of his in the 80s, and had been adopted by the community as a reminder of their goals.

I looked out of the window next to the drawing and saw many of the same things that were depicted in the drawing. The winding road through town, the fields of diversity and abundance, the cattle resting after a long day's work, and the highest mountain peaks rising proudly from the iconic Andean mist. He told me that they had been working hard for many years, but that there was still a long way to go in achieving this dream that the community dreamt almost 40 years ago.

The next morning Nativo and I ate a simple meal of oatmeal in fava milk for breakfast, and set out on foot to circumnavigate the community. The people of Huama utilized many of the same agricultural techniques practiced in Huayafara. These usually operated on a grander scale due to the higher population and level of development in the town, but the underlying themes remained the same.

Most elders in the village had access to multiple parcels of land, which they farmed and raised cattle on in a cycle of planting and fallow periods for the health of the soil. At any given point, a farmer in Huama may have one plot growing corn and quinoa, one growing potatoes or *ava* (an Andean variation of spinach) at higher elevation, and one that has finished its growing cycle and been left unmanned to grow native grasses that are then grazed by livestock. During our tour we passed by many farms in many different stages of this decade-long cycle, and it gave the whole community a sense of health agricultural diversity. Although one plot usually only hosted one or two crop varieties at one time, the parcel system created a mosaic within the agricultural reaches of the community that expressed the full timeline of these cycles. This aspect brought me back to the ideal of reciprocity, and seeing the different family's plots growing different crops right next to each other played into this ideal. In the case that one family experienced a plight or bad harvest year, this *ayni* principal could compound with the agricultural diversity of the cyclical parcel system to ensure sufficient food was available to all in the community who needed it.

I realized on the trip up the mountain that Huama sat at a much higher resting altitude than Huayafara, but I did not realize how much this would effect community life until I saw the *queña* trees. According to Nativo, there were full *queña* groves in the hills surrounding the community, some of which were planted recently and some of which were remotes from the time before the eucalyptus was introduced. The first *queña* I would see during my stay in the

community however, would not be in great groves but in neat rows around farm parcels. I harkened my conversation with Segundino at the ECOAN planting, and recalled the unique relationship that *queña* had with the wet and dry seasons. I assumed these trees were planted around a farmer's parcel to ensure adequate water for their crops during the dry season, and I brought this up to Nativo to clarify my theory. He responded that this water effect constituted part of it, but that it was not why the trees remained around the parcels. Walking gently through the parcel over to one of the nearby trees, he began to peel the flaky red bark from its trunk. He explained that much of the land here did not work for growing, as it was rocky and the soil was shallow. As his fingers worked the bark, the flakes he peeled floated down to his feet, where they joined small piles of flakes from the same trunk. He explained that the wind and rain rubbed this bark off of the surrounding *queña* trees, and they rejoined the soil as they decomposed. Acting like a natural compost, fallen flakes and the rich nutrients that they carried were then incorporated into the existing soil between agricultural cycle stages. Many of the more slopping plots boasted a row of *queña* lining their highest deliniation, using wind and gravity to incorporate this renewable source of fertilizer at a slow and steady rate throughout the year.

Since I was introduced to the concept of *ayni*, I had begun to see it incorporated in many aspects of life for the Quechua. It informed the way that the communities of these mountains and the people within them interacted with each other. It dictated reciprocity, but it did not end with human relationships. The role the the *queña* tree played in agriculture and ecosystem within these communities let me know that the environment has as much role to play in this process as any group of neighbors or family members in the community. In guaranteeing water to its surroundings in the depths of dry season, *queña* exemplified the first element of *ayni*: "today for you." It gave itself to life around it so that life could prosper where it otherwise might not. In return, the ecosystem and the Quechua people saw a benefit that they came to rely on. The equally important element of the *ayni* principal, "tomorrow for me," came

forth from the community community's end through the agrarian plantings and conservation efforts of the existentially important *queña* tree. As the tree had done for them, the Quechua reciprocated for the *queña* as it faced endangerment on their lands. In the ways that ayni revealed itself in the non human world, it was clear that this principle represented not only reciprocity, but symbiosis with all life in the valley.

Nativo and I arrived at one of the higher plots belonging to his family, and after a brief quiz about the types of crops he had growing there, we sat down to take in the view. The plot was situated on the side of a hill, but had been leveled and terraced, allowing us to sit comfortably within its boundaries. The view from the plot encompassed almost the whole town, and we could see down through the agricultural district all the way to SECAS and the church far below. It was a clear and sunny day as we weaved through the parcels, and I was grateful for this rare break from the typical Andean mist. While taking in the view, Nativo voiced many of the same anxieties Benigno had the week before. Life was changing in his community, and he worried about what it would mean for the land he loved so dearly. Many of the young people in Huama left for the cities below as soon as they were old enough, and those few who did return brought with them the practices of the Westernized cities. He explained that many of them ended up working in farms in the valley, which were much more concerned with growing marketable crops like tomatoes and fruits than the traditional high altitude tubers grown on the mountain. He claimed that those who returned from these valley farms brought with them growth chemicals and pesticides, and the prevalence of these inorganic elements were growing in the community. It made their crops grow larger and mitigated their risk for shortage, but Nativo was still against it. He was concerned for the water and the soil, and worried that the introduction of chemicals would travel down the streams and effect the whole community. He claimed that he was already seeing more villagers getting sick, and he knew the chemical runoff into the water was to blame.

Nativo identified two major camps that coexisted in the community. There were Evangelicals like himself, who believe in the Christian god and the stories of the Bible. This faith system was more recently introduced within his lifetime, but he was a devout follower even though he had converted in his 30s. The other major religion in the valley was one he called Catholic. Upon further description, it was clear that there were few similarities between the Catholicism of the Quechua and the religion I was familiar with. Catholics were a much older group in the community, and seemed to be a juxtaposing mix between Inka traditions and the introduced religion of the Spanish. Quechua Catholics (*Catolicas* as he called them) worshiped the sun, the Apu, and the Pachamama, giving the traditional thanks and offering to the deities as was inherited from pre-colonial age. In addition to this reverence for nature, the *Catolicas* had adopted the story of Jesus Christ and his teachings of penance and forgiveness. Nativo found Catholicism was too forgiving. It caused people to behave badly, he said, offering forgiveness to absolve sin. According to Nativo, this made men violent drunks who soon lost their work ethic and their commitment to the *ayni* principals.

Overall, life in Huama felt much more akin to that of life in Naso than it did life in Huyafara. Despite Huyafara's close proximity to Nativo's community, the former held a sense of guarded isolation. Upon reflection I came to the theory that this may have been due to a lack of children in the community. In the case of Huama and Naso, the community's kids could always be heard playing somewhere around the corner, or seen caring for one another as only siblings can. This presence of youth in the two communities exuded a sense of hope that permeated the hard lives of the adults; emitting the feeling that the community had a clear and present future.

Nativo and I spent the next day among the *queña* and pine forests of Huama. Leaving from the blue SECAS building, it was a short walk until we reached a sprawling *queña* forest. Under its short canopy, I could immediately see the marked improvement in soil quality

compared to the grassland around it. This plot of forest had been planted over 15 years ago, and had the community's full support even back then. Down the hill beyond this forested section was an area of land the Nativo was particularly proud of. It had been planted by the community around 10 years prior to the grove we stood in, and was cleared once agriculturally viable. Without this context, one might think that this land had been farmed and cultivated for generations. As it stood the area, which encompassed several plots, was bountifully growing many of the stable crops of the Quechua. The land was formerly a rocky outcropping that could only be used for sheep grazing, Nativo explained. In a feat of naturalistic skill, the people of Huama had used only the natural resources at their disposal to vastly effect their environment and increase the ecosystem's carrying capacity for humans in the process. I thought back to the child's drawing that hung in my quarters and remembered the scattered plots of *queña* dispersed among the fields. I realized in this moment how pivotal to the dream that these endemic trees truly were. Within the vision of the community, they not only represented a healthy return to region's ecological past, but an essential member in building the community's agricultural future.

Many people of the village equated these reforestation projects with air and water quality in the community. There was an overarching feeling among the community members that a lack of forests and vegetation would lead to poor health of a community's people. This direct link between environmental and public health seemed obvious hearing it from these people of the land, but this was a connection I felt was well and truly lost back where I came from. In many cases in the U.S., environmental health is seen as an elective measure; one to be prioritized only was all "human" issues like public health and housing have been addressed. Although largely forgotten in the eyes of U.S. public policy, the connection between environmental health and human quality of life is becoming increasingly undeniable as we watch the earth's health deteriorate. Increased intensity of natural disasters, as well as the emergence of natural disasters in previous safe zones, are displacing humans across the

globe. The desertification of formally hospitable environments is causing food shortages and accelerated refugee crises that will only grow in severity in the coming years.

Closer to home, pollution runoff from agriculture and urban centers has been linked to health defects in people living in places we once thought were “protected” from direct pollution. Environmental degradation’s effect on humanity is driven by industrialization and waste culture, but one of its more ambiguous underlying causes comes from this broken cognitive link between public and environmental health. Coming from this world, it was almost jarring to hear the way that the people of Huama conflated their own physical wellbeing with their environment so absolutely. By maintaining this connection they were not only able to see themselves, but members of their family and community in any land management decisions that they made, even on a scale the size of a single parcel.

One villager named Dionisio, recalled his time spent as a porter on the Salkantay Trail, one of the most popular multi-day tourism treks through the Andes mountains. Leaving from Soraypampa, the week-long expedition makes its way through some of the highest mountain passes in the sacred valley, eventually meeting with the Inka and Jungle trek routes at Machu Pichu. As this tour and others like it have gained popularity, the role of porter to these tours has grown with it. Given the altitude gain, high daily mileage, and overnight gear needed for the expedition, many tourists are unable to complete the mission without the assistance of a team of natives to carry the extra weight. This team of porters (often times subsidized by pack mules or alpaca) do everything from carry packs, to set up tents, to cook meals for the tourists at the end of the day. These porters are the unsung heroes of the Andes mountains and without them these treks would not be possible for a majority of the guests who get to experience them.

