

FLYING LOW:
THE TRAVELS OF A DRONE PILOT IN POLYNESIA

by

ZACHARY JAMES LARISON

A THESIS

Presented to the Department of English
and the Robert D. Clark Honors College
in partial fulfillment of the requirements for the degree of
Bachelor of Arts

April 2018

An Abstract of the Thesis of

Zachary J. Larison for the degree of Bachelor of Arts
in the Department of English to be taken April 2018

Title: *Flying Low: The Travels of a Drone Pilot in Polynesia*

Approved: _____

Dr. Elizabeth Bohls

From 2016 to 2017, I spent three months in New Zealand (Aotearoa), one week in Hawai'i, and one month in Rapa Nui (Easter Island). I engaged with these islands and their people in profound and diverse ways. This thesis connects my time on these three distinct islands of the same vast oceanic region through travel narrative. From encountering Maori culture in unexpected places during New Zealand's frigid winter, to working as an archeological drone pilot for Dr. Terry Hunt in Hawai'i and Rapa Nui, this thesis offers an account of my experience in each of these islands. To do so, I practice travel writing as I've studied it in a breadth of distinct stories that define both the region and my brief place in it. Additionally, I cover the colonization chronology of the three islands, dating from initial colonization by the ancient Polynesians to first contact with European explorers, to provide context to the landscapes in an intimate collection of stories from a modern-day explorer.

Acknowledgements

First, I would like to thank Professor Elizabeth Bohls for being a constant source of support and advice throughout the entire length of this work. Professor Bohls is the champion of this thesis, and her expertise in travel writing and the English language is evident throughout. Second, I would like to thank Dr. Terry Hunt, without whom none of this thesis would have been possible. The experiences afforded to me in my time working for Dr. Hunt were the highlight of my undergraduate experience and have helped me immeasurably moving forward. Third, I would like to thank Dr. Barbara Mossberg for her endless enthusiasm and support of my personal and professional development, and her keen eye on the impact and importance of this work. It has been an absolute privilege and honor to work closely with these three incredible professors.

Finally, I would like to thank my family and friends who have provided continuous support: Kristine Bell, Jeffrey Larison, Renee Cressa Larison, Linda Purdy, Donald Purdy, Marshall Seaton, Grant Robertson, and Peyton Ceboll.

Table of Contents

Colonization and Contact: New Zealand, Hawai'i and Rapa Nui	1
Timeline of First Colonization through First European Contact:	3
The Work of a Travel Writer	6
CHAPTER 1: Kia Ora	9
CHAPTER 2: Gastra's Organic Farm	16
CHAPTER 3: A New Pilot	25
CHAPTER 4: The Road to Hana	31
CHAPTER 5: Aloha, Pi'ilanihale Heiau	37
CHAPTER 6: Searching for Opihi	60
CHAPTER 7: The Drone Shuffle	66
CHAPTER 8: Iorana a Rapa Nui	72
DAY 2: Vaihu	84
An Explanation of Manual Flight Planning for 3-D Modeling:	89
An Explanation of Ground Control Points:	93
DAY 4: Maitaki Te Moa	98
DAY 6: Poike and PVC Pipe Fishing	104
DAY 18: A Crater, a Cave, a Curanto	133
EPILOGUE: The Luggage Room	153
Bibliography	155

List of Figures

Figure 1: Historic American Landscapes Survey. “Hale O Pi’iLani Heiau, Honomaele Gulch vicinity, Hana, Maui County, HI.”	40
Figure 2: Zachary J. Larison, “Pi’ilanihale Heiau and Kahanu Gardens.” 2017.....	45
Figure 3: Zachary J. Larison, “Fog Behind Pi’ilanihale Heiau.” 2017.	47
Figure 4: Zachary J. Larison. “Hana Archaeology Crew at Kahanu Gardens.” 2017.....	57
Figure 5: Zachary J. Larison. “Cow on the Rocks.” 2017.	62
Figure 6: Zachary J. Larison. “3-D rendering of Pi’ilanihale Heiau.” 2017.....	65
Figure 7: Zachary J. Larison. “Ahu Tahai at Sunset.” 2017.	81
Figure 8: PIX4D Support. “Ideal Image Acquisition Plan – Building.”	90
Figure 9: PIX4D Support. “Ideal Image Acquisition Plan – General case.”	91
Figure 10: Zachary J. Larison. “Proper ground control point configuration.” 2017.....	94
Figure 11: Zachary J. Larison. “Hanga Maihiku and Vaihu Coast.” 2017.....	97
Figure 12: Zachary J. Larison. “Dean and Drone Pilot, Rapa Nui Coast.” 2017.	98
Figure 13: Zachary J. Larison. “Aerial of Maitaki Te Moa.” 2017.	102
Figure 14: Zachary J. Larison. “Light.” 2017.	104
Figure 15: Zachary J. Larison. “Ahu Motu Toremo Hiva and Coastline”	113
Figure 16: Zachary J. Larison. “Drone Self-Portrait at Ahu Motu Toremo Hiva.” 2017.	114
Figure 17: Zachary J. Larison. “A Storm Heading for Poike.” 2017.	115
Figure 18: Zachary J. Larison. “An Ingenious Device.” 2017.	118
Figure 19: Zachary J. Larison. “Carvings at Orongo.” 2017.	138
Figure 20: Zachary J. Larison. “Aerial: Orongo and Rano Kau.” 2017.	139
Figure 21: Zachary J. Larison. “Wildflowers at Rano Kau.” 2017.	140
Figure 22: Zachary J. Larison. “The Edge of Orongo.” 2017.	141
Figure 23: Zachary J. Larison and Beau DiNapoli. “Birdmen, Ana Kai Tangata.” 2017.	144
Figure 24: Zachary J. Larison. “Storm at Ana Kai Tangata.” 2017.	145
Figure 25: Zachary J. Larison and Beau DiNapoli. “Ana Kai Tangata.” 2017.	146

Colonization and Contact: New Zealand, Hawai'i and Rapa Nui

The chronology of the settlement of Polynesia is a subject of historic controversy and debate in the archaeological community. Regarding New Zealand, archaeologists have traditionally debated “three versions of the colonization chronology...: “long,” from about 200 BC, “orthodox” beginning about 800 AD, and “short,” with first human colonization at around 1250 AD.”¹ These three major chronologies have a “difference between the extremes [of] over 1,400 years.”² The long chronology for the settlement of Polynesia’s southernmost island, New Zealand, “assumes a small group arrived...with such a minimal presence, [that] their mark remained archaeologically undetectable.”³ Given the recent emphasis on radiocarbon dating in archaeology, the long chronology falls short of the standards of modern science. A more advanced understanding of the potential successes and failures of radiocarbon dating has recently confirmed the short chronology.

In the wake of studies on rat bone samples, rat-gnawed seeds, intact and bird-broken seeds, the “fire history and vegetation changes from more than 150 sedimentary cores from all over New Zealand”⁴ and the “earliest secure evidence from archaeological remains...at Wairau Bar, South Island,”⁵ the short chronology has passed the test of science. Polynesians arrived in New Zealand somewhere around

¹ Terry L. Hunt., and Carl P. Lipo. "The Last Great Migration: Human Colonization of the Remote Pacific Islands." In *Human Dispersal and Species Movement: From Prehistory to the Present*, edited by Nicole Boivin, Rémy Crassard, and Michael Petraglia, 194-216. Cambridge University Press, 2017. 203.

² Ibid.

³ Ibid.

⁴ Ibid., 205.

⁵ Ibid.

1250, initiating a wide range of archaeologically verifiable “ecological impacts.”⁶ The ancient Polynesians were not invisible inhabitants—their ecological impact was swift and significant. Ancient Polynesian voyagers were renowned for the variety of plants and animals they transported across the Pacific. The short chronology is in line with this practice. Polynesian travelers “transported more than seventy species of plants among islands including the agricultural mainstays of taro, breadfruit, yams, bananas, sugarcane and sweet potato.”⁷ Additionally, Polynesian travelers brought “rats, chickens, dogs, pigs and a whole host of smaller reptiles, land snails, and insects.”⁸ Together, the plants and animals carried by voyaging Polynesians during the colonization period greatly impacted the ecosystems of each island.

Scientific scrutiny has been similarly applied to the controversial chronologies of Eastern Polynesia. According to Hunt and Lipo, “recent and continuing fieldwork throughout East Polynesia, including the Cook Islands, Societies, Marquesas, Hawai’i, Australs, New Zealand, [and] Rapa Nui...has confirmed shorter chronologies.”⁹ The archaeological record now proves a “rapid and late colonization”¹⁰ period for the more remote areas of Polynesia. Therefore, the islands of the periphery of Polynesia, a triangle between the northernmost island of Hawai’i, the southernmost island of New Zealand, and the easternmost island of Rapa Nui (Easter Island), “fall into the same

⁶ Terry L. Hunt, and Carl P. Lipo. "The Last Great Migration: Human Colonization of the Remote Pacific Islands." 2017. 205.

⁷ Ibid., 207.

⁸ Ibid.

⁹ Ibid., 208.

¹⁰ Ibid.

time frame for initial colonization.”¹¹ Beginning around 1250, the blue waters of the Polynesian Pacific hosted a “rapid, kind of scrambling and opportunistic dispersal”¹² of a booming population of voyagers from Samoa and Tonga. These legendary voyages used “a range of navigational skills that made use of stars, ocean swells, changes in water temperature, cloud movements,”¹³ birds, driftwood and seaweed, to guide settling canoes that each “held a complete Polynesian society.”¹⁴

Timeline of First Colonization through First European Contact:

1250: Initial indigenous colonization of the remote corners of Polynesia begins. The Polynesian triangle forms between New Zealand, Hawai’i, and Rapa Nui.

1500: Estimated discovery and colonization of Polynesia is complete.¹⁵

1642: Dutch explorer Abel Tasman discovers New Zealand (Aotearoa).¹⁶ First contact is violent: A crew of Maori Warriors in a canoe

paddled furiously towards the [Dutch] cockboat and rammed it at high speed, hitting the quartermaster in the neck with a long, blunt pike and knocking him overboard, killing three of the sailors with short hand-clubs and paddles and mortally wounding one other...the two canoes were then paddled with unbelievable skill to the shore.¹⁷

¹¹ Terry L. Hunt, and Carl P. Lipo. "The Last Great Migration: Human Colonization of the Remote Pacific Islands." 2017. 209.

¹² Ibid., 212.

¹³ Steven Fischer. *Island at the End of the World*. London: Reaktion Books, 2005. 16.

¹⁴ Ibid., 16.

¹⁵ Terry L. Hunt, and Carl P. Lipo. "The Last Great Migration: Human Colonization of the Remote Pacific Islands." 2017. 210.

¹⁶ Philippa Smith. *A Concise History of New Zealand*. Australia: Cambridge University Press, 2005. 24.

¹⁷ Anne Salmond. *Two Worlds: First Meetings between Maori and Europeans 1642-1772*. Honolulu: University of Hawai’i Press, 1991. 81.

1722: Dutch explorer Jacob Roggeveen discovers Easter Island (Rapa Nui), named in “commemoration of the day upon which the land was sighted.”¹⁸ First contact is violent:

Twenty men remained on shore to guard the sloops. The main landing party ascended the slope and began marching inland. Suddenly, back on the beach, a single musket shot split the air. Whereupon a cascade of musketry followed...Roggeveen was hurriedly told that an Islander had tried to steal a musket while another had attempted to rip a shirt off the back of its wearer...a scuffle had broken out and the landing party, fearing for their lives, had started shooting the Islanders at random...The *tumu ivi 'atua* [or] ‘emissary’ himself—the first Easter Islander to welcome the outside world—lay dead.¹⁹

1778: British explorer James Cook discovers Hawai’i and establishes the first “communications with the Polynesians of the big island of Hawai’i.”²⁰ First contact is peaceful.

1779: British explorer James Cook returns to Hawai’i and is slain in the botched kidnapping of Chief Kalani’ōpu’u as retaliation for stolen goods. The *London Gazette* reported on January 11th, 1780,

the celebrated Capt. Cook, late Commander of that Sloop, with four of his private Mariners, having been killed on the 14th of February last at the Island of O’Why’he, one of a Group of new-discovered Islands, in the 22d Degree of North Latitude, in an Affray with numerous and tumultuous body of the Natives.²¹

¹⁸ William J. Thompson. *Te Pito Te Henua or Easter Island*. Washington: Government Printing Office, 1891. 447.

¹⁹ Steven Fischer. *Island at the End of the World*. London: Reaktion Books, 2005. 50.

²⁰ Shirley Fish. *The Manila-Acapulco Galleons: The Treasure Ships of the Pacific 1565-1815*. AuthorHouse, 2011. 360.

²¹ Glyndwr Williams. *The Death of Captain Cook: A Hero Made and Unmade*. Harvard University Press, 2008. Back cover.

In the years following violent contact, the Polynesian inhabitants of the remote corners of the Pacific endured disease, enslavement, and death. The imperial reach of the civilized world stretched to the Polynesian triangle with severe consequences for indigenous populations and their culture. In particular, the people of Rapa Nui “experienced only death...[as] tuberculosis, smallpox and dysentery proved to be civilization’s strongest gifts.”²² The population of Rapa Nui dwindled into the hundreds. In the 1860s, a missionary on Rapa Nui reported that “so many had died...it had not been possible to bury them all.”²³ While my own journey breaks from the historic tragedy of contact with Polynesia, I must acknowledge the imperial implications of modern travel to these islands—violence has ceased but the consequences of ‘civilization’ persist.

²² Steven Fischer. *Island at the End of the World*. London: Reaktion Books, 2005. 89.

²³ *Ibid.*, 91.

The Work of a Travel Writer

The work of any travel writer begins outside the page: “to begin any journey, or indeed, simply to set foot beyond one’s own front door, is to quickly encounter difference and otherness...there are no foreign peoples with whom we do not share a common humanity.”²⁴ My story begins out the door of a small one-bedroom apartment in Eugene, Oregon, and spans the Polynesian Triangle of New Zealand, Hawai’i and Rapa Nui (Easter Island). Although not by canoe, I have followed in the well-worn footsteps of the first inhabitants of these islands from nearly 800 years ago. Carl Thompson asserts the need for travel writing to “provide important insights into the often fraught encounters and exchanges currently taking place between cultures, and into the lives being led, and the subjectivities being formed, in a globalizing world.”²⁵ I present *Flying Low* as a means to this important end. In my travels, I witnessed and participated in the culture and lives of profound people in profound places.

By my account, travel writing thrives in the day-to-day, in face-to-face encounters with foreign people with whom I share that common humanity. *Flying Low* seeks to present individuals as windows into their culture and ancestry in a collection of intimate moments. To recount this journey, I enter the mythical space between

²⁴ Carl Thompson. *Travel Writing*. New York: Routledge, 2011. 9.

²⁵ *Ibid.*, 2.

“fiction and fact.”²⁶ Alain de Botton describes this intersection as a necessary part of travel writing:

The anticipatory and artistic imaginations omit and compress; they cut away the periods of boredom and direct our attention to critical moments, and thus, without either lying or embellishing, they lend to life a vividness and a coherence that it may lack in the distracting woolliness of the present.²⁷

The critical moments of *Flying Low*, from a strange place in Christchurch, New Zealand, to a historic heiau in Hana, Hawai’i, to the rocky shores of Rapa Nui (Easter Island), seek to “capitalize on the reading public’s perennial hunger for wonders, exotic curiosities and sensational tidbits.”²⁸ In the words of the eighteenth-century African explorer Mungo Park, as a composition *Flying Low* “has nothing to recommend it but *truth*. It is a plain, unvarnished tale.”²⁹ I offer to you—and to myself—a collection of the moments that stand out in memory, crystalized in matter-of-fact writing. I endeavored to create a truthful work that satisfies that hunger in myself, and in readers.