While working this trail many years ago, one community member Dionisio gained his first insight into the lasting effects of synthetic and disposable materials on the environment for which he cared so dearly. The trash and pollution that the tour companies left behind on these treks would soil the water and scar the landscape. In the early days of Peruvian tourism much of the trash was also burned, creating smog in the clean mountain air that Dionisio and his community cherish so much. Furthermore, the Inka and Salkantay treks hold a sacred pilgrimage status to the Quechua, and to see them sometimes permanently scarred was harmful not just to the ecological ideals of Quechua, but their spiritual ideals as well. When the elders of Huama started to notice similar acts of pollution taking place in their community, their experiences with porter industry afforded them the foresight to mitigate lasting effects through education and community policies. Huama is not devoid of plastic by any means, but the fast actions of these elders ensured that plastic and non-biodegradable materials did not have the same surmounting effects on the environment that are so common in other parts of the developing world.

The concept of plastic's introduction is one that I was completely unfamiliar with in my own life. I was born in Washington, D.C., the capitol city of the United States. Like most other babies born in the U.S. that year, the day I was introduced to plastic was the day I was born. Before I could speak, walk, or even open my eyes, a plastic bracelet was clasped to my wrist denoting my age and welcoming me to this world. My clothes had always been made with synthetic dyes, my school lunches came with disposable utensils and plates of styrofoam. Throughout my short life, I would go through thousands of plastic bottles, cups, and wrappers in the simple act of living as an American. As I grew older and became more environmentally conscious, America grew with me, and we both began to take a closer look at the waste we created. However, this process in the U.S. was not like it was in Huama. Plastic had hit the Western world in such a torrential way, that any attempt to personally mitigate the millions of tons of plastic our nation went through annually seemed absolutely insurmountable. Not only

were we tasked with reducing our footprint, but with fighting against the crushing force that is single-use culture in the modern world. In some sense, Huama found itself in an opposite dynamic with the introduction of synthetic material. Coming from a strong natural resource based culture and having gained an awareness of the harmful potential of pollutants early on, informing their community's ethic of sustainability surrounding plastics seemed a much more manageable process. Rather than having to overturn an empire, the people of Huama are tasked with seeking a balance between the standing environmental ethics of their traditions and the growing influences of a growing globalized trash culture.

In the constant strife for balance within the community, nearly everyone I spoke to in Huama stressed the importance of continuing traditions. Some elders, like Nativo and the community's president, expressed fear that the younger generation would not learn the important traditions of weaving, agriculture, and use of medicinal plants if they continued to leave the community for the city. Some younger community members expressed this same fear for themselves, noting that schools in cities like Cuzco did not teach these important traditions that are essential for anyone attempting to coexist with the mountain ecosystems from which they came.

Nativo assured me that much was being done to ensure the continuation and revival of traditions within the community, but outside of the town's influence there was not much that they could do. This informs the popularity behind the Linderage, one of Huama's most important annual traditions as the town meshes increasingly with the industrialized world. The Linderage is a community-wide event dedicated to the demarcation of ancestral territory in the sacred valley. This tradition exists in many Quechua communities in the area, and acts as an important reminder of the land that they have historically called home. This collective trek supersedes personal plot and property as it delineates the land that belongs to the entire community. This event lasts from sunrise to sunset, and the Quechua of Huama come from

their residences all over the valley to remind themselves of the land they came from. Leaving from the village square, the group splits in two to walk the community's borders and meet once again at the highest point of the perimeter. After returning to the town center, the community holiday culminates in a massive party complete with dancing, music, *chicha*, gift giving, and a ceremonial tree planting to demonstrate the cyclical longevity of the community. The event takes place in late February/early March every year to mark the changing of the seasons from wet to dry, and this year the event happened to fall on my 24th birthday. Delighted by this news, Nativo promptly invited me to take place in this year's Linderage. He let me know that Franco would be joining, as he did most years, and that his family would be honored for me to walk with them and celebrate my birthday in their traditional sense.

Rhythm and Succession

The Linderaje began on a misty morning in Huama, where the road ended and deposited myself and many others to the edge of the town center. On a normal day, one or two *collectivos* could be found here, either lingering after a trip up the mountain or waiting to fill a few more seats in order to justify the ride down. That morning the small lot was full, and *collectivos*, taxis, and even personal vehicles lined the sides of the road leading into town. They parked on the grassy banks of the unpaved road that was hardly wider than a walking path to begin with. From the various vehicles, Quechua of all ages spilled out of the vehicles. Men, women, young, old; all had donned their traditional colorful dress for the annual occasion. As they dismounted from their well-loved motorcade the mud colored square exploded with color, and the hand stitched clothing that covered them stood like rainbows against the cool morning clouds. I had ridden up the mountain with Franco, and we soon dismounted to join the vibrant mass on our way to the village square. Along the walk, we encountered Nativo and Serapio, the president of the community. Greeting them amicably, they informed us that we should follow Nativo to the group of the Alcalde, who was the elected keeper of traditions within the community. This community leader would lead on group of trekkers around the eastern perimeter of Huama, while Serapio took the helm of the group walking the other half. There were not offerings at the beginning of the trek, actually there was very little ceremony at all before we began the hike. I had grown accustomed to waiting patiently as some form of prayer was spoken in Quecha, and listening closely in hopes of picking the word "Pachamama" from the fluid speech. This ceremony began with only a call to be safe and stay hydrated during the strenuous day of trekking. Sticking next to Franco and following closely behind Nativo, we began our walk up the mountain.

During the event, almost everyone was dressed traditionally. Furthermore, every *manta* carried by a community member was full to bursting with food, *chicha*, and instruments for those who played them. The lack of ceremony at the trek's terminus would soon be made

clear to me as we arrived at the end of our first uphill section. Franco and I were not nearly as accustomed to the altitude as the locals, and we arrived towards the back of the group to find an encampment set up on a small plain overlooking the valley. Those who had arrived before us had unraveled the contents of their *mantas* and engaged in a brief festival of competition and camaraderie. Men played flutes and drums, as men and women alike danced circles around each another in the spinning, hopping, jovial style of the Inka. Pairs of men engaged one another in a rousing battle of bravado, in which each tried to topple the other by bashing shoulders together like the horns of great mountain goats. When finally one lost his footing after an especially great shoulder charge, the circle of colorful onlookers erupted in whoops and laughter. Although we were under an hour into our 13 mile trek, the *chicha* flowed freely as cups and corn passed hands throughout the crowd. The location of these festivities regarded my answer as to why there had been no ceremony in the village below. Through the mist and across the valley, jagged mountain Apu rose proudly from the earth in a sweeping crown of Andean peaks. Rivers ran down the far mountain's face, and a hillside teeming with prosperous cropland could be seen in the valley below. Despite the rambunctious energy of the gathering it was clear that this was a sacred place, boasting all of the elements present in the village's collective dream depicted in that child's drawing so many years ago.

After the clearing's festivities had concluded, the party's contents were rewrapped in their *mantas* and the parade continued ever upwards. The grade was steep and the terrain rough, but the people of Huama charged unstoppably around the borders of their home. In addition to the colorful dress of the community, some people carried Quechua flags by hand or jutting skyward from their *mantas*. These colorful checkered banners waved valiantly as the group marched on, signaling to everyone around them that this was a day of pride. Seeing these flags again brought me back to my initial introduction to them in Cuzco so many months before. They had signified heritage then, and I wondered if all this time they had been flying above the homes of those who had been forced to leave their communities in search of

education and employment. A constant reminder of who they were, and a rebuttal to a globalized culture hell bent on their systemic adaptation to industry.

Muddied and breathing ragged, Franco and I arrived at the site of the second parade party of the trek. This area was situated around an alpine lake high above the village we had started from. The music, drinking, and games recommenced, and my slowing pace awarded me the incredible opportunity to watch it all unfold from the ridge leading down to the lake. Once again the trekking resumed just as quickly as the party had, and the collective drunkenness from the *chicha* had some of the more musically inclined trekkers continue playing as they walked. As we pulled away from the lake, it struck me just how expansive the territory of Huama truly was. Before this event, my time in the community had seen me spending time on what I realized to be just the outskirts of the village's center. Even so, Nativo and I often walked for an hour or more to reach some of his more remote parcels during my initial stay. Given the remote wildness of our current location, I almost couldn't believe that all that we had traveled was home to these people. Given their pervasive environmental ethic, they held a responsibility of protection and coexistence with this massive amount of land, and had done so for hundreds of years.

I was a temporary visitor in this place, but it struck me that I may not have been the only one seeing these extensive lands for the first time. I remembered the children pilling out of the collectives that same morning, and it occurred to me that those who had spent their whole lives in Cuzco would be just as unfamiliar with these reaches of territory as I. It is one thing to be of Huama descent and see the village, but another entirely to walk with your people across swaths of healthy, native, breathtaking land and know that it has been home to you since time immemorial. In our initial conversations about the Linderaje, Nativo had described this annual practice as a reminder. Upon the borders of Huama I realized that this stood not just as a reminder to those who lived on the land, but to those beyond its borders who had not yet had

a chance to do so. A reminder that no matter where they had been born or made to migrate, this land of beauty and plenty had always belonged to them, and they in turn to it.

The *chicha* sat heavy in our stomachs as we slogged up the final miles of the grueling trek. The last leg of our journey took us through waist-high grass that soaked our clothing as we waded through its dewey green stalks. Despite the physical demand of the tradition, music and morale continued at a high swell as we marched. Distantly at first, but increasing in volume, we began to hear the competing flutes and drums of the other group. As the bright colors of the approaching mass came into view over the horizon, we knew the trials of the day were coming to a close. The community's reunion took place in a great field flanked by crumbling rocky buttresses on either side, with a steep path back down to the community falling like a river through the middle. At this gathering point, we feasted. Women from the community had made the short but steep trek up this middle path, and brought with them all the delicacies the Peruvian Andes had to offer. Cuts of meat from cow, to lamb, to alpaca were distributed liberally, as people filled hands cups and plates with the harvest of the closing wet season. A bounty of corn, fava, quinoa, and endless variety of potatoes fed the entire community as the dancing and drinking continued. Even at the hike's precipice, there was no formal offering to Pachamama. Today was a gift in itself; nothing need be requested or groveled for. An air of comfort and gratitude filled the air, for community and bounty, in a manner that the omnipresent Pachamama surely felt.

Upon returning to the village below, the festivities continued as the sun made its way towards the cusp of the horizon. Coming down from the mountain the celebration took on a much different air. The drinking and dancing continued, coming to an even bigger swell as the eldest members of the community who could not make the trek joined the descending mob on their march towards the town's school. These elders walked proudly along with the men, women, and children returning from the Linderaje to the athletic square of the school center.

They filled the square in a circuit of dance mimicking the Linderaje itself. Surrounded by music and the rising scent on yet another upcoming feast, the community made its way as an unbroken cycle through the concrete square. From the weathered skin of the town's oldest elders to the fresh faces and wide eyes of infants wrapped in mother's *mantas*, the community walked the same pace through the unbroken thread of culture that bound them all the same. I was escorted to a nearby *hospidaje* by Nativo, where I watched from the balcony. From the elevated position, I could see the whole community of Huama slither in and out of the square like the sacred symbol of the snake that connects the Quechua to the world beyond. I was flattered to participated in the Linderaje. I had been embraced by the community in an act of utmost hospitality, but as I watched the eyes of a child follow the waving rainbow flag of the proud Quechua man ahead of him, I knew that I had no place in this leg of the march.

At this point I was whisked into another home by Nativo, where his wife was waiting with a few other community members I had met throughout the week. Using her husband as a translator, she explained to me in her beaming smile that she had prepared a meal special for my birthday. After the whirlwind of events that had taken place that day, I had almost forgotten that I had just turned 24. We drank strawberry *chicha* and ate a starter course of purple Andean corn, both of which were considered rarities reserved for special occasions in the community. After our hors d'oeuvres and a bit of singing, a table cloth was removed from the center of the table to reveal a feast of *cuy* prepared special by Nativo's family. *Cuy* is the Quechua term for meat from a guniea pig, and is another rarity in the community. The initial shock on my face made the room erupt in boisterous laughter, as it often did when I let my gringo colors show. Upon further reflection, eating guinea pig would not even be the strangest thing I had done in the last 12 hours. We poured each other more cups of strawberry *chicha* and dug in to the feast before us, joking and laughing and reveling in the day.

After our rodential feast, I was brought back out to the balcony to witness the final element of the day's traditions. Several members of the community had surrounded a eucalyptus tree, all armed with machetes and strong stances. The rest of the community stood quietly and looked on, as the Alcalde of the community took the first swing at the young tree's supple trunk. They went around the circle taking swings as Nativo explained the tradition to me in detail. This tree had been planted at the end of last year's Linderaje and once this tree had fallen, another would be planted in its place. As the whacks of the machetes echoed through the square, he explained to me that the man who effectively fell the tree would be awarded its lumber, along with a seed from the fallen tree. He would keep the seed safe for a year until the next Linderaje, when he would return the seed to the soil in place of the fallen tree.

This year's tree was young, and it didn't take long until a powerful machete swing brought the trunk gracefully down to the ground below, its young leaves bedding its canopy from a crashing fall. The crowd let out cheers and applause as the year's victor took to severing the last fibers that held the tree to its base. Before even securing his prized lumber, he removed a seed from the upper reaches of the tree, and the Alcalde came forth from the crowd to speak a prayer over the unassuming seed in Quechua. The man pocketed the seed to further applause before the tree was hauled away and the celebration continued. The pocketing of the seed marked the formal end of the Linderaje, and I thanked Nativo and his family for all of their hospitality and tutelage. I assured him that this experience had been one of great personal growth for me, and that it would not have been possible without him and his community's kindness. We embraced, and he explained to me in so many words that my visit to Humama had meant a lot to his community as well. With eyes closed and hands talking, he recalled to me the skepticism of his community towards outsiders and the burgeoning industry of tourism. He spoke of the importance of culture in the community and the anxiety that traditions like the Linderaje may be lost the more they integrate with the growing tourist culture

of the Sacred Valley. He told me that my genuine curiosity to learn about the nuances and histories of their culture, as well as my willingness to share my own had left an impression on those in the community that I had had a chance to speak with. After another embrace and a promise that we would keep in touch through Franco, I boarded a collective full to bursting with *chicha*-sedated Quecha bound for the city below.

Ruined Wonders of the New World

Upon returning to Calca, I packed my things and said goodbye to the two women and cat I had been living with. I was headed to Cuzco to identify some medicinal plants using resources at ECOAN and the nearby university, as well as take one last dip into the gringo trail. My plan to solo hike the Salkantay trey had gone up in smoke after a record breaking mudslide had washed out large sections of the trail, killing 2 women and destroying a crucial bridge along the route. In accordance with this, I scaled back my plans to a morning hike up to the Machu Pichu from the nearby tourist town of Aguas Calientes, and caught a bus from Cuzco to the bustling town the next day.

Arriving in the Aguas Calientes was a jarring experience after my quiet stay in Huama. My bus dropped us at the terminal, and the paved streets and lively town squares were lit up by fluorescent streetlights in the dizzying insomniatic style of a Western city. Market stalls filled any empty crack in the tightly packed settlement, and tourists perusing the vendor's wares clogged the arteries of the alleys running through the city. I stopped at spots along the market, reaching down to feel the woven texture of bracelets, blankets, and ponchos as I went. I had learned to recognize the synthetic fabrics that were common in these tourist markets, and their factory-made fibers flickered like fools gold in my hands. I found a tour group that would handle tickets, lodging, and food leaving the next morning, and begrudgingly offered up my 80 Peruvian Soles to the industry I had developed such a complex relationship with for the last 3 months. I mingled with the international group at the hotel's provided dinner, before retreating to my shared room. I laid in the starchy hotel bed for a while before drifting off to sleep. I was anxious to see the lost city for its position as an archeological marvel, but mostly so that I could leave its western bubble and return to the backroads of the andes in which I had grown comfortable and curious.

We woke before the sun the morning of the hike and ate a simple breakfast of oatmeal and juice before heading toward the gates of the morning trek. Already there was a mass of people waiting to see the wonder of the world. I did not blame them or hold any ill will towards the group of tourist for their participation in the industry. I recognize that I was given a unique opportunity to connect with the culture of Peru in a way that very few tourists passing through were privy to. Besides, I was one of them them; waiting in the same line to see the same marvel despite what disruptive forces it may have been funding. When the bell rang and the gates opened we were off like cattle out to pasture. The sleepy crawl gradually picked up speed as our bodies began to move and our blood began to flow. Immediately I could see the difference acclimation makes in an uphill battle. After three months in the sacred valley, my lungs had reached a strength rivaling many of the Quechua who called this land home. During the Linderage just a week before, Franco and I had brought up the rear, falling behind even children as we pushed uphill. As I climbed the thousand step to the lost city of the Inka, I found myself weaving between groups and breaking for air half as often as those around me. Within the first 10 minutes of the hike I had totally lost sight of my group and ended up completing the final sections of the steep hike with a group of French soccer players who would normally far outclass me in athleticism.

We arrived at the ticket center before many of the buses had even made their way up the winding mountain pass. We were some of the first people in line for the Machu Pichu that day. With no one in it, it looked as though it had been abandoned in a hurry. Many of its structures still stood sound and proud, as if waiting for the Inka families who had left them hundreds of years ago to return and continue about their daily lives. As the sun climbed higher, the hordes behind us began to fill the impossible silence of the empty ruins, and soon enough even the loneliest corners of the city were occupied. Watching this process felt like watching the unfolding of the sacred valley's future, and the conflict in me swelled to a fever pitch. Like the valley itself, most of the people who now occupied this sacred city would not stay for long.

They would learn only what their tour guides could fit into their allotted time period, and would leave with souvenirs and memories of a Peru curated to their increasingly Western expectations.

This is not to say the experience would not touch them, and in the context of their time spent shoulder to shoulder with the ancient culture would likely inform their perspective on the timeline of the world outside their own. Still, I couldn't hep but think back to my parting conversation with Nativo in that moment, and how genuine curiosity and openness of experience had created real cultural exchange. Watching the mob of tourists fill the ancient stonework of the lost city, I realized that it was not in the grandeur, but in the small moments between where true connection had taken place for me. I had seen the soul of Huama in the dinners eaten with Nativo's family. I had felt the strength of its community while working the potato fields with its residents. I had experienced the continuation of its culture in the eyes of the children experiencing its traditions for the first time. I knew that witnessing a marvel like Machu Pichu may create respect for an ancient culture as it stands today, but I doubted that it would ever create the understanding for the ethics and way of life that formed the roots from which this culture grew.

I left the lost city with an odd taste in my mouth, and an even stranger feeling in my gut. While I waited for the rest of my group, I wandered through Machu Pichu's eager crowds and found myself in the cafe built for those in my exact situation. Purchasing the cheapest item on the menu in exchange for the cafe's coveted wi-fi password, I sat down at a small table with my slice of apple pie to see what I had missed. Across party lines and all across the globe, it seemed the world was fixated on one thing; a newly discovered illness that had been given the temporary nickname "Corona." The virus had made its claim on Europe and Asia over the last month, and infection reports had been popping up in the the remaining continents within the last week.