In conclusion, I evoke Mungo Park’s reflection on his finished work, *Travels in the Interior Districts of Africa*:

I shall console myself...if the distinguished persons under whose auspices I entered on my mission, shall allow that I have executed the duties of it to their satisfaction; and that they consider the Journal, which I have now the honor to present to them, to be, what I have endeavoured to make it, an honest and faithful report of my

²⁶ Robyn Davidson. *Journeys: An Anthology*. London: Picador, 2002. 6.

²⁷ Alain de Botton. *The Art of Travel*. New York: Pantheon Books, 2002. 14.

²⁸ Thompson, Carl. *Travel Writing*. New York: Routledge, 2011. 29.

²⁹ Mungo Park. *Travels in the Interior of Africa*. Edinburgh: Adam and Charles Black Publishing, 1858. i.

proceedings and observations in their service, from the outset of my journey to its termination.³⁰

I, like Mungo, am honored to present this work to the distinguished persons whose presence graces my memory and the words of *Flying Low*. I set this honest and faithful report of my travels into the world with propellers buzzing in the hope that it flies far beyond my sight and into that great hall shared by legendary explorers and travelers.

³⁰ Ibid., vii.

CHAPTER 1: Kia Ora

We are sad at home and blame the weather and the ugliness of the buildings, but on the tropical island we learn that the state of the skies and the appearance of our dwellings can never on their own either underwrite our joy or condemn us to misery.

—Alain de Botton

In the summer of 2016, I headed to New Zealand for three months on a whim. I had no expectations or plans—I put on hiking shoes, called up a friend of mine and left. I set out to explore the filming locations for Peter Jackson’s *Lord of the Rings* and to follow up on a few recommendations Dean Terry Hunt of the Clark Honors College suggested. He told me New Zealand was a spectacular place, with landscape unlike anything I could anticipate. But this was modern travel. I looked up every famous spot on the island, yet New Zealand’s majesty never failed to surprise me. My friend René André Sauv  , and I set out on a warm morning in June, leaving behind the summer heat of North America for the frigid chill of winter down under. We flew into Wellington for a brief jaunt, but our journey truly began in Christchurch with an unexpected Maori host.

...

I was anxious to depart from Picton, a modest, lush town at the tip of the South Island. Looking out at the Cook Straits each morning from the hill of our hostel, eating Weetabix and protein bars before hiking through the dense bush that surrounded the town was relaxing and a fine start to our expedition through the South Island. We hardly encountered anyone. Restaurants and shops were closed, and the majority of

our company was found in the names on tombstones and the occasional sheep. On a cold day in Picton, rising to the horns of the morning ferry from Wellington, we jumped on a bus heading south for Christchurch. The city was hailed as the seat of the Canterbury Region—the oldest established city in New Zealand’s history. The driver welcomed us aboard with an enthusiastic “Kia Ora,”³¹ and a big smile wrinkled his aged brown cheeks. Rene and I sat between an old, quaintly dressed couple and a pair of German travelers. The couple was quiet and the Germans babbled on, filling the otherwise silent and empty bus. The bus roared to life and the winding road broke before us. Much to my surprise, nearly the entire road from Picton to Christchurch was as windy as the first bend into the mountains. The bus lurched around every turn, beginning a six hour battle with nausea.

When we finally arrived in Christchurch I ran forward with my backpack on, nearly knocking out the old couple with flailing limbs and straps. I narrowly avoided hurling on the bus driver’s feet as I reached the exit. The bus driver repeated “Kia Ora” with the same smile from six hours ago. I had a hard time believing his smile was genuine. My perception of him shifted from a quaint Maori bus driver, cheerfully aiding travelers, to some sort of twisted man who reveled watching the green faces in his rear-view mirror as he nearly tipped the bus on its side with each turn. I felt the soggy mix of strawberry jam and Weetabix rising and rising as the door slowly creaked open. The cold, bitter air of Christchurch quelled the acid and Weetabix rising through

³¹ “Hello,” “farewell,” or “thank you” in Maori, the indigenous language of New Zealand.

my throat and I swallowed with relief. Rene stepped out casually, having slept the entire length of the trip. He repeated a hearty “Kia Ora” in his goofy Canadian accent to the bus driver. I felt uneasy but equally thrilled to be in Christchurch. We had set out to explore the city and set forth into the Kingdom of Rohan³², due West through the mountains. We planned to stay in Christchurch for a week or so and checked into the closest hostel, a YMCA tucked between a small river running through the city and a botanical garden. The YMCA was eerily empty and the lady at the front seemed delighted to have guests. We tucked into our beds for the night, two lone travelers in a room of empty bunks. We set out the next morning to explore the city, with fresh faces and stable stomachs (at least in my case).

The ability to look a place up before visiting it often strips a traveler of half the excitement of his travels. The surprise of a place, its beauty or grotesqueness, no longer surprises the modern traveler—we know precisely what we sign up for when we travel. The Christchurch of the internet was a shining port city, rife with commemorative military statues and grand churches in use since the founding of the city in 1856. However, the Christchurch of 2016 was a sea of rubble and orange vests. The grandiose churches and luminescent avenues were quiet and empty. Leaving Picton, we traded the sound of the waves and of birds chirping through the Cook Strait and nearby mountains for the noise of gruff men and women rebuilding a city of rubble. Despite our confidence of “knowing what we are getting into,” which we had

³² Much of Peter Jackson’s *Lord of the Rings: The Two Towers & Return of the King* was filmed in the mountains west of Christchurch.

told concerned parents and friends, we had failed to learn that Christchurch was as much the city of earthquakes as anything else. It felt like every other person was wearing a safety helmet and an orange vest. Every café and bar was crowded with construction workers taking their breaks or adjourning to beer and meat pies after a hard day's work. The famous Christchurch Cathedral was sundered and caved in, surrounded by fences and various bits of machinery. A crane hung over the tallest spire, and the cross atop the head of the Church was broken and bent. The city was rubble. You could tell it was once a place of architecture wreathed in history commemorating the Kiwi contribution to World War I and II. But now it was a place of rubble and construction workers. Local fare and culture seemed to have vanished, and in its place shipping containers and tall cranes took residence. We resolved to stay the week anyway.

We knew, or at least hoped that Christchurch had something in store for us. We only had a few months in all of New Zealand and we intended to soak up every city and trail we could. It just so happened that this city was in crisis. I learned one night from a hostel worker that earthquakes had struck the city hard, leaving roughly 1500 major buildings demolished. Christchurch had suffered severe earthquakes in 2009, 2010, 2011, and again in 2016. The region had a long history of notable earthquakes, dating back to 1869. Rebuilding was a slow, dreadful process in Christchurch—each time the city had rebuilt, buildings and spirits were broken again and again. The earthquakes hit neighborhoods harder than the main city. Entire suburbs were uprooted and destroyed and most of Christchurch's residential population simply up

and left. We killed time during the day walking around the empty city and drank away our evenings in a local bar. Much to our dismay, beer, burgers and the comfortable beds of the YMCA drained a significant portion of our funding. We left the YMCA unable to afford another night, and as any responsible travelers might, we returned to the bar, backpacks in tow. We drank and ate with what little we had left until last call.

Barstools and chairs went up around us and one by one patrons left, leaving only us and the employees. The employees didn't seem to mind until a stunning woman approached us. She was a French bartender by the name of Jo. She told us it was time to depart and that the bar was closed. However, either she was kind enough to hear our irresponsible tale, or Rene and I were particularly charming, and she offered us a place to stay for the night. We helped her close the bar and she drove us to her small apartment a few blocks down the road. We stumbled inside and immediately heard the sounds of battle. A balding man, clutching a glass of wine, yelled "cunt" a few times before bellowing a triumphant "HURRAH." He was playing *Elder Scrolls IV: Oblivion*³³, a drunken Friday night tradition he was rather proud of. Jo showed us around the place and told us we could use the two couches in the living room. I took the big one. Rene took the small one. Jo told us to use our phones to figure out where to go within the next day or so. Kieran, the bald guy, looked up from his game, took a hearty sip of red wine and nodded, commenting that it was probably

³³ A popular role playing game made by Bethesda Games set in a medieval and magical world.

best not to put up travelers for long. Jo's stunning beauty and seriousness sobered us up and we searched for alternative shelter options.

We awoke, having had no luck the previous night, surely impeded by the numerous lager beers for me and Guinness for René, and investigated truly how fucked we were. We had about two and a half months to go and our money had gone into the YMCA and the slow decay of our livers. Kieran, apparently unaffected by the previous night's adventures through the fantastical land of Cyrodiiil³⁴ and red wine, overheard our conversation and suggested we try WWOOFing. René and I looked at each other confused; René jokingly woofed at him, giggling. Kieran said: "No, not actual woofing, you dumb cunts, the organic farming shit travelers do." We looked up the name of the program, which he emphasized had two W's and René read the banner out loud:

World Wide Opportunities on Organic Farms or Willing Workers on Organic Farms

We were thrilled and relieved. I promptly translated the title to American English: "Not Fucked Travelers who can work for Food and Shelter." We searched frantically for an organic farm in the Christchurch and greater Canterbury area with high demand for two able-bodied young men. On the bus ride over, we had seen thousands and thousands of sheep and cattle; surely somebody needed help. We found an advertisement for the nearby farm of a Mr. Gastra, and rang him immediately. A hoarse but happy voice answered the telephone and Gastra informed us we had a

³⁴ The fantasy world in which Oblivion is set.

place to stay and work as soon as we could get there. We were welcome to work and stay as long as we liked, tending to his house. He mentioned offhand that he had a set of musical crystal bowls, as if to entice us further. His farm was a three-hour walk from our location and we told him we would be there by nightfall. René pointed out that it seemed a bit odd that a full-fledged organic farm was within walking distance, but we thought nothing of it. New Zealand was a fairly small island, after all. We downloaded the directions into our phones, thanked Kieran and Jo and headed off. We were officially set to be farmhands, working for our place in the world, rather than uselessly swilling beer and burgers.

CHAPTER 2: Gastra's Organic Farm

With backpack straps digging into our shoulders and blisters forming on our feet, we arrived at the end of our directions. Looking around, we found ourselves in the middle of suburbia. A few trees lined uneven streets, fraught with cracks and swollen asphalt from the earthquakes. Most of the houses on the street looked abandoned and were in shabby condition. Vines crawled up garage doors and wet curtains hung with the misery of loneliness, billowing out of shattered window panes. The street was quiet save for a few ducks squabbling in a nearby puddle. We double checked our directions. Surely, this was not a staple of New Zealand's farmland. We saw no sheep. We saw no rolling green pastures. We only saw a house on the corner, bigger and more crooked than the rest. This was Gastra's house. One porch light was on, the other was shattered and flickering. The sky bled orange and red as the sun began to set beyond the hills in the distance.

In the good mood engendered by Jo and Kieran's hospitality, we opened the rusted and bent metal gate and ventured forth onto the "farm." The front area seemed a strange mix between rubble and a botanical garden. Various bits of trash and scrap metal mingled with sparse greenery—a veritable green grove of garbage. As we approached the door, a chicken sprang from a fern and bolted toward the gate. A short man in an orange safety vest burst from outside our line of sight and ran toward the chicken. Cursing, he grabbed it and tossed it back into the fern as it squawked in his hands. He lit a cigarette and coolly walked away. René and I looked at each other with confused grins. I shrugged: "At least he has chickens?"

We walked around the house toward where the chicken-wrangling man had disappeared. He looked up at us, and said nothing. I said “Gastra? We spoke on the phone about WWOOFing here earlier today.” He took a long drag on his cigarette and blew the smoke into the wind. In a French accent we recognized from our brief time with Jo, he said simply “No Gastra, go knock.” We circled back around the house, knocked on the door, but nobody came. I tried to peer in the grand windows of the front façade but every one was cracked or shattered and covered by curtains. The entire house was veiled by colorful arrays of cloth, blocking any sight into the home. René knocked again, this time more forcefully, and a cheerful voice hailed us from inside. The door creaked and cracked open and a tall, lanky man stood before us. Patchy, thin facial hair marked marred and pocked skin around a jagged, toothy grin. He introduced himself as Gastra, the owner and proprietor of the farm. He wore ripped blue jeans, stained with paint and mud, a black turtleneck sweater and a folded black beanie that almost resembled a yarmulke. The interior of the house was a strange mix of temperatures. Warmth radiating from an array of space heaters mixed with the cold rush of wind that blew through the patchwork of curtains. Gastra cursed, ran to the window and stuffed the curtains back into the frame. The curtains inflated like a ship’s sail, blocking the wind but hardly the cold. I asked him why he didn’t shut the windows and he told us the earthquakes had popped every pane of glass in the house and he couldn’t afford to fix them.

Gastra gave us an informal tour of the house, featuring a music room with a beat-up piano and a classical acoustic guitar split in half, a nook kitchen with a

refrigerator duct-taped shut, and a room full of bunk beds. The bunk beds were nearly all full with the belongings of other residents of his house, which he proudly called an urban farm. He led us over to two bunks on the far side of the wall closest to the window and told us these were ours. René and I happily set down our backpacks. The room looked catastrophic. The walls were a mélange of mold and dirt and undefinable substances were smeared about. Thick black streaks covered each wall of the room; the ceiling had immense holes revealing the framework of the house and the night sky above. The curtains gave way to the wind and Gastra rushed over to stuff them back into the frame. He warned us that it might get cold in here at night if the curtains were to fly off, or even out the window. Proud and naïve, we told him we had top-of-the-line backpacking gear and that the chill of Christchurch was no match for our sleeping bags. Gastra smiled, happy that we were up to the challenge of his accommodations, and invited us to see the rest of his property before all light had fled over the hills. Exiting the room, a stout bald man passed us wearing an orange vest and construction garb. He looked at us with evident confusion and before silently moving past us. We smiled at him and carried on about our business.

Gastra led us back into kitchen and walked us toward the bathroom. The bathroom was no better. There were holes in the ceiling, just like the bedroom, and even holes in the floor. He told us to mind our footing as he had had a few injuries stepping into the wrong holes barefoot. The holes were rather ineffectually covered with muddy towels. He warned us there was absolutely no hot water, but that he was working on fixing it—much like everything in his “farm.” He told us that he was thrilled

to have us, that we were to play a big part in the fixin' of his humble abode. We were stunned as the condition of the house began to dawn upon us. His mouth opened with a wide grin and a shrill, arrhythmic cackling emerged from crooked and jagged teeth. He invited us to follow him once more, taking us to the backyard. He had two "sweeties" that were his pride and joy, other than the house itself of course.

As we opened the door to the yard, barking broke the peaceful silence of the abandoned neighborhood. It got louder and louder as we followed Gastra until we came upon a rough metal post, wedged into the ground. A chain clinked and ran taut as a mangy, battered pit bull strained to escape. René and I exchanged a concerned glance but Gastra's shrill laughter brought our gaze back to him and the dog. The barking became whimpering as Gastra yanked the chain back toward the center of the post and the dog snapped at him. The dog emitted a low, coarse growl. There was no water or food bowl in sight. The pit bull's every move seemed fueled by pure survival instinct and adrenaline. Gastra cackled once more as he kicked the dog into submission. The low growl became a quiet whimpering. Jagged ribs protruded through white fur spattered with mud and a wound festered on the beast's hind leg.

The dog shook violently as Gastra overpowered him. He pet and kissed the tormented beast, telling us a name I do not remember. Something about the severity of the abuse summoned a strange surge of adrenaline that sharpened my senses. Perhaps this poor pit bull had been as naïve as René and I, coming to this strange and twisted place—a lone ruin in an abandoned neighborhood. Before standing up, Gastra yanked the chain once more, sending the dog's ragged body hurtling toward him. He

grabbed the dog's snout and sternly commanded: "Be nice, girl!." The pit-bull whimpered and tried again to escape from his torment, only to find the chain clamped around its neck. Gastra rose and gestured for us to follow him again, smiling all the while.

In shock, we walked further into the backyard past a small tree that enveloped the area with low-hanging branches, alive with spider webs and the movement of the wind. Leaves crunched under our feet, reminding us of that we had left summer and plunged into the heart of winter, finding ourselves in a cold and strange place. Gastra's voice broke the silence as he pointed toward a strange-looking bird. He proudly introduced Hoppity the One-Legged Peacock. I heard the word "Peacock" and failed to see one in front of me. Hoppity's feathers were sparse; it seemed as though their blue luster had faded or withered away. Gastra stamped at the bird, who was also chained by his one remaining leg, and the strange, almost colorless husk of a creature frantically tried to hobble away, only to stumble and fall as Gastra yanked the chain. Gastra approached the bird and grabbed it by its thin neck, choking all air from it. Holding Hoppity with one hand, he flicked at a misshapen stump where the other leg once was. He explained that when he first bought the peacock, he wanted to see it fly and unveil the beauty of its feathers fully. He lamented Hoppity was always shy with his beauty. He took Hoppity up onto the roof of his house and set him near the edge. But the timid bird would not fly, nor spread his tail. So, as any peacock owner would, Gastra forced Hoppity off the roof, sending the bird crashing downward. Laughing at his own cruelty, Gastra explained that the fall broke Hoppity's leg; he amputated it on

the spot, forever maiming the poor beast. The longer his story droned on, the more frantic Hoppity became in his hand until the flailing was too much for Gastra's grip and he released the bird, sending it tumbling back to the ground. He concluded the tour of the backyard by showing us a modest chicken coop with two or three healthy chickens, a surprise in itself.

We went back inside and joined Gastra at a wooden table in the kitchen. A few people passed by as we made small talk and introduced ourselves more formally. Still down on our luck and low on money, René and I maintained an unspoken agreement to continue to give this thing a shot, despite what we had just seen. Our visual exchanges were some mix of disgust, concern and shrugging. Eventually, Gastra slammed both of his fists into the table and declared: "I must welcome you to New Zealand on behalf of my ancestors, who have lived here as long as memory." It seemed so strange for this twisted man to evoke such ancient traditions, but his voice boomed and we were enthralled. He chanted in Maori, making forceful gestures and raising his arms to the sky visible through his holed ceiling. He transitioned to English, telling us that we had come from far-off lands, as his people once had, as Abel Tasman once had, as all who pass through and live in New Zealand. His kiwi English mingled with spurts of Maori that resonated through the hollow walls with every unfamiliar syllable. He finally declared that we had come into the house of a proud warrior, a proud son of Maori ancestors, who carry the Maori tradition in life and death. He told us that we had come to Te Wai Pounamu, the great South Island of New Zealand. To Christchurch, the ancestral home of his family—a place he vowed they would never abandon nor fail

to share with voyagers. In one magnificent monologue, the terrifying man we had barely known displayed an incongruously genuine, welcoming nature. We felt momentarily at ease, humbled by thousands of years of ancestry championed by one man despite the squalor of his condition. Farm or not, it was the true home of a proud, historic bloodline.

We followed Gastra one more time into the long hallway at the front of the house. Here, he explained the work that we would be doing on his “organic farm,” in the first week of our stay. Gastra handed us each a heat-gun to melt the paint off the walls of his home—his entire home. He explained that he regretted painting over the beautiful wood that lay underneath chipped and partially scoured white paint. He jerked the heat-gun out of René’s hands and showed us the meticulous care with which he expected us to strip the paint. He let out a sigh of relief, telling us he was quite happy to have ‘WOOOFers’ back in his home; whether or not he enjoyed the company or the free labor, I do not know. He said: “Kia Ora” and left us to tend to our things for the evening.

René and I headed back into the room where the short bald man was speaking with an Argentinian man who looked like a discount Javier Bardem. They turned to face us, puzzled by our presence. The Argentine started to speak in hardly decipherable English, and I prompted him to switch to Spanish, leaving René to wonder about the obvious concern in our voices. He explained that it was strongly in our best interest to leave Gastra’s shack. He warned me of frequent sickness shared by the other inmate-residents of the home, who were forced by circumstance to live

under Gastra's partial roof. He lamented the lack of hot water and Gastra's near constant theft of food. Looking down at the floor, he admitted that he had adapted to the situation, showering weekly and hiding food in various places around the home, even in the walls—a melancholy admission that left his voice and expression destitute. He left the room, the silent bald gentleman in tow.

We resolved to leave without hesitation. Pulling my backpack from the bed revealed an immense black mass of mold sprawling from cracks and holes in the wall behind the head of the bottom bunk bed. The pink sheets no longer seemed quaint. Everything and everyone seemed a prisoner of Gastra's. Our ease from Gastra's genuine ancestral welcome vanished in an instant with our growing fear for our safety and health. Moving as quietly as possible we crept out the front door, thanking the Argentine man on the way out, wishing him luck at escaping the poverty that kept him on Gastra's "organic farm." Nobody else noticed our departure and we walked three hours back to the YMCA. Scraping together what little money we had left and reaching out to relatives back in North America, we bought a room and a few beers at the bar. We told Jo about our unfortunate and brief time farming in the suburbs of Christchurch, and of the horrors of Gastra's home. She gave us a pizza and a round on the house and suggested that it might be time for us to depart Christchurch. There was more to New Zealand, she promised.

The next morning we left the YMCA and set out west for Mount Sunday, the filming location of Rohan in Peter Jackson's *Lord of the Rings*, a welcome taste of adventure after our time with Gastra. I have not forgotten many things about that day,

meeting perhaps the strangest and most wicked, yet sincere man I've ever met. Despite his abuse of his residents and of "sweeties," Gastra offered us a genuine invocation of Maori culture that was shocking. This was the first time I had come in close contact with Polynesian culture, albeit in a rather unpleasant context.

René departed from New Zealand the following week after our run-in with Gastra, flying suddenly from the city of Dunedin. Over the next few months, now traveling alone, my situation vastly improved. I made lifelong friends and witnessed the beauty of New Zealand and her ancestral heritage in sweeping frigid mountain ranges, low lush grasslands, and breathtaking fjords, experiencing firsthand the majesty of the Polynesian west. I still get slightly nauseous if I hear "Kia Ora" and peacocks have never been the same for me.

CHAPTER 3: A New Pilot

I returned from New Zealand a hairier man. I grew a beard to help combat the frigid temperatures of cold nights spent sleeping in caves, or in my rental car at the foot of mountain hikes. I was a well-worn and weary traveler, ready for the comforts of home. I arrived to warm weather in Eugene, Oregon in late September. School had just started and the first thing on my mind was to thank Dean Hunt for the recommendations and information regarding New Zealand.

A large print of Dean Hunt's National Geographic cover, "EASTER ISLAND: THE RIDDLE OF THE MOVING STATUES" hung on the wall above a glass lamp, depicting the ancient Rapanui "walking" a moai statue. A few years prior, Dean Hunt and his colleague Carl Lipo had solved this riddle, ending centuries of speculation. Prior to their investigation, the modern archaeological community was as stunned as the first explorers of the island as to how the ancient Rapanui moved the famous statues. Experiments and theories all failed to account for the island's archaeology, which indicates sparse resources. They didn't have logs to roll them or anything, really. But, what they did have was genius design. In *The Statues That Walked*, Dean Hunt and Dr. Lipo explain that the moai were "engineered to move"³⁵ through two significant design strategies. First, the bases of moai are angled, making them "lean forward slightly."³⁶

³⁵ Terry L. Hunt and Carl P. Lipo. *The Statues That Walked: Unraveling the Mystery of Easter Island*. Berkeley: Counterpoint Press, 2011. 87.

³⁶ *Ibid.*, 86.

Second, moai “center of mass in the depth dimension is remarkably forward relative to the base of the statue...Rocking the statue back and forth is made relatively easy.”³⁷

Together, as the statue leans forward by design, the natural momentum of rocking enables upright movement. Moai were transported vertically “slowly and steadily over challenging terrain, propelled by teams of probably only fifteen to twenty people.”³⁸ The Rapanui language even has a specific word that confirms this practice, “*neke-neke*,” which translates to “inching forward by moving the body with disabled legs or no legs at all.”³⁹ Dean Hunt and Dr. Lipo unraveled clues that had remained hidden in word and stone for centuries. It took nearly 300 years after European contact to solve the mystery of the moai—a mystery set upon the world by the ingenious ancient Rapanui, living at the eastern edge of Polynesia.

I sat down in one of the leather chairs in his office. It was in an old maintenance room, rusted pipes ran along the walls and across the ceiling, hanging on to bits of green paint. Dean Hunt sat across from me, sitting on one leg and letting the other hang. I told him about New Zealand, mentioning Milford Sound and Queenstown and all the places I had gone, heeding his recommendations. I made no mention of Gastra—it never crossed my mind.

As I rambled on about miscellaneous adventures and misfortunes, Dean Hunt listened intently before interrupting me: “Do you work here in Eugene?” I shamefully

³⁷ Terry L. Hunt and Carl P. Lipo. *The Statues That Walked: Unraveling the Mystery of Easter Island*. Berkeley: Counterpoint Press, 2011. 89.

³⁸ *Ibid.*,91.

³⁹ Terry L. Hunt and Carl P. Lipo. *The Statues That Walked: Unraveling the Mystery of Easter Island*. Berkeley: Counterpoint Press, 2011. 80.

replied “Nope! I probably should.” Dean Hunt responded: “Would you like to work for me? I need an assistant for a few things and a pilot for an upcoming project.” I accepted the offer without hesitation. I started working for him right away, learning to fly drones for archaeology in my spare time. On January 1st, 2017, my second journey to Polynesia began, this time to Maui, Hawaii, far from the cold glacial peaks of New Zealand.

...

I landed in Kahului, Hawai’i around midday. I stepped off the airplane and felt the rush of warm humid air and the sun shone free of clouds. I stripped off my jacket, revealing a slightly-too-big floral printed Hawaiian shirt that my father gave me. It screamed tourist and a damn comfortable one. The walkways were frenetic with the movement of families of tourists scurrying about, adorned with colorful leis, coming and going from paradise. I stepped out of the main terminal and hailed a cab. The roundabout exit was lined with palm trees next to resort advertisements. Far off in the distance, a sprawling green mountain range stretched toward the ocean. Toward the coast I could see the faint glimmer of parasails just above the tree line.

The hotel was an old two-story complex on the coast. A U.S. Flag and the Hawaiian state flag blew in the wind in the main foyer surrounding a chlorinated pool twenty feet or so from the ocean. Lounge chairs and loungers flocked about the lawn and children ran between the ocean and the pool. The sun traced west across the sky, slowly dripping toward the forlorn mountains of West Maui. The sunlight, free and open over the ocean, illuminated deep ridges and slopes, alive with the movement of

wind through the trees. The mountains seemed to sway. Rushing toward my room, I grabbed my board shorts and goggles and set out to swim. Hesitant to swim near rocks off the edge of the hotel, I “discovered” Kanaha beach on my phone, a thirty minute walk up the coastline. I left my room a spectacle of tourism—Hawaiian button-up shirt, mid-thigh length floral board shorts, goggles hanging around my neck and big brown flip flops.

I strutted through the garden of the hotel lobby toward the exit. Overweight parents reclined poolside sipping drinks, yelling at their children. Exiting the front of the hotel, Hawai'i began to look a little more familiar for the wrong reasons. The palm trees and coastal vistas on a backdrop of cinematic mountains shifted to a helter-skelter gridlock of urban America. The street was lined with bistros and shopping malls, with neon signs fighting for the attention of passersby. I curved away from the coast and followed a long stretch of asphalt that eventually gave way to gravel and a thicket of garbage and vegetation. The air smelled horrendous. The gravel path was an access road toward the coast and a local sewage plant. I stopped in place immediately. It was odd that an immense, reeking sewage plant was situated so close to the coast. Huge smokestacks spewing smoke from rusted piping overpowered my senses. At the side of the main complex there was a pool of murky brown water with patches of thriving algae floating on the surface. I plunged my nose into the soft fabric of my Hawaiian shirt and carried on steadfast.

As a modern traveler, I expected to pass by resorts and quaint little shacks offering fresh squeezed juice and drinks. I was both naïve and very much in the wrong

part of Hawai'i. Instead, I caught jarring stares passing homeless camps off the side of the gravel road. Rugged, dirty faces stared up at me through intertwined branches adorned with empty plastic bags labeled with a grocery store's logo. I sped up, crunching the gravel beneath my flip-flops, my half exposed thighs luminescent in the fading sunlight. I felt utterly out of place, in swimming garb with not another tourist in sight, sporting a continental beard built for colder climates. I reached a narrow footbridge at the mouth of the beach. It hung over a murky swamp-like river of mud and garbage. A lone deflated car tire rested on the embankment and various heaps of trash littered the rocky slope that led down to the ocean. I set my things down next to a strip of asphalt that flowed into the ocean, perhaps the eroded remnant of some industrial effort.

The sky glowed red and orange and light pierced through interspersed clouds that had rolled in, letting loose a gentle rain. A chill washed over the beach as I stepped toward the ocean. The surface of the water concealed all that hid below it, only reflecting the light of the far off sunset. I plunged in and bobbed about like a hairy buoy. The water was colder than I expected. Putting my goggles on I dove under to see the world below the surface, revealing a grand expanse of sand that obscured my vision. There were no fish, nor turtles or even an empty blue abyss, just sand. Everywhere, sand. I resorted to floating near the shore to keep an eye on my things and the explosion of color falling around the mountains. My strange path had led me to a strange place, a beach wreathed in garbage perched atop a river far too brown for

its own good. I floated around for fifteen minutes before the cold hastened my departure.

I walked faster and faster on my way back, nearly running past the homeless camps now alive with gruff conversation and cigarette smoke. Night had fallen and there I was, dripping and shivering my way back to the hotel. I made it back and retired with an Oregon sour ale brewed just for Hawai'i. The beer was made with passion fruit, guava and orange juice. I slept well that night. The next morning Dean Hunt and Marc would roll into the lobby and whisk me off to Hana to begin our work. Our journey began on the Road to Hana where the grass is green, and so are you.

CHAPTER 4: The Road to Hana

My face pressed into the backseat window as the car lurched around the first corner on the road to Hana, waking me from a nap. We were heading toward Hana for a week to model and photograph Pi'ilanihale Heiau, one of the most significant archaeological sites in all of Hawai'i. The car lurched again the other direction and I felt the pull of the seatbelt around my waist. Looking out the window, a stout Hawaiian woman stood in front of a house holding a sign that read "BANANA BREAD." Next to her was a rack of t-shirts featuring "I SURVIVED THE ROAD TO HANA" in bold white lettering wreathed in a floral pattern. My stomach dropped as the woman and her wares vanished from my view. My father had warned me that the Road to Hana is notorious for dangerous driving conditions, sending tourists on a rough winding road surrounded by lush jungle on one side, and the ocean the other. I gulped as the nausea began to set in. I was never a good passenger. Ever since I was five or six, long road-trips in the backseat of the car usually meant cleaning upholstery. Resorting to an old trick, I closed my eyes, hoping to escape the curvature of the road with a nap. The next curve came suddenly as Dean Hunt whipped around, narrowly avoiding an oncoming car concealed by a blind corner. Looking at me through the rearview mirror, Marc turned to Dean Hunt and told him to slow down.