The next few weeks went by in a panicked blur as Peru, myself, and the world around us attempted to navigate the unstoppable and cascading crisis' that the covid pandemic created. I was able to make my way back to the country's capital city of Lima in a feeble attempt to return home before international borders closed in all directions and I found myself trapped in this foreign land. The industrialized city of Lima is practically incomparable to Cuzco and its antiquated ways of life, and the sense of impending doom, global confusion, and unfamiliarity only accentuated the experience. The city had entered a state of martial law as armed military personnel patrolled the streets, searching for any unauthorized tourists or civilians who broke curfew or lockdown protocol. More than once I was stopped by these roving military gangs, and can vividly recall being cornered by a group of military police with AR-15s while going for a run to clear my head. The leading military personnel threatened me with jail and deportation, to which I responded that in my current situation I would welcome deportation; Being out on his streets was not my choice and I wanted more than anything to return home. This must have elicited some form of sympathy in the soldiers, and they let me go under the contract that I would return to me lockdown location immediately.

My lockdown location was an Airbnb that myself and a group of six international strangers had rented after being ousted from the hostel where had booked rooms in during the early days of this strange new world. We remained in the cramped space until one by one the rental's residents were saved by their countries of origin. The German went first, spending only a few days in this hostage state. She was followed by one Canadian and then another, while the rest of us checked our emails feverishly for similar news. The Australian was one of the last to go, as all of the Australian airlines went bankrupt within the first two weeks of the global lockdown. His country and its people banded together to charter private flights back to their motherland, and still we Americans remained.

After two weeks had passed, myself and a man my age from North Dakota came to the realization that our country was not coming for us. Breaking every lockdown restriction in place, we decided our only hope was to make it to the U.S. embassy nearly 8 miles away. We left under the cover of night and did our best to keep to the alleys and tightly packed residential areas of Lima. Our progress was slow and indirect, with our large backpacks full of travelers gear doing little to help our progress or stealth. When we did eventually arrive at the embassy, we found we were not the only ones who had felt abandoned by our government. We joined a line of stranded Americans stretching several blocks through Lima's empty streets. We waited in this line of broken patriots for nearly three days until a stroke of luck saw openings on a morning flight to Miami. A bus from the jungle bound for the flight had lost a tire on its way over the mountains, opening up hundreds of seats to the tired huddled masses groveling in front of the embassy. We said a thankless goodbye to the walls of the brutalist structure we had called home for the last 60 hours, and signed forms holding us accountable for the flight's fees. Even after all we had been through, we would still be footing the bill for our hard earned rescue. I was ecstatic to be escaping Peru, but I can't say I was thrilled to be returning to America. We were corralled in a lead-legged shuffle to a military base, in which we were processed and identified for 4 hours before eventually boarding our flight home.

Sitting in the meager seats of the flight I had waited so long to board, I felt an immediate wave of relief wash over me. Hiding behind that feeling, however were a million others, none nearly as gentle or easy to define. My life for the last three weeks had been defined by survival and purpose; I had to get home and couldn't allow myself to lose momentum until that goal was achieved. By the time our savior flight let Peruvian soil, this survival instinct disengaged, and in a surreal finale to my months in Peru I wept for the world to see. My project was over, and had come to a close before I could answer any of the questions that drove it. The world I knew was gone, and even after just three weeks I knew this virus had killed any sense of normalcy I had grown accustomed to for better or for worse. I was finally

coming home, but would return to a shell of a world with no prospects for housing, employment, or purpose on the horizon. With tired eyes and new levels of disgust at my home nation, I dragged my defeated spirit once again back to D.C.

Hiraeth

My time back home settled into an unsettling routine of confusion and dread. I had returned to my childhood home and my time in Lima had left a deep scar in me. I often thought about the community I had briefly been a part of in Huama and how a place that relied so heavily on communal interaction would cope with this new world where everyone around you was now potentially a viral time bomb. The news outlets that I had so looked forward to reengaging with just weeks before had become a source of constant anxiety upon my return. Misinformation was rampant in these our end of days, and it quickly became clear that I should take everything written in this state of panic with a grain of salt. My one solace in the void that the world had become was that I was not alone in it. Nearly all of my friends and peers had been rendered unemployed, and their sense of dread and confusion mirrored my own. Given my affinity for the international, I also had several friends who had seen great adventures and passion projects cuts short, and were left with little to show for their previous bravery in choosing the path less traveled. I spent my days sifting through photos from my trip and getting lost on nearby trails on my borrowed bicycle, but mostly just waiting to see what happened next. I was bored to tears of this cycle of sleeping and wasting time until I could sleep again, but any change to it was nearly always negative.

Everyone was angry, and for a glorious moment, everyone's anger was aimed the same way. People had lost their jobs, their homes and their lives, and the government to whom we submitted so that we could be cared for in return did little to help anyone. Unemployment had hit a record high that rivaled the great depression, yet corporations received a substantially larger bailout than anyone equip to help the millions of Americans who were in real danger. I was disillusioned. I had learned much about the darker sides of my country while in South America, and how it had used and manipulated much of the world for profit in an outright psychopathic manner. Even in hearing these stories directly from the mouths of the Venezuelans, Chileans, Cubans, Brazilians, and many more directly effected by them, I

somehow believed that the barrel of America's insanity would never be pointed at me. And then I was left to fend for myself in a foreign city while the world crumbled around me. And then George Floyd was murdered by the law in broad daylight.

George Floyd's death and the violent video that it produced sent shockwaves around the world. Civil unrest had been visibly mounting for months since the beginning of the Covid pandemic, and the killing was a breaking point for many Americans. Black people were murdered by the police often in my country, and I had learned from a young age that they were not on my side. As an entire nation lost their homes, jobs, and livelihoods, they learned the hard lesson that the police force and the government positioned behind it were not on their side either. Within a week, riots had erupted in every major city across this great nation, and for a brief moment, covid took a secondary position to the nationwide outrage. Visceral images of tear gas, screaming civilians, and burning structures broke the monotony of the covid protocol updates that had recently dominated media. Even in my disparaging state, I was ready to see change happen however it had to, and I gladly broke quarantine to join the masses of my disillusioned countrymen at the gates of the White House. Growing up in D.C., I had been to the while house countless times. When I arrived at the marble monolith with my two furious friends on our first day of protesting, I was not prepared for what I would see. The iconic image of American liberty had been barricaded a block out with fences 12 feet high. The fences were guarded by police officers armed to the teeth in military grade armor and weaponry. If there had been any doubt regarding the real role of the police force in America, it was dispelled for me that day. The president of the United States had segregated himself from his people with an army between them; and this came at a time of crisis when the people needed him most.

For the next 3 days the protests remained largely peaceful, with flaring clashes coming periodically from both sides. Sometimes the people's side would throw a plastic water bottle,

and the violence that ensured left the crowd blind and battered. Sometimes an officer would swing a baton at a civilian who was encroaching on their personal space, and the conflict that ensued would end much the same way. During one of these sparks of conflict, the president's militia clashed near the section of the crowd that I occupied. The chaos that ensued felt like a bomb had gone off. Some people fled to the back, while others rushed to the front. The burning mist of pepper spray filled the air above the crowd. The sound of it all was a level of collective fear and hatred that I had not experienced amidst the frenzy of Nicaraguan uprising or the horror of Honduran drive bys. My eyes tinged from the mist and I was knocked in every direction at once by the herd of scattered civilians. The scene was a blur, but through it I can recall clearly the sobs of betrayal and loss, from a girl no older than 14. I watched her twisted face in flashes through the wave of the crowd. She held her hands to her face, and clutched her swelling eye, and cried bitter tears as blood streamed freely down her horrified angelic face.

I retreated to my quarantine and made a vow to take this isolation as far as it would carry me. In the face of global suffering, the dreams of a nations people had been met with brutal violence. My experience at the gates of the White House had shaved away the last shred of hope I had for this world. I stopped going to the protests, I stopped engaging with dissenters and change makers in the media, and I stoped believing that anything real would come from the good will of my friends and countrymen still on the front lines of the failed revolution. I was convinced that there was no tragedy; that the world was operating just as it was meant to and that it simply did not want to be saved. It felt like the bittersweet hand of fate that I ended up back home when I did. I was emotionally hollowed to have lost an opportunity that meant so much to me, but the collective rage of the movements that descended upon my city made me believe for a moment that it was part of a larger plan. Two months into quarantine however, I no longer believed in fate; I no longer believed in anything. With nothing left to fight for, it felt silly to be spending my days amidst such passion and talk of

change. I enjoyed nature, and began to ride my bike farther and farther from the noise of the city. These rides had once taken me into the wilds of suburbia to keep a safe distance from others in accordance with covid protocol. By the end of my time in D.C., I rode out of the city because I just didn't want to see anyone. Isolation is hard to find in a city of 7 hundred thousand, and it was made even more difficult by the fact that seemingly every resident had taken up cycling in their newfound free time. I needed to get farther away. I needed to leave the city, I needed to leave the passion, I needed to leave every drop of faith I had behind.

Summer of the Red Sun

My time in Colorado was spent in a state of purgatory. I had escaped the sociopolitical turmoil of D.C., but the mask of this nation had been removed and I could not forget its true face. I was living in the town of Avon in the spine of the Rocky Mountains and working as a sustainability intern for the Climate Action Collaborative. I was working on projects to calculate and reduce the carbon emission potential of residents of Colorado's Eagle County, and my ability to work remotely on these projects afforded me ample time to explore the surrounding area in an outdoor, covid-safe manner. The lockdown protocol had become a new normal for myself and those around me, and its state of resting panic seeped even into the tranquility of the remote mountains I inhabited. This global crisis had turned out pretty well for me all things considered. Many of my peers were still unemployed or back to living with their parents, and my new situation in the Rockies afforded me a lot to be grateful for. Still the events of the last three months sat like a poison in my stomach. I could not keep the injustices of this cruel world from darkening my bright days in Colorado. I had experienced firsthand the lack of care this country showed for my life or the life of its people, and patriotic pride was not a cave I could crawl back into. Below my surface I felt anger and betrayal, and no amount of environmentalist community action could change that. My mindset twisted my sustainability work in Avon into a microcosm of the world's disparity. The difference in resources between the wealthy semi-annuals of Colorado and the dedicated Quechua of the Andes who held true ethics of conservation were painfully obvious to me given my recent experience. It felt like lip service, as a big population in the Vail valley lived within the global 1%, making their money from international business, import/export, and the fossil fuel industry. The work I was doing to reduce their commuter carbon footprint felt meager in contrast to the impact of the industries that had made them rich. I felt that I was just another member of their endless serving class, offering them moral absolution with a smile and a silver platter.