By now, my face surely matched the color of the brush clustered around the road. The road wound around the edge of Maui, barely hanging onto the island. Rolling the window down, the sound of gravel crunching under rubber mixed with the frenetic chirping of thousands of birds. Wind rustled a canopy of trees cascading toward the

ocean and water spewed from rocky waterfalls. The cool, ocean breeze lifted the nausea from my stomach. Above, a flock of birds soared up the hillside and dove into the jungle. I grabbed a bag of pretzels, and shoveled them into my face. Dean Hunt picked up the pace again, careening around a curve as the gravel turned to asphalt. The nausea enveloped me. This continued for the next hour or so. Each time Dean Hunt slowed down yielded relief. Each time he accelerated, I stared anxiously out the front of the window trying to find something steady as my stomach churned.

Curve after curve and finally, the rough road was behind us. I let out a sigh of relief. Marc turned to me: "Welcome to Hana!" The town was a modest arrangement of houses on two streets leading to a bay. Buildings spotted the descending slope toward the ocean and there were hardly any people about. It was a quiet place, save for the bustle of tourists parking along the side of the road to take photos. We continued toward Jan's house, our home for the next week. Jan was a board executive for the National Tropical Botanical Garden organization and a longtime friend of Dean Hunt and Marc.

The house was a beautiful A-frame overlooking the ocean atop 8 acres of land. An elderly woman sat on a bench in front of a koi pond, feeding colorful fish in the clear water. As we stepped out of the car, Jan leapt up and greeted us with energetic hugs. I began unpacking the car, grinning as I saw the two drone cases in the back. I had been a pilot for about 3 months, anxious to test my developing skill in the air. I was itching to fly across the water and stare back at the hillside in which Jan's house was nestled.

I walked down a stone staircase holding the two drones and stepped inside the bottom floor of Jan's house. A stitching from Samoa hung on the far wall and a variety of masks and idols dominated the living room. In my room, sunlight pierced through tall windows, shining on unwrinkled white bed linens. Sliding glass doors were covered by thin, transparent white curtains that barely concealed a view of the ocean. When I drew the curtains back, a small pool gave way to a rolling hill that sloped toward the coast. Chickens were frantically running around while a portly Hawaiian man chased them. The leaves of coconut trees lined the horizon and a light brown horse walked by, guided by a short woman. I heard a voice from the other room. It was Jan: "Zach, would you like to join as at Hamoa for a quick swim?"

We jumped into Jan's car and headed out. I naively figured that I was in for slow, smooth driving, Jan being elderly and all. However, compared to Dean Hunt's "I grew up in Hawai'i, every tourist on this damn island is slow" driving, surviving with Jan at the wheel was an extreme sport. Jan drove us to Hamoa Beach like the road was melting behind us. She tore around curves and blind corners, slamming the brakes and waving to friends as if nothing happened. I gripped the passenger seat handle and rolled the window down, doing my best to stave off further nausea. After a whirlwind five minutes or so we arrived at Hamoa Beach. We drove down an access road lined with vans and surfer dudes gearing up.

The back of Jan's car looked like the overflow bin of a scuba rental shop. Fins and goggle sets were tangled and breathing tubes were ironically erect, as if drowning in a sea of plastic and rubber. Jan handed me a blue mask, with a black breathing tube

and a pair of green flippers. Dean Hunt held his camera and told Jan he would stick to exploring the archaeology. Marc happily took a pair from Jan and took his shirt off, revealing a full torso of Polynesian tattoos. His chest featured intricate and ornate designs perfectly drawn in black ink. Marc was born and raised in Tahiti and met Dean Hunt while he was doing field work there. His tattoos reflected a deep connection to his culture, and he seemed proud to bear them. I tried on my scuba mask and it was far too tight for my head. I fiddled with the clasps with no success until Marc grabbed the mask and expertly loosened it. Marc was a gentle and enthusiastic man, always smiling and helping those around him.

We walked toward the beach, descending on a stone pathway leading to a grove of palm trees. The sun was just above the horizon, and a few surfers floated about, catching waves beyond the rocks. Dean Hunt headed toward the far side of the beach, where ancient bones were nestled in exposed layers of sediment. Marc and Jan waded into the shallow water and dunked their scuba masks to clean them. I followed and did the same. All three of us put our masks on. The plastic squeezed my face and I put the tube into my mouth, immediately inhaling lukewarm saltwater. Laughing, Marc turned around: "Blow out before you breathe! Like a whale!" We waded out further. Jan and Marc effortlessly put on their flippers and dove in. I looked down at the green flippers in my hand, peering through fogging plastic. I hung one flipper around my arm and reached down to put on the other. Lifting my foot up to jam it into the socket, a wave swept my ankles sending me flopping into the shallow water. The waves pushed me around as I sat there wrestling with the green flippers. I managed to get them on

before the waves pulled me out. I awkwardly stood up on my flippers, with mask and breathing tube still raised high and proud. I squinted through the mask trying to find Marc and Jan. Far off near the rocks, I could see two breathing tubes, one far ahead of the other. I figured Marc was rushing off toward the reef and the open ocean and I dove in, swimming toward him.

By the time I reached the closer tube, which had remained in the same position, the other one was beyond my sight. To my surprise, the close tube was Marc, who gestured for me to follow him under the water. The water was a clear, vivid blue, and fish scurried about in dense schools. I spotted a lone fish with translucent skin and swam toward it, following it outward. Suddenly, I felt a hand on my leg and I spun around. Marc pointed toward a sea turtle scooting along the ocean floor. We were about 15 or 20 feet above the turtle. I started to swim toward the turtle to get a closer look. I felt the same hand on my leg, this time much firmer, and Marc yanked me back toward the surface. He shook his head, calling off the hasty dive. The turtle peacefully floated along the ocean floor. I continued swimming around, chasing little fish and body surfing intermittently.

Eventually, I surfaced, treading water to look around. More time had passed than I had thought. The sun encroached on the horizon of rising waves. Orange and red light poured from the west. I turned toward the beach. The group of surfers had returned and were walking up the steps, their white boards stark against the concrete. Clouds had rolled in over the mountains beyond the beachhead, sheathing the verdant peaks in a curtain of vibrant light—exactly like the mountains from the night before.

Dean Hunt stood next to Marc as Jan emerged from the water. The three hailed me to return to shore. I started to feel the exhaustion of swimming for as long as I had and fought each wave to reach the shore. Reaching shallow water, I tripped as the flippers caught the sand and another wave swept my legs. Rising from the surf, I noticed Dean Hunt, Marc and Jan had already started walking up the steps. The sun had fully set and stars began to peek through the twilight. We drove home more slowly this time. I retired to my room early and slept easily.

CHAPTER 5: Aloha, Pi'ilanihale Heiau

I awoke the following morning to the cock-a-doodle-doo of Jan's rooster just after first light. I washed my face and put on proper drone pilot garb—a loose fitting Hawaiian shirt, cargo shorts, flip flops and a sombrero-esque straw sun hat. I walked into the living room and checked the two drones. Batteries were charged, propellers were clean and everything was squared away. I carried the drones up the stone path around the side of the house, placed them in the back of the SUV, and headed into the main house. Jan and Dean Hunt were sipping coffee around a small table. Dean Hunt piped up: "Marc is outside fetching eggs from the chickens, can you go give him a hand? Oh! And remind him to grab a few oranges." I nodded and walked back outside.

I found Marc pulling eggs from a wire chicken coop. Chickens of all colors and sizes flocked around his feet squawking. Marc was holding a wicker basket that had about ten eggs in it. He was wearing a gray and black tank-top that read "TAHITI" on the front, and brown shorts. He handed me the basket and said: "Let's go get some oranges for juice. Terry will like that." We stepped over coconuts and around bushes until we reached a grove of orange trees. Jan owned all of the land from the house perched on the hill to the rocks at the edge of the island. I picked up a few misshapen oranges that had fallen off the tree. Orange and dark yellow spheres stood out in the tall green grass. They were bruised and strange looking, marred by impact and an organic upbringing. Each orange was little bit different and odd in its own way, unlike the supermarket oranges I was used to. I placed a few oranges gently into the basket and we headed back.

Jan's house was adorned with a variety of Polynesian relics but a few personal touches stood out. A great wooden canoe hung on a wall next to a carousel pony installed into the floor. Masks and fabrics stitched with Polynesian designs were hanging on walls and over the backs of chairs. Each wall had a different bookshelf featuring aged brown tomes. A pristine black piano sat next to a circular wooden staircase that looked like it had been carved by hand. I took a seat on a couch, and goofed around with a ukulele that looked older than me. The poor thing was wildly out of tune. After a few minutes I got something going that resembled music. As Dean Hunt and Jan cooked breakfast, Marc took a seat next to me. I stopped playing the ukulele but before I could set it down, Marc shook his head and said: "No no! Keep playing!" He grabbed an ornate hand drum from a bookshelf and we threw together a tune carried by his surprising skill with the thing. My ukulele playing (which I partially blame on the poor tuning) was not up to par with his Tahitian rhythm. Marc didn't seem to mind.

We ate a simple breakfast of eggs over easy, with toast and fresh-squeezed orange juice. The egg yolks were particularly dark and gooey but delicious. After we had eaten our fill, Jan gestured for us to follow her into the office. We walked through a curtain of beads toward a cluttered desk covered in old manuscripts, maps and books of all kinds. Academic papers mingled with magazines and flyers for Kahanu Gardens, the location of Pi'ilanihale Heiau. I recognized a few authors from Dean Hunt's research on Rapa Nui (Easter Island). Jan had old Thor Heyerdahl articles explaining odd experiments that sought (rather poorly) to solve the mystery of the

statues. Digging through the papers, Jan thanked us for coming here to model and update the record for Pi'ilanihale Heiau using drone technology in place of old manuscripts. Modern archaeologists and national park services around the world were switching from cumbersome hand-drawn methods to digital means. It's a lot easier to work with a single button that documents every feature and every pebble—the archaeological world is no longer at mercy of the sketch artist.

Jan pulled a document out of the mess. It read "A SURVEY OF PI'ILANIHALE HEIAU" by an author I did not recognize. The paper was thick and old and looked like the kind of manuscript from an Indiana Jones movie. The pages creaked open, singing their age. Jan flipped through the pages carefully before finding a sketch of the heiau. The heiau was hand drawn with exquisite detail. Dean Hunt spoke up, shaking his head: "I remember doing this for Rapa Nui, used to be such a pain." The painstaking effort it took to compose archaeological drawings of this kind was the dominant method until the recent advent of digital photography and 3d modeling.

The sketch displayed the front of a terraced stone structure nestled between the forest and the coast. Four coconut trees grew atop the main platform in a cluster. The trees looked out of place atop the mountain of stone. Jan flipped the page to a top-down view of the heiau. Strange stone rectangles were littered around the top of the terracing. Dean Hunt explained that these little raised boxes of stone perhaps served as the foundation for various structures used by ancient Hawaiians. The sketch included depictions of little clusters of pebbles scattered about the top of the structure. It was unclear if the place was a temple of some kind, a dwelling, or both.

The largest Heiau in Hawaii seemed so small on the page. The scale bar was in meters and as one might expect, my American education failed to impart any sense of the structure’s actual size. Figure 1 displays a similar sketch of Pi’ilanihale Heiau. Jan’s sketch was older and is not digitized.

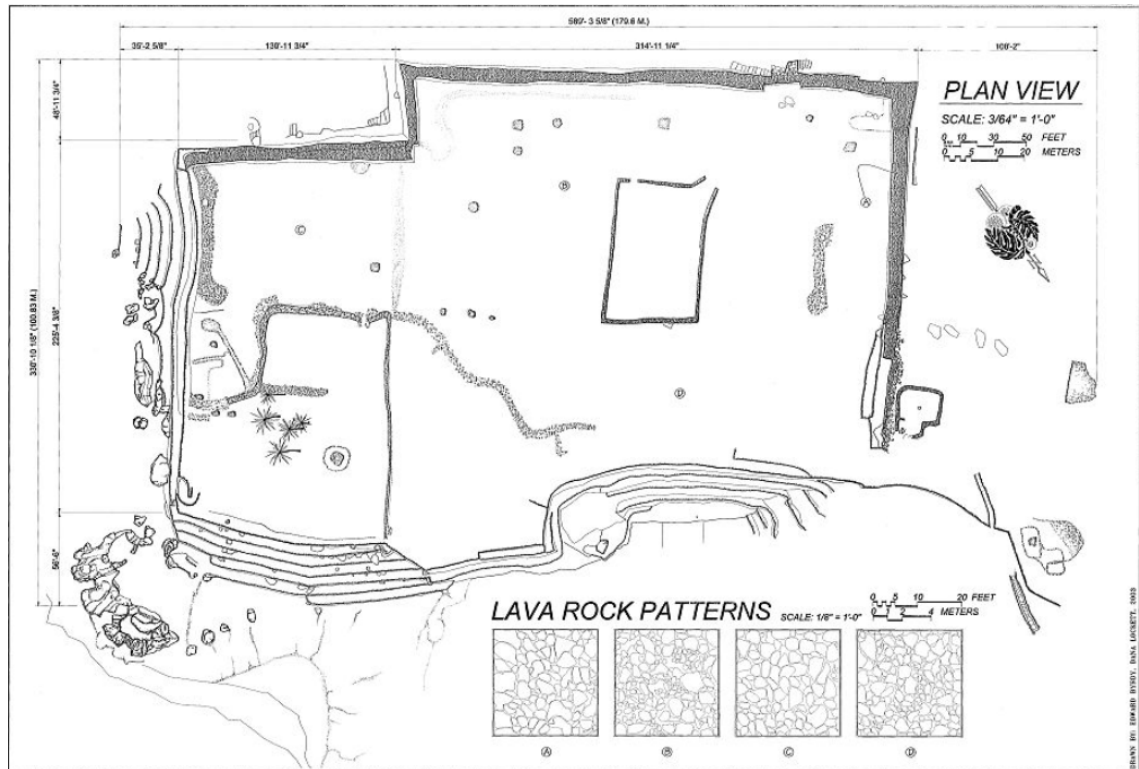


Figure 1: Historic American Landscapes Survey. “Hale O Pi’ilani Heiau, Honomaele Gulch vicinity, Hana, Maui County, HI.”⁴⁰

Dean Hunt turned to me: “You ready to fly it? It’s much better in person.” To be honest, I had no idea what a heiau was, but I was eager to model it. I later learned that Hawaiian heiau were traditionally used for “public ceremonies”⁴¹ to worship “four major gods: Lono (peace, agriculture, fertility), Kane (the creator and ancestral deities),

⁴⁰ Historic American Landscapes Survey, Creator, Edward Byrde, Khanh Kao, and Alex Wilson. Hale O Pi’ Ilani Heiau, Honomaele Gulch vicinity, Hana, Maui County, HI. Hana Hawaii Maui County, 2000.

⁴¹ National Parks Service. “Asian American and Pacific Islander Heritage: Pi’ilanihale Heiau.” 1.

Kanaloa (the ocean, healing and general well-being), and Ku (war).”⁴² It is also theorized that Pi’ilanihale Heiau was “used as a residence,”⁴³ as *Pi’ilanihale* means “House of Pi’ilani,”⁴⁴ the first ruling chief to unite Maui.

We arrived at Kahanu Gardens after a short drive outside of Hana. We entered a makeshift parking area with a pickup truck and a blonde surfer dude wearing a polo and big sunglasses with string tied to the ends. His voice was soft as he spoke after giving Jan a hug. His name was Mike Opgenorth, the Director of Kahanu Gardens: “I’m thrilled and honored to have you dudes here. This model is gonna help with so many things.” Mike explained that the garden was facing a problem with people climbing the heiau. I thought this was a little strange given my impression of the structure’s size from the drawing. He told us a visitor center was in the works, where the 3D model would be on display to satiate the unrelenting desire of tourists to see all in their path. I tossed the drones into the back of his pickup and jumped in. Dean Hunt, Marc and Jan piled into the cab and we rolled into the main area of the garden.