I came home from the Collaborative defeated most days. I was housed in one of the workers quarters of a resort hotel in the middle of Vail. Objectively, it far exceeded anywhere I had been living in Peru. I had a room with a mattress, a shower to myself and a kitchen with a stove that I didn't have to light manually. The furnishings were minimalist, including only a couch, a lamp, and a dresser that I had borrowed from a friend in town. The light switch in my living room did not work, and was never meant to. The ceiling above the room was completely blank, with no fixture to circuit itself to the lonely switch on the wall. I often spent my time in my quarters staring out the window. I had a view of the town from the second floor, and could watch the families and groups of tourist wander about the European-style chalet plaza from my elevated perch. From my window, I also had a view into the penthouse floor of the French Cheteau across the way from my room. I couldn't see much of the top floor's great ballroom given the angle, but the one thing I could make out was the chandelier. A vast arrangement of delicate glass hung provocatively from the tallest heights of the hotel. Even on gloomy days the crystalline behemoth could illuminate the far off room in a regal glow, as if those it shone on didn't even have to feel the rain. On those rainy days I sat in my dark room and seethed at the gaudy monstrosity, boiling at its pompous beauty. Try as I might I could not look away from the gross disparity of the two worlds I was mentally coexisting in, and this feeling was further compounded by the devastation covid was causing across the globe. I was furious at the lack of U.S. response to the deadly virus that was spreading like wildfire and taking lives on a cataclysmic scale. More than anything I was furious that the reason behind their lethargy pivoted on the wellbeing of the economy. If I had learned anything from my time in the embassy line in Lima, it was that my life did not matter to the nation I had once trusted to protect and enrich it; and the following year taught me that no one else's did either. This prioritization of economic gain over human life cemented in my mind that we were nothing more than fuel to America's capitalist machine, and that we would continue to be thrown into its roaring flames until it destroyed the entire world.

During my summer in limbo, I escaped as much as I could to the mountains. My deteriorating mental state had made me sick to the resort that surrounded me. I continued on in my position at the Collaborative, but any drive I had to erect real environmental change was all but extinguished. Vail happened to be surrounded by one of the most beautiful and hallowed stretches of mountains in the country, and I spent all of my free time lost in its forested folds and striking ridges. Despite my brief hiatus in D.C., my body and lungs were still strong from my time in the Andes. I was venturing far from the marked trails of the Vail valley and well outside of my comfort zone. I enjoyed the challenge of the mountains and being away from the exorbitant wealth of the valley, but my time in the wilderness had deeper effects than that. High in the alpine, I often found myself looking over a cascade of mountain peaks as far as I could see, and for all of my anger and bitterness towards the world I could not deny its beauty. I had all but given up hope on humanity, content to watch it eat itself alive if it so chose. In the moments of sublime to which I often escaped during my summer in Colorado, I realized that I could never feel the same way about this planet. I came to the begrudging conclusion that there was no isolationist solution. I knew that these environments were pristine due to lack of human interaction, but also that they would not stay this way. Ecosystems are not closed circuits, they do not follow the lines with which we have arbitrarily vivisected this planet. They are effected by one another at an ever increasing scale that eventually grows to encompass the entire earth. No one could enjoy these places for long if others were left to be polluted. I found truth in these moments of doom and reverence. I came to the realization that to give up on humanity would be to give up on the earth, and that was something I simply could not do.

It was my luck that I rekindled my faith in humanity before the fires began, as faith would often be my only comfort in the coming months. Colorado was experiencing a record breaking drought year, as it had the previous two years before. As summer temperatures swelled and the rivers ran dryer, wildfire began to blossom throughout Colorado and the

Western states. Wildfires are a natural element in the arid climates and dense forests of these places, but the chaos that ensued late that summer was unprecedented even for the area. Whole towns were lost, people were displaced, and millions of acres of forest were reduced to immense burn scars in a few short months. When the fires began around Vail, the resting anxiety that the region felt through the confluence of covid, climate change, and the resulting economic crises was fanned into a full panic. Those who could left, those who had to fled, and the rest of us simply held our breath and hoped for good winds. The air quality plummeted; it was unsafe to recreate outside, and there were days that the smoke blew so thick I could not see the chandelier from my window. Down valley where the fire blazed in the canyon nearby, the eastward winds rained ash on the town of Eagle and its residents for 2 days before evacuations started. Fire crews worked tirelessly to keep the uncontrollable flames from consuming the American West. Skyrocketing covid cases had nearly cut fire response numbers in half, and they struggled to fight the growing disaster. From California to Kansas, smoke filled the air in a heavy blanket. The dismal air quality that summer caused the sun to loose its regular shine and take on an ominous, blood red glow. Looking up at that once blue sky, the apocalyptic glow of the red sun bore a hole through the thick smoke, like a sign from the divine of the end of the world as we knew it.

By the time the smoke cleared, it was undeniable that we were living in a different world. Something had shifted that summer, and it seemed as though the sins of our fathers were coming to bear on us all at once. The need to satiate the global market had kept the pandemic in full swing, the social turmoil that had bubbled below America's thin skin had finally burst forth, and the changing climate had emboldened the destructive forces of nature to a level that could no longer be ignored. Humanity needed to change, and no where was this more poignant than the case of the California wildfires. This trifecta of procrastinated issues had compounded into the most destructive wildfire season that the state had ever seen, and it would bring lasting changes to their treatment of wildfire management. In the days before

Covid, a large part of California's fire force was composed of convict crews, who could gain training and experience in firefighting while they were incarcerated. Because of a loophole in California's legal system however, those released were faced with huge barriers in transferring those skills into employment on non-convict fire crews. In addition to this, California's high incarceration rate put its prisons at an almost constant state of capacity. This led to an inability to follow statewide covid protocols, and an immense rate of the virus among the prisoners by the time the fires started. The California prison system's gross violation of human rights culminated in a decreased wildfire management force when the state needed them most.

Many regions of California are pyrophilic in nature; requiring regular, natural occurring fires to maintain a healthy ecosystem. Despite this natural prevalence of fire in its ecosystem, California's forest service has suppressed any and all fires in the state for over 100 years. This prevents the natural burning of brush and dead trees, causing massive fuel buildups in California's forests, and seemingly endless fuel from which uncontrollable wildfires can feed. This buildup of fuel compounds with the growing issues of desertification and the warming climate in the state, which are both widely considered human-driven issues by the climate science community. As the state experiences annual exponential growth in the destructive force of its fires, a shift is occurring in the management plan of California's fire authorities. At this pivotal crossroads of the future of fire management, the original stewards of the area's ecosystems have been waiting impatiently. Before (and even during) this strict anti-fire regime, the indigenous people of California have been using their knowledge and connection with their ecosystem to utilize fire in a beneficial way.

Good Fire

For thousands of years before the Spanish made their way to California through Mexico (and for hundreds of years after that) the many native groups of California have harnessed the power of fire as a tool for ecosystemic design. The frequency of fire even on a large and "uncontrolled" scale is natural in the area, and is essential for ecosystem function stretching all the way up into what is now Oregon. Because of this, many plant species that prosper in California have developed adaptations to defend against, recover from, or even benefit from fire. The bark and limb constitution of the iconic California Redwood tree (*Sequoia sempervirens*) has evolved to withstand even the hottest of blazes without damaging its core or canopy. Many shrubs and understory plants have also developed systems of storing nearly all of their nutrients in their roots in order regrow quickly and dominate the forest floor after sweeping brush fires. California pine tree species such as the lodgepole pine (*Pinus contorta*) have even developed serotinous cones, which are sealed with a substance that only melts at extreme temperatures. Only after these cones are exposed to wildfires are they able to release their seeds, dispersing saplings onto the freshly cleared forest floor.

Applying the principal of "good fire," precolombian native groups put fire to their land intentionally. Using a temporal cycle of burning in the wettest seasons, they were able to create a mosaic system of varying stages of forest emergence through the use of fire. This not only allowed them access to a greater array of resources close to their villages, but increased the overall diversity of their ecosystem by encouraging different growth cycles in the same area. In this mosaic of burned forest, Californian natives may have one plot burned recently, which allows for weaving material and bush berries to grow as the primary emergent species. Nearby to that, they might have altered the intensity of a fire in a forested area to clear grasses and understory, leaving only the shade of trees and emerging samplings. This would act as ideal habitat for grazing deer and elk, and provide the village with bountiful hunting ground. In this process of encouraging natural and cultural resources essential for survival they were also

accomplishing something of far more spiritual significance; creating a symbiotic relationship with fire and the land that it stewards.

The arrival of Americans to the Western coast of the continent brought with them existential changes in the ways that these natives lived. The white man brought with them a fear of fire that had no place in California's infernal ecosystems. The newcomers did not hold the necessary relationship with the ecosystem, and transplanted thier Western systems of monoculture farming and ranching to the land. From the newcomers' perspective, fire was a destructive force that that threatened their crops, cattle, and agrarian ways of life. The introduction of the Forest Service would see this fear channeled into action, and result in the fire suppression ethic that is now pervasive in the state. This era of suppression not only acted to extinguish the fires that burned throughout the state, but the many cultures that had grown dependent on it. With fire vilified so vehemently, those natives who would seek to use it as a tool were persecuted for the relationship they had with the resource. During an already immensely brutal era of U.S. history, the suppression of fire coopted with the era of marginalization of natives in California. In an attempt to "control fire" the governing bodies of California committed atrocious acts of cultural suppression, including the harsh prohibition of many cultural practices, the kidnaping of native children for the process of forced assimilation, and the violent genocide of native communities throughout California. This continued for multiple generations, as traditions, stewardship ethics, and native lives were lost to the oppressive and thinly-veiled land management regimes. Many submitted to the new American dictatorship, fearing for the lives and safety of their families if they so much as spoke in their native tongues. Luckily, many kept the fire within them, practicing traditions and keeping their culture alive in secret in hopes that they could one day burn again.