We parked along a bush a hundred feet or so from the base of the heiau. Looking up, the structure was an immensity of stone. The shape matched the one from the drawing but the surrounding trees provided a shocking scale. The heiau was taller than the trees in front, and nearly the same height as the jungle behind it. Toward the water, the garden funneled into a peninsula and a stone fence outlined a square area

⁴² National Parks Service. “Asian American and Pacific Islander Heritage: Pi’ilanihale Heiau.” 1.

⁴³ Ibid.

⁴⁴ Ibid.

with a large tan house. The sky was overcast and the area was silent save for the sound of the waves and the wind. There were no tourists in the garden. Inside the house, on a fold-out picnic table, lunch was served in a series of takeout trays of rice, noodles and poke⁴⁵. The top of the house was covered by brown thatch. Large black spiders dangled above, weaving their webs in the dark, cavernous framework. Seeing them made me finish my lunch faster and head toward the water.

On a crag overlooking the ocean was a bench under a shelter covered by the same brown thatch. I sat down and stared out at the ocean. Far out, it was tranquil, but near the shore water sprayed above the rocks. The waves heaved over rough black stone and sea-foam frothed. I turned to look inland, a few feet from another monstrosity of a black spider. The thing must have been the size of an orange, silently perched atop a web that seemed far too delicate for its size. Its legs slowly recalibrated position atop the web before scurrying into the thatch. I left the area at once and headed back for the open space of the garden. Palm trees swayed in the wind; every so often a coconut hit the ground with a thud. The others had gathered around the car and beckoned for me to join them.

Mike began a tour of the garden explaining the intricate terracing of Pi'ilanihale Heiau. We approached the front of the heiau. It towered over us, a truly impressive feat of architecture. The structure was easily fifty feet high. Mike guided us around the right side of the Heiau and stopped before a wall of terracing that had deteriorated

⁴⁵ Raw fish, pronounced "poh-keh."

into a rockslide. Mike clambered over the boulders, and pointed to a single stone that stood out amidst the chaos of rock. This stone was the foundation stone, a ceremonious and essential piece in heiau construction. It was smoother than the rest of the rough volcanic rock.

Mike stepped back and walked toward a tree at the base of the Heiau. He placed a lei around each of our necks and began singing. He sang in Hawaiian, gesturing toward the Heiau and then to us. His once soft voice was deep and resonant as he invoked the syllabic thrum of the Polynesian words. He finished and the group went silent. I looked at Dean Hunt and he grinned back at me. Jan gleefully complimented Mike's blessing and gave him a hug. He was new to the garden and had been hard at work mastering the blessing for today's work. We thanked Mike and headed back toward the truck. I asked Mike what he sang to us and he explained: "I thanked the ancestors of this sacred garden, for our health and requested their permission to fly the drone above it to preserve its beauty and legacy." I retorted: "For my drone's sake, I hope they agreed." Mike smiled but did not laugh.

Back at the car, Dean Hunt and I decided to start with scenic photography of the area. I opened the gray Styrofoam case and pulled out our new DJI Phantom 4 drone. It was light in my hands as I took the camera guard off. I attached the propellers while the others leaned on the truck. The drone was a standard quad-copter with four propellers set atop a polished white plastic body about a foot high and a foot wide. The camera hung between two landing bars outfitted with proximity sensors. I jammed a battery into the back of the drone, and pressed the power button.

Obnoxious beeping broke the chatter as if a microwave had appeared in the middle of a lush garden. Everyone looked at me in anticipation of an error, and I gave a thumbs up. Setting the drone down on the car, I unfolded the remote and calibrated the connection. The radio signal was good—14 satellites. I looked around, the area was clear and with a few birds scattered above the nearby forest. I was set for takeoff—a bit anxious but ready.

I picked up the drone and set it down on a flat patch of grass in the clearing of the garden. Standing about 20 feet away from the others, I pressed take-off and the propellers whirred and the drone rose out of the grass, steady and buzzing. The wind was mild and the drone easily kept position. The sky remained overcast—perfect for detailed archaeological photography. Sunlight creates shadows that often obscure key archaeological features, while clouds create even lighting. Pressing the left joystick gently forward, I brought the drone way above the garden. Pressing the right joystick forward, I sent it toward the coast. As the drone flew, I jumped into the back of the pickup and sat on the edge of the bed. My feet dangled and kicked about like a kid in a highchair. Fifteen years of “melting my brains” playing video games—much to my mother’s chagrin—had paid off. Dean Hunt and a few of his graduate students often voiced concern about flying the drones. They worried about the thousands of dollars resting at their fingertips, but I never flinched at the thought. Flying drones was as comfortable as a quiet evening spent at the computer.

Through the camera feed, I could see the waves crashing as I soared over the edge of the garden. Sea foam dripped and dragged its way across the rocks and water sprayed upward, carried by the wind unobstructed by the trees. Angling the camera up, I looked back and beyond the garden, revealing a sweeping verdant hillside that was half veiled by a gray cover of clouds and half illuminated by the sun. Over the horizon of the drone's vision, the sky was blue and the dense clouds broke into faint wisps. I heard Dean Hunt over my shoulder "angle the camera down, less sky." I followed his directions and heard: "Snap that."



Figure 2: Zachary J. Larison, "Pi'ilanihale Heiau and Kahanu Gardens." 2017.

This was the beginning of our drone dynamic. When it came to scenic photography, Dean Hunt hesitated to fly the drone but knew quite well how to frame a photo, instructing me on the drone's position and the camera's orientation.

Hovering over the coast, I realized at once the beauty of Hawai'i and the archaeology before me. The island and the ancient Polynesians that lived here were a truly spectacular people. I brought the drone back in over the heiau, gently guiding its path as I descended between the trees. Positioning the drone over the heiau, I measured its height from our position and the height of the coconut trees that towered over the top. Three of the coconut trees were still green and their leaves flapped in the wind, threatening the position of the drone. The fourth tree was bare, and it looked like a curved cotton swab, erect and unmoving. I made a note of the height of the coconut trees using the onboard altimeter and shifted the drone to the front of the heiau. The platform was terraced seven times. The rocks were gray and white and black, spotted with moss and bushes fighting for space. The hill beyond the heiau was wreathed in a sudden fog that made it seem as though the island was disappearing behind it. I heard the same voice over my shoulder again: "Snap that."



Figure 3: Zachary J. Larison, "Fog Behind Pi'ilanihale Heiau." 2017.

I landed the drone, guiding the landing bars precisely into the same flat patch of grass. The buzz of the propellers faded and the calm sound of lively conversation and rustling leaves returned. I walked out to the drone and picked it up, looking up at the giant structure before me. I thought of Gastra and shuddered realizing that this place, in some far-off way, was a part of his culture. I much preferred this garden over his. The Polynesian culture here was found in the trees, in the ancient structures and in the paradise of these islands, not in a house of horrors in the suburbs of New Zealand. I shut off the drone, smiling at the almost sad "off" beep. I set the drone gently into the gray case and grabbed yellow case with the other drone in it. The "yellow" drone, as we called it, was an old DJI Phantom 3 Pro beat up from years of flight by other pilots and students. It was much bulkier than the new drone, and the plastic was a dirt-

stained white. I screwed on the four propellers and set the drone next to the controller.

Using my phone, I set up the programmed flight using the measurements from the scenic flight. The program was ready: A tight grid covering half the Heiau, camera angle set to 60 degrees, and altitude set just above the top of the coconut trees. I realize now that I should have manually flown the entire Heiau, circumventing the coconut tree problem. Photography for drone-based 3D modeling relies heavily on the detail of each photo. Flying at the appropriate altitude to avoid crashing into the trees meant flying rather high, degrading the quality of each photo. But, as a newly minted pilot, I was happy to take advantage of the mostly automated “3D MODEL FLIGHT PLANNER” button on my phone.

The program runtime was estimated to be about 22 minutes, three minutes shy of average full battery flight. Walking out to the same patch of grass, I set the drone down, uploaded the programmed flight and walked back toward the car. I pressed start and set the controller down on top of the yellow case. The drone buzzed to life and Mike and Jan both looked at me, concerned. The drone was in the air and my hands were off the controller. I smiled and pointed to the drone as it ascended and moved into position. It followed the grid, slow and steady for the next twenty minutes—ever the strenuous life of a drone pilot lounging about a lush Hawaiian garden. I repeated this process three more times, casting a wide area of coverage over the heiau before powering off and putting away the yellow drone. With the first day of photography complete, we piled into the car to head out.

Back at the car, Dean Hunt and Marc discussed making “ulu” and coconut sauce to go with dinner. I kept hearing the word “ulu” and seeing eager faces all the while having no idea what an “ulu” was. I asked Marc and he explained that “ulu” was the Hawaiian word for breadfruit: “Cooked, ulu is like sweeter bread, hence the criminally obvious name.” We drove down the dirt road and parked in front of a grove of ulu trees. Marc told us each to grab the best looking ulu we could find, and Mike nodded, approving the venture. I walked through the tall brush, avoiding bruised and rotting ulu that were laying around. Looking up, the branches above seemed to have a hundred giant lemons hanging on thick green leaves. They were bright yellow and had a wrinkly surface that was hard and rough. An ulu dropped from the tree a few feet in front of me and landed in the grass with a muffled thud. I stepped forward and picked it up. It was strangely heavy and a giant stem erupted from the ulu’s green and brown flesh. The exterior felt like thick hide with a pattern that looked like a soccer ball with candy corn shaped patches. I walked back over to Marc and showed him the ulu, and he nodded in approval. We all jumped back into the car, each holding our own ulu. Marc spoke up, elated: “I’m so excited Terry, I miss ulu and this weather!” We drove back to Jan’s house just past midday.

Back at the house, Jan suggested another swim at Hamoa Beach and I happily obliged. I was starting to love the island lifestyle. Flying a drone over scenic archaeology, rummaging through unique vegetation for food and swimming at a serene beach all fulfilled the myth of Polynesian paradise. We swam for a few hours until the sun began to fall toward the horizon. I didn’t see a turtle nor many fish this

time but the waves were monstrous. More than a few times the waves threw me well under the water and the undertow pulled me out further and further. When Dean Hunt hailed me in to return to shore, I struggled to swim back. Every 20 or 30 seconds the water swelled and lifted me forward before pulling me back twice as far. I reached the shore exhausted and panting. We returned to the house.

Before I could get into the shower to wash the salt from my body, Marc called for me to follow him and collect coconuts for Tahitian-style coconut cream. We walked out into Jan's garden and Marc stopped under a coconut tree, and began sifting through a pile of unsightly brown, hairy things. I said to Marc with a confused look: "Wait these are coconuts? They don't look like coconuts." Marc responded, laughing at my white-dude naiveté: "Are you telling a Tahitian what is or isn't a coconut?!" A look of surprise crept across my face and Marc kept giggling before telling me to pick a few up. He said we needed four coconuts. When I grabbed two, they felt oddly light. I had only ever seen the husked coconuts of Hawaiian travel commercials. These were ugly, nasty-looking things. I followed Marc over to the maintenance house on the side of Jan's property. Marc picked up an old rusted pickaxe and handed it to me. He then grabbed a knife, and a machete.

Carrying two coconuts each and our respective tools, we walked back up toward the main house. Marc scanned the area and found a drainage grate near Jan's koi pond. He set the coconuts, the knife and the machete down on the ground and asked for the pickaxe. I obliged. Marc wedged the handle of the pickaxe into the grate, positioning an exposed pick upright like a spike. Dean Hunt emerged from the main

house with a glass of red wine, eager to watch. Marc started to ask if I had ever husked a coconut before realizing the answer was a definite no. He picked one up and demonstrated. Slamming the coconut onto the pickaxe, he ripped through a section of husk, tearing rough fibers with a dry cracking sound. He lifted the coconut off the pickaxe and repeated the same motion, crushing and ripping the husk. After a few seconds, the husk was on the ground and Marc held a hairy brown sphere. He picked up the knife and began smoothing it. He looked at Dean Hunt, then back at me, and said: "It's tradition in Tahiti for men to prepare coconuts before women cook with them. But, Zach, you must never give a woman hairy nuts!" We laughed as Marc continued to shuck the hair off the coconut.

Before long, the coconut was perfect and smooth. Marc told me it was my turn to try. I picked up a coconut and stood over the pickaxe. Marc warned me not to stab the coconut through the middle and to only pierce the husk then rip away the rest. I carefully pinpointed where I wanted to pierce and hit the coconut onto the pickaxe. The coconut bounced off the tip of the pickaxe, jolting my arms. Dean Hunt and Marc both laughed: "Harder!" I slammed the coconut recklessly this time, and the pickaxe pierced through a thin layer of the husk before erupting out the other side in an underwhelming explosion. Determined, I raised the coconut once more and slammed it with force and precision. The husk crunched as the pickaxe shredded through the thick fibers. "Good! Now rip away the husk." Burying my fingers into the flesh of the coconut, I felt sharp and stringy fibers resist my effort. I heard the same "harder!" from Dean Hunt and Marc as they watched on, enjoying my effort. I placed one foot

forward and leveraged against the husk with my bodyweight and a massive chunk tore from the coconut, upsetting my balance. Dean Hunt and Marc cheered and told me to repeat the process until only the core remained.

After five or so more minutes, I held a nasty hairy ball in my hand. Marc handed me the knife and I started to smooth the surface, cutting away hairs and remnants of husk. As I sheared the coconut, Marc stepped in to husk another. After about ten seconds the husk was gone and Marc smiled at me, patiently waiting for the knife as I stood jaw-dropped. I quickly finished my coconut and handed him the knife. He gestured for the coconut in my hands. Running his hands over the surface of the coconut, Marc shook his head: "You're going to have a hard time finding a wife in Tahiti with how hairy this is! She will look at you and say: "What?! Am I supposed to do all the work here?" Dean Hunt shook his head, laughing. Marc husked another coconut and smoothed the four nuts out. Satisfied, he picked up the machete and split one in half with one slash. He handed a half to Dean Hunt and the other to me. I looked at the strange liquid resting in the pure white basin of the nut. I took a hesitant sip. A faintly sweet taste rushed over my tongue and I eagerly finished the rest. I handed the half back to Marc, who had just finished drinking Dean Hunt's. I felt like a proper islander, if only for a moment. We walked back inside with the three other coconuts. I could feel the liquid swooshing around inside. Setting them in Jan's kitchen, I retired to our half of the house to cleanse myself of saltwater and sweat.

I showered, and put on my Hawaiian shirt and returned upstairs for dinner. The sun had fully set and the night was clear. The moon shone bright over the water and

stars filled the sky with unparalleled density. There was hardly any light pollution here—few people were fortunate (or rich) enough to live on the slopes of Hana. Dean Hunt handed me a glass of wine and I happily accepted. Dean Hunt was always keen on red wine, and for good reason—a passion I now share and blame him for (in jest). We drank merrily for the rest of the evening enjoying red wine, chicken with ulu and coconut sauce, and fried bananas for dessert. Dean Hunt and Marc put coconut sauce on *everything*—on the chicken, on the breadfruit, and on the fried bananas. The bananas were tangy and fresh, unlike the over-ripe sweet flavor of mainland bananas. They tasted fresh and delicious covered in coconut sauce and sugar. After merry conversation and helping with the dishes, I returned downstairs satisfied. I plugged in the drone batteries and retired to my quarters.

The next morning, I rose and set about creating an initial model for Pi'ilanihale Heiau. The photos looked phenomenal and the lighting was even across each shot. I plugged the photos into the software PIX4D, a newly developed 3-D modeling program. The loading bar stuttered and my eyes widened as the model appeared. It was a complete mockery of the heiau. Half of the heiau was inverted and merged with the other side sloppily. It hardly resembled anything archaeological. I wondered why the photos had not yielded a good model, struggling to find a good reason. I used around 800 photos in the input, which usually assures quality if the photos are taken at the same time of day, which they were. If you do not take drone photos for 3-D modeling at roughly the same time, the natural drift of satellites will throw off the software's ability to detect where each element belongs. In this case, it receives two

slightly different GPS inputs for identical features. According to the software, if you provide photos from different days, the same fixed feature, a white rock for example, will be identical, but in two different places and therefore create errors in the replication. I figured this was the case upon seeing the mess of a model, but it couldn't be. Perhaps the system didn't have a proper reference for scale?

At the time, I was unaware of the simple practice of placing a brightly colored tape measure in a noticeable position during initial photography to provide a known-object scale. Instead, I elected for a far more primitive method. I headed upstairs to tell Dean Hunt that I planned to use a still human placed on the terracing as my reference for scale. This would make for an understandable scale in the Visitor Center and hopefully resolve any erroneous modeling. I showed Dean Hunt the model and he retorted: "It doesn't take a Ph.D. to know that's no heiau." He calmly reassured me that we had a few more days to work in the garden.

After a lunch of leftovers from dinner discussing the plan for the day, Mike arrived and was eager to see the model. I shamelessly showed him the output and he frowned then laughed. I told him my potential solution to the issue and he happily volunteered to be the human model for my poorly imagined scale idea. I told him he could not move an inch during the flight, and that any movement would distort my ability to properly reference his shape. If Mike moved even an inch to the right for one flight, his dimensions would gain one inch. If his left arm went from resting on his leg to resting in his lap, Mike would gain an additional arm in each place. It was crucial that he remained absolutely in the same position. We brainstormed the position he

would take in Jan's living room, opting for Mike's hands resting on his knees with crisscrossed legs. We agreed that this position should give him an ideal amount of comfort. We packed up and headed out toward the garden.

As we rolled into Kahanu Gardens, a few tourists scurried about the area. Mike politely told them to vacate the area in front of the heiau and that official business was beginning shortly, per my request. For example, if two tourists wearing red shirts walked into a variety of different positions between each photo taken by the drone, the software would render them as simultaneously being in each position in the model, creating a crowd of red humans. A perfect model represents exactly what exists in the real world, which allows for both scientific and preservation efforts to proceed—tourists are not a part of this representation. The tourists walked off confused and Mike took his position on the fourth step on the terracing. I booted up the yellow drone, and imported the same flight parameters, except this time I opted to complete photography of the Heiau in four flights that would each cover a quarter of the Heiau and some of the garden space. Dean Hunt and I agreed that a model for the Visitor Center would make the most sense if parts of the garden, which can easily contextualize orientation, were included in the model. From the launch area I yelled to Mike to shake it out one last time before becoming statuesque. He yelled he was ready and wiggled before locking into position. The propellers whirred and the drone launched over the heiau.

Over the course of the next two hours, I carefully calibrated the parameters of each flight's grid to match the exact shape of the area I wanted it to cover. Mike did

not budge one time during the entire series of flights. He made no sound or protest either. After completing four flights, I called for Mike to come down. Mike had a blank expression and was incredibly exhausted and frustrated from sitting *absolutely, completely* still as I had reiterated over and over again between flights. It usually went something like this: “MIKE, I’M LANDING BUT YOU STILL CAN’T MOVE” followed by silence. Conditions were less than ideal that day, and the sun had shone intermittently over the Heiau. I shrugged it off thinking it would probably be OK. Before we left, I took the gray drone out and ran a quick flight for additional scenic shots. Just before landing, I gathered the crew around the back of the truck and we took a celebratory photo. Our field work was complete.



Figure 4: Zachary J. Larison. "Hana Archaeology Crew at Kahanu Gardens." 2017.

From left: Jan Elliot, Mike Opgenorth, Zachary Larison, Dr. Terry Hunt, Marc Kelly.

We headed back toward the house, repeating our lovely sunset routine—a quick swim at Hamoa Beach, followed by husking more coconuts, a warm shower, a glass of red wine, eat dinner, another glass of red wine, and so on. After dinner was finished, I took out Dean Hunt's laptop and began processing the next round of the model. After an hour or so, the model came out. This time, the Heiau was completely disassociated. Each significant section was suspended in air as if gravity and everything holding it together vanished. The model looked like a floating pile of rubble, the kind you might see in a sci-fi movie scene in an asteroid field. Frustrated I looked at the input more closely. I had used 1200 photos this time, which should have increasingly assured the quality of the model. With 3D modeling, the more the software has to reference, the more it can learn what goes where and what features belong to what

sections. On a whim, I loaded abbreviated versions of each flight, hand-picking the best and most essential photos from each of the six runs. I giggled to myself as I saw Mike perched atop the terracing, stoic and unmoving. I uploaded about 250 photos, rather than 1200. Doubtful, I ran it through the system on a whim.

Thirty minutes and another glass of wine later, the model came out pristine, just in time. Mike and his Hawaiian girlfriend, who was a legendary surfer in Hana, and two old folks, the Bakers, arrived to see the fruits of our labor. I double checked the model before Dean Hunt beckoned me over for introductions. Things looked good—it looked like a heiau. I shook hands with everyone before returning to the computer. While Jan was catching up with the Bakers, Dean Hunt pulled me aside: “The Bakers are *exceptionally* wealthy and they are thinking about donating to the construction of the visitor center, where our model will be on display.” A bit nervous, but emboldened by the “vino” as Dean Hunt enjoyed calling it, I called everyone over to the computer. I opened the model and navigated the group through the garden. The heiau was perfectly iterated. The garden looked fantastic and the boathouse even came through, despite the backside being completely green. I suspect this had to do with lack of photos for that side of the house. The software assumed that in a garden what it doesn’t know must be grass. Mike and the Bakers were delighted as they recognized key features of the gardens and the heiau. Mr. and Mrs. Baker had never seen the top of the heiau, and were stunned by the intricate stonework. Dean Hunt and I exchanged glances and he nodded in approval. To my surprise, Mr. Baker was elated enough to offer \$25,000 toward the construction of the visitor center. We concluded our first

look at the model and continued the evening merrily enjoying wine, food and conversation.

As we sat on the Jan's deck overlooking the ocean, I saw the moonlight rippling across the water and felt very much at peace following an unlikely success. I definitely expected to have to slog further and further into problems modeling the Heiau, as beastly as it was. Mike stepped onto the deck and asked to look at the model again to show his girlfriend himself perched on the terracing. Mike had only glanced at the model, obstructed by Dean Hunt explaining what everyone was looking at. I agreed and we moved back to the table. Mike's girlfriend was wearing a long white dress and had a bright yellow flower tucked into smooth black hair. Mike was wearing a matching white button-up shirt and his blonde hair was spiked up, reminding me of my father. I opened the model and zoomed in on the location where Mike was earlier that day. I immediately started laughing. For some reason—a reason I still can't explain to this day—Mike was not in the model in any way shape or form. Failed renditions of the model featured Mike as a sort of discolored boulder along the terracing but it was hard to tell if that was really him, or the program (me, really) fucking everything up again. Stunned, Mike came in close on the computer screen and exclaimed "Motherfucker!" I apologized for the painstaking two hours that he endured for nothing. He sighed and his girlfriend laughed, comforting him. Dean Hunt entered and asked what was going on and joined in on the laughter. Mike frowned but eventually understood the humor of the situation and the evening carried on effortlessly. I slept well that night.

CHAPTER 6: Searching for Opihi

We spent the next few days lounging around until Jan introduced us to a thick, muscled Hawaiian man who worked to preserve Hana's coastal wildlife. He told us that a significant opihi population, an endangered Polynesian mollusk often poached and over-consumed, lived at the edge of Jan's property. He politely asked if we could photograph the area to monitor the opihi. We happily obliged and loaded the gray drone into Jan's Kawasaki yard-mobile. Dean Hunt sat in the passenger's seat next to Jan, and Marc and I stood in the pickup bed, holding onto a large metal bar to keep ourselves from flying out of the vehicle as Jan whipped through her property. We eventually reached a heavy metal gate at the fringe of Jan's property where her two horses were grazing about. Jan jumped out and opened the gate, careful to make sure that Cookie and the other horse (whose name I forget) did not escape. The horses seemed uninterested at the prospect of escaping Jan's bountiful garden.

The area beyond Jan's property was a densely forested with muddy road that led out toward the ocean. We drove to the edge of the jungle and parked the Kawasaki a few feet before the water. The wildlife worker was waiting next to his pickup truck, having taken a different access road to our location. He beckoned Dean Hunt over to show him where to fly, and Dean Hunt pointed at me and said: "He's the pilot! Take him!" I walked toward the man as Dean Hunt pulled out his own camera and began taking photos of the scenery. The dirt road faded to sand and grass followed by a rocky outcropping leading toward translucent blue water. A single tree obscured the horizon and a wooden swing tied to low branches gently swung in the wind. Light peeked

through the branches, illuminating frayed rope and a salt-stained plank dangling above a bed of smooth stones.

I followed the man toward the water. He pointed up along the coast: “There’s opihi all up this coast, just go up and take as many photos as you can.” He started to explain how far up the coast to photograph before interrupting himself: “Ah shit, man.” I looked at him confused. He pointed toward a rocky cliff and said “Look at that poor cow.” A cow had fallen from the cliff above and died on the rocks below. The waves sprawled and reached up the rocks, but the cow remained intact. The man stood there staring at the cow. I didn’t really know what to say, so I suggested getting started. I walked back to the Kawasaki and prepared the drone for flight. Propellers on: Check. Obnoxious Beeping: Check. Liftoff! I immediately flew toward the cow. The corpse appeared fresh, its brown fur standing out among the gray rock. I grimaced and exclaimed “Yikes!” and the others came over out of curiosity. Jan lamented the situation: “Oh dear, I know that cow’s owner, she was a sweetie.” I started snapping photos of the corpse, much to everyone’s dismay. Ever the plight of the photographer.



Figure 5: Zachary J. Larison. "Cow on the Rocks." 2017.

I flew away and began scouting the area for opihi. I flew in low over the rocks and Dean Hunt winced as the waves splashed inches below the drone's landing bars and camera gimbal. I could see scattered black spots on the rocks here and there but not anything mollusk-like. I asked the wildlife worker where they were and showed him the screen. He responded: "You've already found em!" The opihi were a sneaky bunch—they were the black spots on the rocks. I started snapping photos up the coastline flying incredibly close to the water and rocks. Each gust of coastal wind threatened to throw the drone into the ocean or crashing into the rocks. I kept a steady hand on the joysticks, countering each gust of wind with slight adjustments to keep position. After completing a run of the length of the coast, I asked if there was anything else they would like me to photograph before heading back. The wildlife director and Jan thought for a moment, sharing a few words about locations I didn't

recognize. They said yes and asked if it was possible for me to operate the drone while we drove to photograph the places in-between. I agreed, assuring them it was possible as long as we didn't drive too far too fast.

We loaded everything into the Kawasaki and prepared to head out. Checking the drone's battery I had about 7 minutes remaining and opted to land and change it. The propeller blades sliced through the tall grass. I swapped the battery out, and sent it back up before climbing into the back of the Kawasaki. Dean Hunt and Jan sat in the front and I wedged myself in the flatbed of the vehicle, hoping that the dirt road wouldn't throw me around too much as I focused on flying. We headed off, and I followed with the drone. We drove around the edge of the water, revealing a spectacular system of inlets and waterways with pristine blue water and deep rocky reefs. We plunged into the forest and looking up I saw dozens and dozens of coconut trees. Every now and then a coconut thudded somewhere close to us and I began to worry about one dropping on my head. Jan explained that we were in the middle of a coconut grove that the wildlife director would like photographed in whole. Dean Hunt instructed me to go high up and hit a "nadir" shot (camera facing straight down), and then to get an oblique shot over the horizon, capturing the ocean and the far slopes of Maui. I happily obliged, bouncing around in the back and never taking my eyes off the screen.

The landscape was spectacularly diverse. Each location we drove to was different, some vibrant and green and densely forested. Others were sparse and rocky with long billowing brown grass. Before long I noticed the edge of Jan's property

through the drone camera and looked up, feeling stiffness in my neck. The battery was near death, having flown for almost thirty minutes straight. Jan instructed me to take photos of her property any way I liked, and to conclude the flight with nadir photos for a map of her property. I quickly completed the task just as the battery warning lit up across the display. I had two minutes before the drone would automatically land itself—a dangerous prospect given the trees and brush on Jan’s property. I hovered the drone over Jan’s driveway while we stopped to collect oranges and coconuts and whatnot for dinner. I navigated the drone down through the trees, narrowly avoiding crashing into the branches, and gently set the drone down on her driveway before powering it off. I let out a sigh of relief, happy to still have the drone in one piece.

We repeated our routine one last time that evening. Swim at Hamoa, husk coconuts, wine, dine, and rest. Before bed, I gave Jan all the necessary files to load the 3D model, every photo we took for the preservation of opihi, and a quick map of her property. Satisfied with the work, I retired to my quarters. I realized then and there this was definitely something I could do for a long time, and lamented the fleeting nature of this trip. The next morning we headed out for the airport, thankfully taking the other road out of Hana. It was a scenic and peaceful drive, only encountering windy bits intermittently—the ‘other’ road to Hana was far more merciful. We flew back to Oregon that evening, concluding a phenomenal first outing for a newly minted drone pilot. By some miracle I threw together a working model of Pi’ilanihale Heiau that I was rather proud of. Figure 6 displays the model of the Heiau in all its glory:

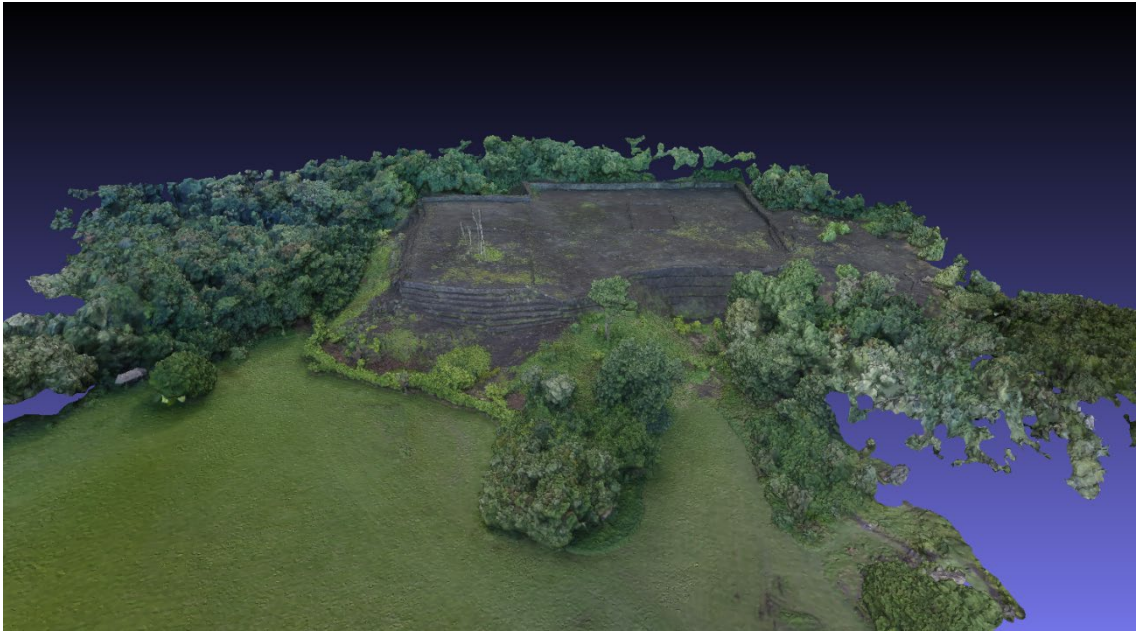


Figure 6: Zachary J. Larison. "3-D rendering of Pi'ilanihale Heiau." 2017.