As the smoke rose high in the California skies, the day that the California natives had been waiting for finally came. California has experienced an undeniable increase in the severity

and destructive force of its fires for the last 10 years, and amidst the flames its governing bodies have finally began to swallow their pride. California, among other states, have been implementing prescribed burns to reduce fuels during the colder months in attempt to mitigate the intensity of the fires when they come. In more recent years, they have also been seeking the wisdom of the land's original stewards to do this properly. One of the leading partners in this effort is a woman from the Yurok tribe in northern California. Speaking to Margo over the phone, she mentioned more than once the importance of time spent on the land in understanding land management. Her people did not always have the degrees and certifications that the forest service boasted, but in her eyes they had something far more important; a relationship with the land and its processes dating back thousands of years. For this reason she and her cultural fire council are invested in allowing the native people of California to reclaim the practice of cultural burning. We spoke at length during our initial conversation about the concept of traditional ecological knowledge, an endless wealth of generational information ingrained into her tribe's culture at its roots. I thought back to Benigno's farm and its complex polyculture rotation system, and realized that it was likely that his base of knowledge came from the same place; that information learned from a training or textbook was dwarfed by the wisdom that comes from the reliance and reverence of true subsistence on the land.

Tools of Renewal

I drove the winding backroads from the California coast up the foothills of the Sierra and felt a moment of anxious reminiscence at my journey thus far. It had been over a year since I was forced to flee my positions in Peru and put my pursuits on indefinite hold. As I took the curves that cut through the endless hills, I wondered quietly to myself if I still remembered how to do this. In many ways, my life had moved on from this project. I had moved to a new city and built a life for myself despite the unprecedented nature of the current world, but suddenly I found myself again en route to a remote and unfamiliar place. I was headed to a town called Hoopa, which was the central point between three major Native American communities that sat along the Klamath river. This town was also the location of the Cultural Fire Management Council, with whom I had organized a meeting to learn more about cultural fire in California and its uses in the Yurok and Karuk communities. These two cultural groups had made strides in the work they had done with the California's central fire authorities in the current burgeoning age of collaborative wildfire management.

I camped down by the river, and met with Margo early the next morning. Margo was an incredibly comfortable and charismatic woman who was well used to hosting visitors to her community who were interested in her work. After a brief spot of small talk about the community and my journey to get there, we loaded into her truck and set out to see some burn sites. One of the first things that Margo taught me was why the council burns. We would eventually discuss the how and when, but she made sure to immediately stress the importance of why. The Yurok and Karuk of Hoopa conducted what she defined as cultural burns. This ideology shared many of the same methods used in the prescribed burning that was becoming common among forest service fire crews, but differed greatly in its intention and desired outcome. While fuel reduction and wildfire mitigation was a positive outcome of cultural burning, these were secondary to the primary desire to increase abundance of cultural resources. Most of the burning that is done in and around the community is done for the useful

abundance of hazel in the community, an essential weaving material for baskets and traditional dress in the community. If left to grow, hazel will grow woody and twisted, which can be used as firewood, but does not allow it its true cultural potential. After a burn, hazel grows long, straight, and flexible; making it a perfect material for weaving. The versatility and widespread use of this natural resource is a large part of why the Cultural Fire Management Council was formed. According to Margo, the years of fire suppression nearly left their community without access to this crucial material, and its disappearance led to severe endangerment of the traditions that surround its use. The council's organization of cultural burns has increased the availability of this and other important resources in the community, ensuring that their place in the culture can prosper along with them.

The idealogical difference between prescribed burning and cultural burning in California has led to dissonance and conflict even in the new frontier of fire management. Hoopa occupies a unique position in this dichotomy that has allowed it to prosper far ahead of other collaborative efforts. Many of the community members in Hoopa are affiliated with fire from a young age, and the use of the tool plays a big role in early environmental education within the community. This lifelong relationship with fire in many cases, has led to an unprecedentedly large percentage of the Klamath river fire authority organizations coming from Native communities in the area. This is not only the case with members of fire crews tasked with fighting fires and conducting prescribed burns, but with the higher ups in the organizations who play a role in effecting policy and fire management regimes. This internal Native influence has eased collaboration between the two entities. In the Klamath valley. This partnership has also led to the popularity of the TREX program in the Hoopa community, which seeks to train those interested in burning for cultural reasons in safe methodologies for the area. This represents huge strides in cultural fire, as the safe training of Native community members not associated with the Forest Service or California Department of Forestry and Fire Protection (CALFIRE) would allow a more community centered approach to fire-based land management.

After the crisis that resulted from lack of personnel on fire crews the previous summer, this prospect of a bottom-up approach to fuel reduction could mean reduction in costs and damages in responding to the fires of the future. The program also provides important benefits to the community members who choose to partake in it. Allowing more members of the Yurok and Karuk tribe to put fire on the land that they have historically stewarded would see them regain an essential element of their autonomy as land managers in California.

Throughout our tour, Margo and I discussed many things. We ebbed and flowed through topics of fire, land rights, issues of water scarcity, and culture. We drove the council's truck through groves of oak and pine, and the sparse congregation of the taller trees gave the forest a quiet, empty ambiance. Margo assured me that this was the product of seasons of restorative labor, as the community worked tirelessly to return the forests to the way they stood before their tools were suppressed. We drove by an endless tangle of brush and vines, and we stopped to admire the twisting mass of vegetation. Where we stopped, the shrubbery reached nearly as high as the trees, and one could not see anything but the maze of bushes and branches through the scattered trunks of withered oak. This was the forest without fire; a sorry state that much of the Hoopa community (and the state of California) had been reduced to during the century of suppression in the area. Margo described to me that the open groves we had seen on our trip out were cultivated with fire. The tool was used meticulously and intentionally to reduce the overgrowth and allow the forest to breathe. When the forest can do this, it opens up habitat for grazing wildlife, as well as accessibility to foraging humans. In this sense, fire acts as a connecting force for the Yurok people. In these pyrophillic biomes, fire was not just a tool for clearing forest in an efficient way, but a tool for ecosystemic renewal. Through the use of fire on the land, the Yurok were able to revive habitat that had once been lost. They were able to remove invasive species that had overgrown their forests and allow the fire-adapted native plants to prosper. The Yurok's use of fire was even able to bring more water to the surrounding ecosystem, removing the ground cover plants that would drink all of

the runoff bound for the tributaries of the Klamath. As Margo had stated previously, the reduction of fuels was a coincidental benefit in the idealogical drive of cultural burning. The true benefit to fire on the land was not to reduction, but generation of new life that is so essential to their ecosystem.

Fire as a renewal element extends beyond land management for the Yurok and Karuk tribes, and is prominently featured in spiritual traditions and ceremony in the community. Community gatherings in the form of traditional dances were abundantly practiced in Hoopa and its neighboring towns, and they all held different roles in the complex religious zeitgeist of the Yurok tribe. What struck me about the tradition of these dances were their generational transition through family structures. In a given village, certain families hold certain dances in high esteem, and become experts in their complex elements. These dances are often open to a large part of the community, but are hosted and led by the certain families that have been doing so for generations. This importance of tradition within the family unit is likely what allowed many of these dances to survive the long era of suppression by the U.S. government towards Native culture. To my luck and surprise, a ceremonial dance was being held at a site on the banks of the Klamath during my short stay in Hoopa, and Margo extended an invitation to the event. The dance occurring the following evening was a Brush Dance, and was performed for the health and wellness of a child within the community. These dances were common now, and open to the community, outsiders, and anyone interested in engaging with the culture of the Yurok. This was not always the case, and during the years of suppression in California these dances were often met with violent opposition by the military camps in the area. As smoke rose from the ceremonial pits of the Brush dances of old, these armed outsiders would descend on the community events, bloodying the sites that were meant to be used as a place of healing.

Given the brutal historical role that outsiders played in these ceremonies, I was apprehensive to participate in the revitalized tradition for fear of causing discomfort. Upon arriving to the event with Margo, I was greeted amicably, shown to a campsite, and even briefed by a storyteller of the community as to the origin of this dance. I have been asked not to share the explicit details of that story, but the themes of its origin center heavily on the natural world. In summary, there was a time when a community faced a crisis that they were unable to defeat. In an act of solidarity, the spirits of the forest took animal form and used their power to heal what ailed the community. The Brush dance that evolved from this was intended to mimic those original events, and request further healing from the spirits of the forest who had cured the humans in their time of need.

The Brush Dance

The Brush Dance ceremony took place by the river, and the community-made campground was full of those ready to observe and take part. The camp was separated into three main parts, all of which would play crucial roles in the ceremony. On one side was the men's camp, where the men prepared for their dance by dressing in traditional garb. The women's camp on the other side held the same role, and it was imperative that they did not mingle. In the center of these two camps was a large pit where the dancing would take place. There was already a fire burning in a ring of stones inside. Next to this fire sat the medicine woman, who stood over the child of the night's ceremony. The infant was swaddled in a traditional baby basket woven from the long, flexible stalks of the burned hazel plant. On the outskirts of the pit were a congregation of wooden benches lining the perimeter in three tiers. This stadium style seating allowed the whole community to witness the events of the ceremony below, even if they did not participate in the dance itself.