CHAPTER 7: The Drone Shuffle

Following the success of our work in Hawai'i, Dean Hunt sponsored me for his Rapa Nui 2017 Study Abroad Program. I was set to be the drone pilot, Spanish translator, accountant and general assistant for three students (Rav, Peter and Kris), Dean Hunt, and P.H.D student Beau DiNapoli. The plan was to survey the Vaihu sector, a long stretch of coastline with a wealth of archaeology. However, the island had recently come under the supervision of indigenous Rapa Nui descendants, rather than the Chilean government. Dean Hunt warned us it was possible we could be denied all access to the archaeology on the island. We left July 1st, 2017 for Santiago, Chile, the relay point before heading west across the ocean to the remote island of Rapa Nui.

...

We landed in Santiago to a cold and foggy morning. On the descent, the snow-capped peaks of the Andes pierced the fog hanging over the city. I took a deep breath as the plane hit the ground with a satisfying and singular thud. I took a deep breath, knowing that the flying was only half over, and stepped into the aisle to join the rest of the cattle. A rush of cold air assaulted my face as I emerged atop a long metal staircase. I rubbed my hands along my arms, feeling goose bumps. We had just flown from a brutal heat wave back home in Oregon that somehow managed to set much of the state on fire. Winter was in full effect in Santiago, and I smiled embracing the cold. This was the second summer in a row I managed to escape the heat of the northern hemisphere.

At the bottom of the metal staircase the others were waiting off to the side as the rest of the passengers lined up in front of a row of buses. A lady wearing a reflective orange vest, holding two luminescent batons, yelled for everyone to hurry up. I continued down the stairs at the same groggy pace, ignoring the woman's shouting. I met up with the others, most of whom were awake and alert, save for Peter and myself. We loaded onto the buses, packed in tightly with the other passengers. With each curve on the road to the terminal, I felt an elbow or a shoulder smash into my side. Despite being fairly tall, I could hardly see over the field of dark hair. I couldn't help noticing that most of the Chileans on the bus were fair-skinned with black hair. I smiled knowing I could pass for Chilean here. Being "American" abroad, especially in a Spanish speaking country, was troublesome. Being American no longer felt laudable and instead created uneasy tension between traveler and local.

The bus pulled into the main terminal and everyone shuffled into the warmth of the airport. I turned my phone on and checked the time: 8:59. Our flight to Rapa Nui was at 10:15. The other students seemed lackadaisical about our timing, happy to avoid a layover. However, I had two drones to cart through customs without any formal licensing on hand—all of the permits were with Beau, who was nowhere to be seen. I jogged toward the customs line and scanned for Dean Hunt. Having flown first class, he was near the front of the line and I nudged my way through the narrow hallway to catch up with him. People were disgruntled as I passed them but

“permiso”⁴⁶ seemed to do the trick of avoiding conflict. Dean Hunt was smiling when I reached him panting. He was wearing a blue dress shirt, black pants and shiny black shoes. He was holding a leather briefcase as he continued grinning without saying a word. Dean Hunt had significant anxiety when it came to flying and often staved it off with a prescription concoction. We had a six hour flight to Rapa Nui ahead of us. His smile persisted and I shook my head laughing as we reached the customs officer. He checked and stamped our passports and sent us through. I found the right line for our baggage and placed myself at the mouth of the conveyor belt. Dean Hunt strolled in next to me and his smile was gone, replaced by a troubled look on his face. He looked at his watch and I nodded. Making the flight to Rapa Nui entirely depended on whether or not the next domestic transfer customs officer cared that we were flying two drones to an island where they are generally prohibited.

A few minutes went by before the drone cases arrived. I grabbed both and lugged them out of the area, jogging toward the next checkpoint. Dean Hunt followed behind in a light jog, his clarity returning. I leapt into the next hallway and into the line for domestic transfers. An old Chilean man was at the head of the line, guiding luggage onto an X-ray machine. Ever so slowly, each person loaded their baggage onto the conveyor belt, and watched it creep up and into the machine. Every single person in line placed their luggage at the end of the belt rather than closer to the mouth of the

⁴⁶ “Excuse me” in Spanish.

machine, watching it inch forward. I sighed and checked the clock: 9:32. *Plenty of time, just have to get through the old man.*

The machine swallowed my belongings and the two drones before pausing. The Chilean man looked at me before moving the belt again. To my surprise, the gray drone case popped out and went unquestioned into my hands. I nervously stared at the man as he squinted and frowned at the X-ray monitor, further wrinkling his aged face. The front half of the yellow drone case popped through the rubber flaps before being pulled back in. The man scanned it again, and sent the whole thing through. Before I could grab it, he stopped me and picked it up. He abandoned his station, halting the entire line behind Dean Hunt who watched from the other side of the barrier. He hunched over the table and fumbled about trying to open the case. Opening the yellow drone case was far from obvious for him: one had to flip two clasps on the side before the top would release. He pressed hard on the handle before giving up. He turned to me and spat out Spanish faster than I could understand. He had a thick Chilean accent, notorious for cutting vowels and merging words. I replied to the context, that it was a drone for academic purposes. He slowed the pace of his speech, painfully enunciating each syllable asking me how to open it. I tried to explain how to open the case in Spanish but never thought to practice that particular vocabulary. I could tell him the names of various archaeological features in Spanish and how to fly a drone around them, but I had no idea how to explain opening the case. Frustrated, I started motioning how to open the clasps and he looked back at me confused. He shook his head and reached for a walkie-talkie on his belt, spitting words

into it. Silence from the other end. He spoke again. Silence followed by grumbling. The old man dismissively waved his hand and slid the case across the table toward me.

9:45.

We entered the main area of the terminal and I headed toward a jammed LATAM Airlines line before Dean Hunt called me away. He pointed toward an upper level that read “FIRST CLASS BAGGAGE—CLOSED.” I looked at him confused. Dean Hunt coolly replied: “I’ve got a million miles, we’ll help them open for the day.” We went up the stairs and found that the area was empty, except for a woman in LATAM customer service garb and a tarmac worker in an orange reflective vest. They were chit-chatting while sipping coffee, and didn’t notice our presence. Dean Hunt reached the desk and started unloading his things. Dean Hunt told me to set the drones on the scales first. The woman, surprised, turned and told us the desk was closed for maintenance. 9:52. Dean Hunt handed the lady his boarding pass and explained his status with the airline. She sighed and agreed to help us. She turned to the tarmac worker, a short, dark-skinned bald man, and asked him if he could get our things to the plane in time. To save time, Dean Hunt told me to take the gray drone case off the scale and take it as my carry-on. I took it off the scale and set it on top of the desk, with the DJI logo facing the tarmac worker. He stared at the gray case, then at our things, and finally the yellow case. He shrugged and nodded. The lady quickly tagged the items and the man carried them off, taking the yellow drone case last. 10:00—just enough time.

Dean Hunt and I ran through the terminal. We reached the Gate at 10:05, just barely making the last call for boarding before departure. The plane was fairly empty save for a few families and our group. Dean Hunt sat down into first class and I headed for the back. Beau, Peter, Rav and Kris were scattered about their own empty rows setting up make-shift beds. I picked a row next to Rav and settled in for my next nap.

CHAPTER 8: Iorana a Rapa Nui

I awoke to a nudge on my left shoulder as a LATAM stewardess told me we were preparing for descent. I lifted the window shade and squinted as sunlight poured into the dimly lit plane. My eyes adjusted, revealing a vast expanse of endless ocean. There was nothing but water as far as I could see. The plane lurched and began to turn, revealing a spit of land far off in the distance. As we descended and approached the island, I could see Rano Kau, a crater at the head of the island. The rest of the island was shaped like a short, fat boomerang. A runway cut across nearly the entire length of the island. The plane veered around again, throwing my vision back toward the ocean. I felt a bit of nausea coming over me and closed my eyes once more.

I awoke to the thud of the plane hitting the ground. Ready for island life for the next month, I tossed on the Hawaiian shirt from our trip to Hana. Outside the plane, there was a large hill to my left with a few trees and shrubs. At the end of the runway I could see the ocean and the sun held high over the water in a cloudless sky. Despite the sunlight it was fairly brisk and the breeze was chilly. Dean Hunt told us to expect Oregon weather and to dress accordingly. I was cold but nevertheless delighted at the prospect of flying the drone unhindered by rain, hoping that the sunny weather would stay. I found the others near the entrance to the airport, taking pictures of a moai—the iconic statues of the island. Two large men pushed baggage carts off the runway through an adjacent doorway. Dean Hunt and I walked through an archway that read “AEROPUERTO MATAVERI: ISLA DE PASCUA, CHILE” adorned with two birdman symbols from indigenous Rapanui culture. There were palm trees and intricately

carved statues around the entrance to the terminal. The area was packed, our mostly empty flight somehow filled the small terminal.

The others joined us eventually as Dean Hunt and I stared at the flow of bags on a single conveyor belt. My backpack came through first, smeared with black grease stains. I strapped it on, happy that my belongings made it through from Oregon. Dean Hunt's suitcase came through. Then, Beau. Next, Peter. Fifteen minutes went by as the crowd dwindled and no suitcases remained on the belt. We stood around for another ten minutes or so, listening to the slow creak of the belt looping around and around. We were missing Kris's bag, Rav's bag and the yellow drone. I heard the sound of wheels rolling on linoleum down a hallway and turned to face it, excited. A yellow shape emerged through the doorway to the bathroom, revealing an old woman and a janitor's cart. She moved excruciatingly slow as she nudged the cart through the men's restroom door. Another few minutes went by as the conveyor belt continued to carry nothing but squeaks.

"Terry!" a woman's voice exclaimed. We all turned around, and Dean Hunt put his arms out to hug the woman. She was Rapanui, and well-built with a gentle round face and cherub cheeks that gave life to the big smile on her face. Dean Hunt and the woman exchanged a few words before he introduced her as Gina Pakarati, a longtime friend and our local guide for the trip. She was holding a number of lei's around her arm. She went around to everyone, welcoming us to Rapa Nui with an enthusiastic

“Iorana!⁴⁷” and placed a lei around each of our necks. The lei was made of a white, thick folded root woven into the shape of a flower strung onto sticky root cord. It felt heavy around my neck and I could feel the cord stick to my neck. Before we could ask her about our baggage, a man entered the area with the same reaction: “Terry!” Dean Hunt held his hand out and they shook hands and embraced. Dean Hunt introduced Nikko Haoa, our local liaison, who provided lodging at “Casa Otai,” and our rental cars. Nikko was tall and muscled, wearing a black t-shirt tucked into jeans. He had several lei’s on his arm, and repeated the same process as Gina. We were well adorned. Dean Hunt later explained that this was a tradition in Rapa Nui, a gesture for both coming and going. Nikko eagerly suggested we head outside where the rental cars were waiting. Dean Hunt explained our predicament and we split up the group. Dean Hunt told Gina to help Rav, Kris and me while they drove to the house. Dean Hunt, Beau, Nikko and Peter left the airport.

Gina walked over to the mouth of the conveyor belt and stuck her head through the black rubber flaps, shouting in Spanish. I heard a voice say something in response, but I couldn’t make any sense of the muffled Spanish. Gina turned to us and explained that the two workers responsible for unloading the plane had completed their task and nothing remained. She reassured us that this was a regular occurrence in Rapa Nui, and not to worry. For Kris and Rav, missing their belongings would be a pain, but missing the yellow drone case would greatly hamstring our research efforts. The

⁴⁷ “Hello” and “welcome” in Rapanui.

yellow drone case had all but one SD card, three chargers and all of the batteries except for the three I had with me. The gray drone case only had one charger, three batteries, the drone itself, the remote control and one SD card. And the gray drone was not outfitted for programmed flights. If the yellow drone remained lost, not only would we be short equipment (which we couldn't buy or order 2300 miles from the mainland), but I would be forced to fly all of our research manually on limited battery time. This meant flying fast while battling decreased battery life in the notorious wind of the island (the drone exerts more energy flying in windy conditions).

Gina walked us over to the main desk where one woman in red, white and blue LATAM clothing was talking to a disgruntled family dressed head to toe in tourist garb. The father was wearing a floral button-up, cargo shorts and sandals with socks. The woman handed the father a piece of paper, sending them off without bags. Gina stepped up to the desk and the woman gave Gina a hug before returning to her post. Gina and the woman exchanged a few words quietly. The woman barked a name and a runway worker emerged from the office holding half a sandwich. She told him to go check the baggage area again and he sighed, taking another bite in protest. The man returned to the office.

After a few minutes, the phone rang and I could hear the man's voice through the static. The woman set the phone down and told Gina there were no more bags on the island, but she could call the airport in Santiago. Gina nodded and we each described our baggage to the woman. The woman picked up the phone and called Santiago, describing Rav's bag first. She smiled and said that it was left behind in Chile.

Next, Kris's bag, same reaction. They were elated. The woman turned to me and I confirmed the specifications of the yellow drone case with a large green O on the top—surely impossible to miss in a bundle of missing baggage. The woman spoke into the phone and nodded a few times before hanging up. The woman apologized on behalf of LATAM, and informed us the two missing bags were already being processed for the next flight into the island. She apologized again, explaining that nobody had seen anything matching my description. I filled out a few forms and left with the same flimsy piece of paper as the family.

We walked outside of the airport and waited for Dean Hunt to pick us up. I sat down on the curb and pulled a snack out of my secondary backpack. Before I could even think about taking a bite, a dog wandered up to me, and lay down on its back, rolling around on the asphalt. I looked around for an owner, and saw that the dog had no collar and was mangy. The dog was white with spots of black fur, much like a dairy cow. The dog's nipples and genitals were black and inflamed, and the whole creature seemed sickly despite happily rolling around in some strange effort to get my food. Dean Hunt arrived shortly after the dog gave up and fell asleep, her legs jutting straight up. I put my snack away and jumped into the car. As we pulled away, I turned to see the dog wiggle on the ground upside-down and look toward us.

The road into Hanga Roa, the only "city" on Rapa Nui, was a mix of dirt and uneven cobblestones that shook the car as we drove through. The streets were alive with a mix of Rapanui vendors and tourists scurrying about. The corners of each block were lined with little stalls each fighting to sell something different. One corner reeked

as a fisherman sold a dazzling array of gray fish and exotic, vibrant, colored fish. One corner smelled absolutely delicious as huge slabs of raw pork hung from thick rope behind a smoking barbeque. Another was home to all kinds of fruits—pineapples and great bushels of green bananas were lined up around a woman and a child tending to a patron. The only thing the stalls had in common, besides competing boom boxes playing Spanish music, was the presence of street dogs. As we passed through the market street, weaving around parked cars and pedestrians, dozens and dozens of dogs scurried about fighting for scraps of food from the vendors. Everyone seemed to pay them no mind as their ragged bodies wandered the streets wanting.

We reached the end of the strip and the road opened up unto the coast. In the distance I could see a massive freighter anchored a few miles offshore. I asked Dean Hunt what the island exported or imported. He replied: “Chilean freighters like that one transport everything the island needs to stay afloat in its current, difficult position.” The ancient Rapanui thrived on the island with next to nothing, relying on ingenious self-sustaining practices for a relatively small population. But, modern Rapa Nui relied on tourism and less sustainable methods of living. The island completely depended on the Chilean government. The current state of Rapa Nui is in flux—the island’s size and resources are hardly equipped for mass tourism.