As people began to gather, I was amazed at the intergenerationality of the event. Infants, adolescents, young adults, and village elders were all in attendance to welcome this child into the community and wish him good health and swift recovery. The lack of participation by the adolescent and young adult age groups in many Quechua communities of the Sacred Valley was considered an existential threat to the timeless traditions of its people. This anxiety had been mirrored by the Naso of the Rio Terribe, and I was beginning to believe it was a common thread among indigenous communities and the threats they face in adjusting their culture to a modern world. Seeing this same age demographic not only in attendance but in active participation of the ceremony in Hoopa was a testament to the strength of the community's traditions. Despite facing one of the harshest and most recent cultural suppression regimes of the Indigenous cultures I've had the chance to interact with, the community has returned to its roots as a whole. There are no doubt those who no longer adhere to the traditions and ways of the Yurok, but the events of the night and those who

partook in them made it clear that the bonds of nature and community had retaken their place in Hoopa against all odds.

The Brush Dance proceeded in rounds, and the dancing went on until morning with breaks for the dancers in between. As the night continued, the dancers' traditional regalia grew increasingly complex. The first round began in street clothes, with some dancers in the pit holding quivers woven from hazel or staffs fixed with the vibrant feathers of mountain birds. After each round of drumming, dancing, and sending up intention to the Creator, the occupants of the pit returned to their gendered camps to change clothes and occasionally swap dancers for the next round. From the first dance to the last, the fire in the pit burned with cleansing smoke to heal the child and ease the journey of the community's prayers as they made their way to the ears of the Creator. The final dance of the ceremony took place in the first light of morning, and by this time street clothes had no place in the sacred pit. The dancers, who started in jeans and jackets, had gradually draped themselves in the many bounties of the forests around them. The men's feet were bare, and the women wore suede moccasins of deer and elk skin. The women wore dresses and the men skirts, both made from flowing and tasled deer pelts, many of which had been hunted by the community within the borders of their territory. Many of the men went shirtless, but both groups were adorned with beautiful necklaces that covered their necks and chests. Woven with beads, shells, feathers and bones, the intricate bibs rattled as the dancers ran, skipped, and jumped through the ring. At this point in the ceremony, all of the men carried some form of quiver, staff or bow in their right hand, and waved them forcefully as they offered their prayers to the healthy future of the child in his basket. On the heads of the women sat the crown of the Yurok culture; perfectly symmetrical hats, woven from the same hazel used to weave the iconic baby baskets. These crowns came imbedded with patterned designs made by weaving the burned and unburned hazel strands to create a smoky signature in the icons depicted around them. I had been shown one of these headdresses earlier in the week with Margo, and was instructed not to so

much as touch the sacred regalia, as they could only be held by women of Karuk and Yurok blood.

In these early hours of the morning, the cultural resources for which Margo and her community's burning was so important were on full display. The deer and their pelts, the birds and their feathers, the porcupine and its quills, the bushes and their beads, the hazel and its woven limbs. These were the elements that were essential to important cultural traditions like the brush dance. These traditions not only kept the community together, but kept their ethic of environmental connection strong through the same reverence and reliance that allowed the Quechua to act in such firm stewardship. I though back to that section of unburned forest we had looked upon the day before. Recalling Its twisting brambles and invasive overgrowth, I knew that none of these resources would be accessible in a forest with such poor health. It was the renewal of that sacred fire element that allowed the berries to grow and the deer to graze and the birds to flock. Without the use of this forest renewal resource, there could be no Brush dance. I had known from the beginning of my stay that fire and cultural suppression were linked in the history of the community, but I did not truly realize until now that this was the case because fire and culture itself were linked just the same.

The Steward's Ideology

My time in California would take me as far South as Mariposa, in the western foothills of the Sierra mountain range. I was headed to this small ranching town to meet with a Man named Ron, who I had spoken to that spring about his grassroots cultural burning work and his struggle for autonomy in the area. There was about 12 hours of highway between Hoopa and Mariposa, which gave me a lot of time to think and observe. I had never been to California, and had only the influence of music and media to guide my opinion of the huge state. I had heard tales of its natural beauty, and my media consumption surrounding the state had pushed themes of the bounty and eden-esque freedom of the Gold Coast. I learned quickly that these days of opportunity had long since gone, and my gut feeling told me that they may have never existed to begin with. Already my time in Hoopa made it abundantly clear that the "land of plenty" ideal that was sold to early settlers was not as vacant as advertised. This land was occupied and stewarded by the Natives who lived here first, and a majority of its bounty was due to their hard work. On my long drive through California, it seemed that most of this "endless bounty" had shriveled up. The years of human-induced drought had left the forests a dry, brittle shell of their original glory, and the bounty they once produced had been replaced with monoculture farms and ranch land. As I continued South, the environment grew increasingly dry. I was not yet in the deserts of Bishop or Los Angeles, but had traveled far from the misty forests of the coastal Klamath. Gone was the freedom I had read about in books and marveled at in movies. Driving through the Lake Tahoe basin, the splendor of the landscape was undeniable. This splendor, along with a promised escape from the hustle of the city, had caused a level of temporary urbanization I had never seen before. As I drove around the basin's namesake lake, throngs of cars and crowds of people to rival an urban rush hour buffaloed through the grandeur of the landscape. Adding to this Mecca of congestion was the billowing smoke from the Dixie and Caldor fire. This volcano cloud of burning forest acted as a backdrop to the chorus of chatter and engines that threatened to drown out the area's beauty. The Sierra Nevada range, which John Muir had once described as "The eternal flux of nature

manifested," had become another poignant example of paradise lost. I drove through the smoke from the young dixie fire, getting another glimpse of that apocalyptic red sun as I left the inescapable trappings of tourism in my rear view mirror. In the coming months, the Dixie fire would grow as only California fires can, and consume thousands of acres of forest on its journey to become the second largest fire in California's recorded history.

I rolled through the arid pastureland of central California until eventually I reached the town of Mariposa. It was an unassuming town, with just a couple hanging stop lights keeping unnecessary order on the few empty streets that cut through it. I met Ron at one of his oldest burn sites just outside of town, and we sat in the open clearing to hold conversation. Ron hailed from the North Fork Mono band of California Natives, a group who had also been using the renewing effects of fire for generations. The people of North Fork Mono were introduced to fire from a young age, as evidenced by Ron's granddaughter who came along for the events of the day. At only 9 years old, she had participated in multiple burns with Ron and his tribe, and was knowledgeable and enthusiastic about the use of the ancient tool. Ron explained to me that one of the first introductions children have to fire in his community is learning the smell of smoke. When smoke is in the air, its effects are felt by all in its cloud. As such, North Fork Mono children learn young to distinguish the subtleties in scent, hue, and density between campfires, controlled burns, and wildfires. This practice lets the children know if this is a dangerous or intentional fire, and the identification skill has long been imperative to the safety of the individual and the community.

As a young man, Ron used this affinity and knowledge towards fire to become a long time member of fire crews around California. He spent most of his time fire fighting for these crews, but in his latter years has returned to his traditions as what he calls a fire lighter. Ron stresses the important distinction that this title of fire lighter should not be granted to the crews of the California fire authority organizations who perform prescribed burns. In Ron's eyes, even

prescribed burns are just another form of firefighting, as their primary and sole focus is on fuel reduction for the mitigation of future fires. Like Margo, Ron burns for cultural reasons, and this holistic use of fire for renewal and ecosystem health as well as fuel reduction is what separates fire lighters like himself from the firefighters of the Forest Service.

Ideology and its place in fire implementation is of the upmost importance to Ron, and the lack of it in the forest service bothers him. In the forests around Hoopa, many of the rangers who dealt in fire came directly from Native communities, and their methods were gradually coming to reflect that. In Mariposa however, this was not the case. Prescribed burns in Mariposa burned hot and broadly, with little regard for the many important natural and cultural resources they often destroyed. In these burns, hazel, deer grass, snowberry, and many other important cultural and medicinal resources were treated as no more than a fuel source that had to be eliminated. Not only did this leave the natives of the area with fewer resources for their traditional uses, but it lowered the biodiversity of the area's plant ecology. This lack of biodiversity brought with it cascading effects all the way up the area's trophic ladder. In repose to their obtuse view of fire and resources, Ron had opted not to work with the Forest Service in favor of relying on his community and trusted partners to complete his burns. This was demonstrated firsthand, as we drove through a great field that Ron and his people had been stewarding for over 15 years. After so many years of restorative work, the large area resembled the mosaic system of burning that California Natives had utilized before the arrival of the Spanish. Judging not by calendar years, but observable status of the plants, Ron had put fire to the land where it was needed in the flora's life cycle. He had burned back bushes to allow access to berries in one plot. In the next over, his team had burned the year before to promote hazel growth. On the far side of the meadow an oak grove had been removed of its low-hanging limbs and burned of its surrounding invasive ground cover, allowing saplings to come up through the enriched soil. By burning intentionally in accordance with the needs of the ecosystem, Ron was able to create a veritable farm of cultural resources that

would have otherwise been razed to the ground by the prescribed burn tactics common in the area.

Refusing the assistance of California's fire authorities was not without its detriments. Ron's was a grassroots operation, and was funded accordingly. Many of the people who assisted with burns in this plot were seasoned veterans of fire, but this did not make up for their lack of funding in some aspects. The tools that they used were antiquated, and after digging fire lines, the vegetation was often lit with grill lighter or handmade torches. Furthermore, the truck that we traversed this area in did not belong to a tribal fire authority like the ones in Hoopa, but rather was Ron's own personal vehicle. The restoration work that the community was doing, and that the ecosystem so desperately needed, was conducted and funded by the community alone. Despite Ron's best efforts to secure funding form outside sources, this was nearly impossible to do. They were up against organizations backed by the support of California fire authorities and the connections that come with it. Later that day when we were out to lunch, the humble Mariposa dinner in which we ate was descended upon by a CALFIRE firefighting crew. They wore brand new matching uniforms, each equip with a personal walkie talkie and steel toed boots. The truck that they arrived in was branded proudly with the CALFIRE logo, and boasted an array of shiny tools as well as a portable hose system. In contrast to Ron's barebones setup, the extravagance of the CALFIRE unit seemed downright Monarchal. With so much funding behind them and their prescribed burn ideology, attempting to steward the land through cultural burning in Mariposa mirrored the trials of David and Goliath. Despite this, Ron refused to yield to this behemoth if it meant compromising the ethics so central to his culture. Despite recent changes in California's fire management plan, Ron's experience with cultural burning is still much more common than the idyllic situation in Hoopa.

While California's movement away form total fire suppression is a step in the right direction, its history of cultural suppression will continue to reign until Native people and their pervading ideologies are given a real seat at the table in conversations about the state's land management moving forward. The element of autonomy in Californian land management is not something that can be dismissed in these conversations. Some naives have expressed fear that working with the California fire authorities will create a relationship in which native labor is utilized while native practice and ideology is dismissed. Given the historic and current state of fire in California, this is a very justifiable fear for native people. The natives of California and their understanding of the state's complex relationship with fire and restoration fall far more in line with the ecosystemic needs of a state in the pivotal stages of desertification. In California's era of exponential fire growth and ecosystem degradation, Native autonomy and the realistic incorporation of cultural burning practices are imperative to the future habitability of much of the state.

1.5 degrees Celsius

My time in California had opened my eyes to many of the issues of conservation, environmental ethics, and the struggle for autonomy taking place in my own backyard. Although the level of wealth and infrastructure is so astronomically high in this country as compared to the places like Peru, those resources mean nothing if they continue to be held in the hands of the same few who would promote such pervasive systems of oppression. Coming away from Mariposa, I felt more similar to the defeated anger I felt leaving the protests in DC than I did leaving the indigenous communities of Peru. The Quechua faced many problems in their struggle for conservation of culture and environment, but even without the necessary resources to accomplish some of their loftiest goals, they held the land rights and autonomy to make those decisions for themselves. In the Sacred Valley, I saw communities emboldened despite the uphill battles they were sure to face, as the simple fact that the future they dreamed of could be accomplished with enough strategy, consistency, passion, and work ethic. While in D.C., I saw my own community share a dream in a similar way, and the passion, hard work, and strategy that flowed from the crowds in America's capitol mirrored that of the Quechua. Where the paths diverged in the U.S. and Peru was a first crucial step. If any of the marginalized groups who shared these dreams would ever hope to follow them, we first had to remove ourselves from our position under the thumb of those who would see those dreams as a threat. People like Ron and Margo knew firsthand how difficult that first step would be, as the Natives in California have been trying to achieve it since the day they were told to put their fires out. The two paths that cultural fire were taking in their first steps out of banishment were the two paths given to any oppressed group by their oppressor: accept the oppressor's supremacy and gain access to a share of its resources, or refuse their hierarchy and deny oneself the resources needed to see a dream become reality.

As my time in California came to a close, I reflected on the many visions for the future that were held by these subsets of humanity that I had had the privilege of engaging with over

the last 2 years. These idealogical and predictive paths diverted in sections, and vivisected in others, as the nuance and priorities of these diverse cultures weaved in and out of each other. I thought about the many pockets of the world I had seen in my pursuit of this project, and how my questions and answers had changed with the endless stream of new information I was constantly afforded. I could see clearly how my time in Naso had informed my time in Peru, which had informed my time in California, but I now realized that the process was not was linear as I had originally hoped. Experiences were static moments in time, but perspective works very differently. I found that the things I had learned in California shifted the way I perceived events long since past in Panama, and so on. This temporal dance of ever learning lessons made made my speculations into the future all the more dizzying.

I spent a week in the blistering desert town of Bishop, and my introspective trance was shattered as I was once again surrounded by smoke. The Caldor fire continued to force its way south, and winds over the desert plains funneled smoke into Bishop that announced its enveloping presence. Fires sprouted in the towns to the East and West, adding to the enormous smoke cloud that was wrapping itself like a snake around the length of California. The red sun returned to paint the air an ominous hue, and the end of days were upon me again. This time the sun brought with it a much less visceral, but far more jarring partner in the apocalypse.

I read the Intergovernmental Panel on Climate Change's 2021 Climate Report in the shared room of my California hostel with the shades drawn. The air quality was too poor to safely lounge outside, and the sanguine ambiance of the engulfing smoke cloud was putting me on edge. I had opted to sit inside a dark room so as not to engage with the burning world around me, but this time it still managed to find its way in. The IPCC began issuing climate reports in 1988, as the early observable effects of climate change were becoming noticeable to the general public. Farmers, environmentalists, fisherman, and other groups who relied on

stable environment for subsistence were the first to notice these subtle changes. Over 30 years later, there is not a person alive who is not feeling our impacts on this planet. Most climate reports have acted a canary for the problems to come if our unsustainable behavior does not change. This was not most climate reports. According to the report released in 2021, we are beyond the realm of the hypothetical. The Earth is changing, and even if we reduce our global carbon emission immensely in the coming years, the planet's surface temperature will increase by 1.5 degrees Celsius by 2050. Our actions may effect the intensity with which the climate changes in the next 100-150 years, but the temperature spikes we will see by 2050 cannot be stopped. Changes in climate are natural, and the planet has undergone ice ages and periods of extreme heat in its billions of years circling the sun. A sustained temperature spike of 1.5 degrees in under 30 years however, has never happened. Historically, the planet has warmed and cooled at a rate that evolution can match, allowing the millions of species that inhabit it to adapt generationally to changes in temperature and meteorological patterns. If the exponential increase in temperatures that the UN predicts come to fruition, life on earth will not have enough time to adapt to its new host, and the earth will see a period of mass extinction surpassing that of the last ice age. What really set the 2021 climate report apart from its predecessors is that for the first time, it openly blamed humanity for this encroaching catastrophe. The leading climate authority in the world had finally mustered the courage and urgency to point the finger at those of us who who would be the harbingers of our own demise.

It was all I could do to finish the article before the doom gripped me again. I left my cool room and sat in the thickening smoke of the California desert. All of those possible futures, drawn from so many diverse and enriched corners of the world, would lead to the same place. The dreams of the Quechua, the fires of the Yurok, even the spirit in the Naso's sacred river would all wither and die under the heat of this red sun. I thought about the immense death at the hands of the ongoing virus. I thought about the mass graves they were still digging for the nameless bodies around the world and that bleeding girl at the gates of the

U.S. Capitol. She could fight and bleed over and over for the equality and justice that she deserved, and still her world would be uninhabitable before the end of her lifetime. Humanity had lost this round, and as a citizen of the second highest CO2 producer in the world, I felt it was my fault.

The Majority of Carbon emissions that had warmed the earth thus far had been produced by industrialized nations of Europe, Asia, and North America. Even in the face of such definitively apocalyptic news, I saw this as an opportunity. While CO2 super contributors such as the U.S. and China struggle to mitigate their already enormous annual emissions, the future looks more complex for much of the developing world. During my time in Peru I watched the ancient ways of the Quechua do battle with the ever encroaching globalization that the country faced. This battle, and others being fought like it all over the global South, will be a huge determinant of this planet's future. I hearken back to the introduction of plastic in the tiny secluded community of Huama, and hope that it can act as a microcosm for the coming climate crisis we face. In that one small community, a confluence of ethical stewardship, environmental awareness, and a priority of public and ecosystemic health allowed its members the foresight to avoid the plastic epidemic that nations like my own are currently drowning in. I believe that this same principal can be applied on a global scale to the many developing nations on the verge of industrialization. Growth on a global scale is imminent, but this does not mean that growing nations have to fall into the same trappings of industry that left our planet in such a dire state. While the coming of industry may effect the lifestyles and livelihoods of those living in the developing world, their loss of ecological and communal values does not have to mirror our own. The preexisting framework of sustainability, inter-generational learning, and spiritual connection to one's environment, place the Quechua (and the many indigenous ethnic groups facing these fast approaching changes) in the headlights of a potentially bright future. If the ethics and traditions that have allowed these groups to coexist

with the environment can be maintained and protected through the storm of industrialization, the civilizations that emerge could bring the wisdom of the past into a sustainable future.

If the Quechua of the Sacred Valley are to act as a beacon moving forward, then the Natives of California should be seen as a stark historical warning. As the United States entered its age of industrialization, it was so wrapped up in the promise of progress that any and all past traditions were thrown aside. The wisdom that tribes like the Yurok had gained through generations of stewardship were seen as an impediment to progress, as this vapid early stage of industry valued nothing but production. In this era of industrialization and racial hatred, the Native ways of sustainability, coexistence, and stewardship were not allowed to coexist or incorporate with development, and were actively snuffed out by violent means. These native groups held to their own values, but because they did not aligned with the modern, valueless society taking shape in America, the groups and their ideologies were restricted from wielding autonomy or influence over culture of the nation and its future. Because it was associated with the natives, stewardship and environmental connection were deemed “primitive,” and their practice was cast aside even in the rare instances that they appeared organically in American culture.

In many ways, this deafness to native culture and the backlash to its environmental ethics played a big role in the climate crisis we face today. As modern industrialization stands, this history is at risk of repeating itself on a global scale. In the race to “catch up” with the same nations that are destroying the planet with the greatest efficiency, indigenous voices and the knowledge that they speak are once again being drowned out by the roar of competition. If these developing nations go forth into industry by marginalizing and silencing indigenous voices as we did, they will likely loose the environmental ethics that might save them from our unsustainable fate. We as a species stand at a crossroads. It is the nature of the modern world to strive for innovation and progress, but if we do not re-learn to incorporate the health of

the planet in our definitions of these in the coming years, we will not get another chance. As this daunting future bears down on us, we must not only avoid our proclivity for single-minded industrialism, but actively promote development that draws from the wealth of knowledge of the many cultures that make up our world. If we continue to let industry be driven by the near-sighted egoism that we have barreled through the world with thus far, the “victor” of this Capitalist game will find no spoils left to reap.