We turned a corner and drove inland, passing a cemetery overlooking the ocean. We drove up a quiet street before turning off into a wooded area. Palm trees closed in around a grassy driveway that led into the front yard of a house. We parked under a metal canopy and headed in. The others were sitting on a large picnic table

while two Rapanui men tended to the vegetation, hacking away at plants growing over a rusted wire fence. The house was nestled in its own jungle. Palm trees loomed around the edges of the property and the area was lush. There was an open stone fireplace with a heavy grate set atop it between the parking canopy and the house. On the porch of the main house, a bushel of green bananas hung on a hook. Dean Hunt unlocked the door and we all headed in. The interior was basic, a few couches in the main area connected to a kitchen that was sparse. The house had one master bedroom for Dean Hunt, a single bedroom for Beau, a double bedroom that Rav and Peter claimed, and a pullout couch for Kris.

Dean Hunt warned me prior to the trip that he was unsure of number of beds and told me to bring my tent. I immediately headed back outside and plotted my space in the garden. I set up my one-man tent and outfitted it with all my belongings. To make things a little more luxurious, I took the couch cushions from a hideous yellow couch in the main house and tossed them in the tent as a makeshift sleeping pad. Dean Hunt came outside and checked on my finished tent: “Is this going to stay dry? It rains hard here unexpectedly. You may not be able to plan around taking the tent down.” However, I was confident in my rain-cover—no water would threaten the interior of my home away from our home (about fifteen feet away to be exact).

Evening rolled around and Dean Hunt suggested a walk down toward the coast to see the sunset at Ahu Tahai. We strolled down the empty cobblestone street, occasionally stepping aside for dirt bikes and packs of dogs. We reached the cemetery we had passed earlier. Dozens of white crosses stood erect on a hill overlooking the

ocean. Several were carved and painted on red volcanic rock and others were crude stakes fashioned to the shape of Christ's cross. The cemetery was overgrown and it looked as if there were hardly any tombstones beneath the brush. Flowers and brush sprouted and blossomed out of every headstone, and branches fought against each cross. Beyond the hill, the sun had just started to set and orange light burst across the ocean, illuminating the water below and dark clouds above. We walked around the cemetery down a red-dirt road toward the coast.

Five moai statues stood before the horizon. They were solemn silhouettes as the light continued to fade beneath the water. They were perched on a long and orderly ahu, ceremonial platforms designed by the ancient Rapanui. Smooth stones dotted the front slope leading up to the main platform. One moai was complete, but the others were all missing some major portion of their head or body. The furthest one on the right was a small nub of rock, a fragment of a long-forgotten visage. There were a few tourists gathered around the lawn, watching the sunset behind the moai, but the area was silent save for the gentle sound of the waves and the occasional click of a camera.

A fat boy wearing a yellow shirt and blue sweatpants ran over to Gina, who was standing next to us staring out at the water: "Tia! Tia Gina!" (Auntie! Auntie Gina!). Gina embraced the boy: "¡Hola niño, mírate a sus moai!" (Hello child, look at your moai!). The child looked up at her giggling and shaking his head: "¡No son míos!" (They aren't mine!). Gina's brow furled: "¿Porque no niño? ¿Quién eres? Dímelo." (Why not, child? Who are you? Tell me). The child looked confused: "¡Yo soy Ricardo Pakarati!" (I

am Ricardo Pakarati!). “Si mijo, tu eres Pakarati. ¿Y cuántos años tienes?” (Yes dear, you are Pakarati. And, how old are you?). “Cinco, tía!” (Five, auntie!). Gina turned the boy toward the ahu and pointed to the moai: “Tu eres Rapanui, y cada día desde su nacimiento los moai y este isla es tuya. ¡Repítelo!” (You are Rapanui, and from every day after your birth the moai and this island is yours. Repeat it!). The boy’s eyes widened: “¿Los moai allá?” (The moai over there?). Gina embraced him and smiled: “Si, niño, y todos los moai de Rapa Nui.” (Yes, child, and all the moai of Rapa Nui). The boy’s excitement returned: “¡Los moai son míos! Es mi isla!” (Those are my moai! This is my island!). Gina laughed as he repeated the line over and over again, running around her. I stood in awe of Gina’s words and the sunset as the light finally disappeared beyond the edge of the horizon.



Figure 7: Zachary J. Larison. "Ahu Tahai at Sunset." 2017.

We walked back to the house and ate a simple dinner of rice, chicken and zucchini. Dean Hunt and Beau briefed everyone on the plan for the next day, and told me to get the drone prepared for field work. We were heading for the Vaihu Coast. The plan was to begin modeling the major archaeological features along the coast for Dean Hunt's research and Ma'u Henua. Ma'u Henua was a National Parks and heritage organization fairly new in Rapa Nui, just recently given control of the island's archaeology by the Chilean National Park service. Ownership and oversight of the island's heritage was returned to indigenous descendants. Dean Hunt lauded the decision but lamented the restrictions it placed on his research. Access to the island's wealth of archaeology was far more restricted under the direction of Ma'u Henua. The

Rapa Nui that once fostered an abundant community of researchers from around the globe had now closed itself off from the scientific community. However, Dean Hunt was a rare exception, and his celebrity status allowed us to conduct research under “*strict oversight*” from Ma’u Henua. Dean Hunt and Beau warned me that Ma’u Henua had absolute say on where I could fly, what I could photograph, and when. And under no circumstances was I permitted to fly the drone without receiving direct affirmation from our contact in Ma’u Henua, Sergio, who was meeting us in the field the next morning. I wasn’t worried, and far more confident in my skills as a pilot compared to Hawaii months earlier.

I sat down with the gray drone case and surveyed the impending difficulty. I had three batteries, giving me a total flight time of a little over an hour. Dean Hunt and Beau were working with Nikko to find a solution to that problem—flying for an hour was a severe limitation on our already limited schedule. Back in Oregon, I had practiced manual flight in preparation for a program failure with the yellow drone. I was excited to test myself. With the Heiau in Hawaii, the drone flights for the model came from setting a program and lounging about. Modeling ahu and moai in Rapa Nui was about to be far more hands-on. I closed the drone case and set it down in a corner of the room.

I stepped out the front door and walked over to my tent. The moon provided just enough light to guide me. I unzipped the door and dove in. I unrolled my sleeping bag designed for frigid winters (which had saved my ass in New Zealand) and climbed into it. The couch cushions were fairly comfortable underneath me, save for the cracks

between each cushion. I closed my eyes and immediately noticed the restlessness of Rapa Nui. Dogs barked in the distance. The barking got closer and closer and two dogs ran through the yard sniffing around my tent. I could see their silhouettes as they prowled around. One had particularly pointed ears and seemed to be a mangy, fluffy mass of hair. The other was shorter and smoother. They slunk around before jumping at each other and running off. Even though they were just strays, I was extremely tense—something about being inside a tent made anything outside feel predatory. It took me some time before drifting off. I woke up a few times that night, covered in sweat from the heat of my sleeping bag. It was just cold enough to merit being inside it, but not cold enough for the heat not to be overwhelming after dozing off. Sleep. Wake. Cool off. Listen to the barking. Sleep. Wake. Cool off. More barking.

I woke up at about 4 a.m. to the stark sound of chickens. It was still dark out but a rooster squawked into the night over and over. The silence between the barking that slowly allowed me to drift to sleep was filled with the sound of chickens. It sounded like they were directly outside my tent, no further than the front porch. The rooster's cock-a-doodle doo was throaty and coarse. Given my urban upbringing, I expected the rooster to beckon the dawn, and cease his call after a few minutes, as was the case with Jan's rooster in Hawai'i. However, this was no ordinary rooster. Over the next 19 days, this rooster would shriek and screech and scream a variety of wretched sounds each and every morning. Some mornings the noise would come earlier, as if to protest the darkness, and other mornings he would squawk well into first light. We ate fairly well on the island, despite ridiculously expensive food prices,

but ever since that first night, I had a hunger for one chicken. Every restless night was owed to that chicken. I grew accustomed to the sounds of the dogs and the intermittent barking, but that chicken seemed to shatter any chance of adaptation. I rose to his call for 19 days, each time with a sigh deeper than the last. He was truly a restless bastard. I later learned there was an ancient Rapanui legend in which a man fornicated with a chicken unto its death (a legend immortalized in a large wooden carving outside a building near our house). After a few days, I longed for the legend to become reality.

DAY 2: Vaihu

At around 7 a.m., I emerged from my tent groggy from the restless island's creatures. The grass around my tent was wet and the morning was brisk and cloudy. I stepped inside the house to find the living area empty, save for Dean Hunt and Beau chatting over coffee. Dean Hunt greeted me and handed me a few thousand Chilean pesos. He asked me to head into town and find something for everyone to eat for breakfast. I happily obliged and headed out of the house.

I reached the end of the property and scanned the street. I saw a few stray dogs moseying about a dilapidated concrete house a block up the road. The house was half covered in chipped white paint and half the color of cinderblocks. A man emerged from the house holding a large paper bag in one hand, and his son's hand in the other. The man handed the bag to his son before picking him up and placing him on the back of a dirt bike. The dirt bike choked to life, sputtering and spraying exhaust. The dogs

scattered as the man drove away, his son clutching tightly to his back. I walked up the road to investigate.

The doors of the building were open. Inside, a middle-aged Rapanui woman wearing an oversized purple sweatshirt was watching the news on a portable TV. The reporter on the TV was talking about shoes and she hardly noticed my presence. She was barely taller than the glass display housing a variety of cakes and pastries. The far wall of the house was lined with brown baskets full of bread rolls covered by orange cloth. I walked over and picked up a brown paper bag and began putting bread in. The rolls were warm and flat, each perfectly browned with a three-pronged fork mark in the top. I counted up enough rolls for everyone to eat two for breakfast and set the bag on the countertop. The woman's eyes remained glued to the television before I broke her focus with a tentative hello. She turned and smiled at me and placed the bread on a scale. The Chilean reporter on the television behind her brandished a white basketball sneaker in his hand with admirable gusto. To the right of the television, I noticed a basket of eggs and asked her for a dozen. I paid the woman a few thousand pesos, and thanked her. She handed me a handwritten receipt and stamped it with the name "Panadería Mana."

As I headed back to the house stray dogs seemed to pop up around me with every step, clamoring for the contents of my paper bag. Surprisingly, the dogs never tried snapping at the bag, but followed as closely as they could before prompting a flip-flop stomp their direction. The dogs were fickle and only one remained as I entered the yard of our house. The dog was a sad-looking mutt with brown fur and

pointy ears. She had a white patch over one eye and was fairly well built despite being a stray. She had a gloomy expression about her strange face and moved with notable clumsiness. Every time I looked at her and stopped walking, she would look up at me with her tail between her legs before starting to step away slowly. If I resumed walking, she would trot right back up to the bread bag. When I reached the porch she stopped as if it was the line between wild and civilized.

The house was busy with preparation for the first day of research. Peter, Rav and Kris were hustling about the living area, packing their bags and filling water bottles. I set the bag on the counter and told everyone to help themselves. We each took turns cooking our own eggs and toasting bread. If I couldn't eat the chicken that had kept me up, maybe I was eating his unborn offspring. At 9. A.M. sharp, Gina arrived in one of our rental cars that she had taken the night before. Kris and I hopped into the car with Gina, setting the drone carefully into the backseat. Dean Hunt, Beau, Rav and Peter loaded the rest of the equipment into the other car and we headed out.

The early morning clouds had cleared and it was sunny—great for humans, terrible for flying. Gina and I started talking in Spanish, accidentally excluding Kris in the seat behind us. We drove back toward the airport, wobbling along the cobblestones and dodging dogs. We turned down a long road that broke into the countryside and the trees gave way to an expanse of grasslands dotted with farms. The road weaved between two farms with roaming cattle before turning toward the coast. Gina waved to a man riding a horse around one of the farms and he took his hat off in salute.

We drove for a few minutes before turning off the road, following Dean Hunt and Beau in front of us. We arrived at a clearing with a single ahu. Waves crashed on the rocks behind it and before I could even get out of the car, clouds rolled in overhead. Dean Hunt was right about the volatile island weather—it came and went on a whim. I stepped out of the car and started unpacking the drone, hoping to take advantage of the even lighting over the archaeological features. Beau jogged over from the other car and sternly commanded me to put the drone away. He reminded me that under no circumstance would the drone go up in the air, or even be out of the case without the direct supervision and permission of Ma'u Henua. I nodded and shut the case.

Dean Hunt started walking toward the ahu and beckoned for us to follow: “Welcome to Hanga Maihiku,” the tip of the long coastal sector we would survey and model for his research. The front of the ahu was modest, and had no moai. Dean Hunt guided us around the side of the ahu, revealing a broken moai at the back of the structure that must've fallen off centuries ago. It was hardly recognizable as the iconic moai that we had seen the night before at Ahu Tahai. Dean Hunt explained that the moai was distinctly recognizable among the rubble and ocean rock due to the type of stone used for statue carving, a soft volcanic tuff. Almost all of the moai on Rapa Nui were carved at Rano Raraku, a quarry miles from where we stood. As we walked around the side of the ahu, stepping over rocks scattered about the area, I noticed bones strewn about. A horse's skull rested atop a boulder and thick white bones stood

out from the black volcanic stones, lacking flesh or any remnant of the life that once clad them.

We walked back toward the front of the area as two red trucks drove down the hill and parked. A man jumped out of the first truck. He was lanky and had a square face with a wispy red goatee. Three women hopped out of the other, holding a tripod and various bits of camera equipment. The three women immediately began placing the camera gear pointed at us, and the ahu. The man walked over and introduced himself as Sergio Manuheurora Teave, the Director of Archaeology for Ma'u Henua and our research supervisor for the next 19 days. He spoke softly in Spanish translated effortlessly by Gina to the rest of the group. The cadence of his speech was rather slow-paced for a native Spanish speaker. He often paused to smile between words, breaking the solemn façade that otherwise occupied his face. He told us he was delighted to have the trusted and renowned archaeologist Terry Hunt working on research that would benefit Ma'u Henua and further the understanding of the island's legendary heritage. He reinforced what Beau told me earlier, warning us not to fly or even have the drone out in public space without being around him. All eyes were on Ma'u Henua to handle the preservation and research of the island's cultural heritage respectfully. The politics of the island were shaky at best, but it seemed that Ma'u Henua was doing their best to please both locals and tourists.

Sergio turned to the women behind the camera. They gave him a thumbs up and a flashing red light started blinking. Sergio told us to proceed with our research. Dean Hunt remained with Sergio and Gina, while the students followed Beau and me

to gather equipment. Grouped around the drone, Beau suggested that I make flying Hanga Maihiku as excruciatingly time-consuming as possible, so as to bore the bureaucratic presence watching us. Dean Hunt and Beau were used to a more laid-back research environment in Rapa Nui and seemed eager to alleviate as much hindrance as possible. I told the students to unpack the drone for me and walked toward the ahu, surveying it once more. The ahu was a humble collection of scattered rock, with only the single moai toppled off the back—an easy flight. I devised a flight plan in my head: three circular runs around the features at ascending altitude using an oblique camera angle for the 3-D model, followed by a nadir grid.

An Explanation of Manual Flight Planning for 3-D Modeling:

The following diagrams illustrate the theory behind manual flight planning. While two circular flights are usually sufficient (as seen in figure 8), the archaeology on Rapa Nui is much more irregular than most static drone subjects, a house for example. Therefore, I opted for more oblique photography throughout the course of our research. Every red dot in figures 8 and 9 signifies the position for a single photo.

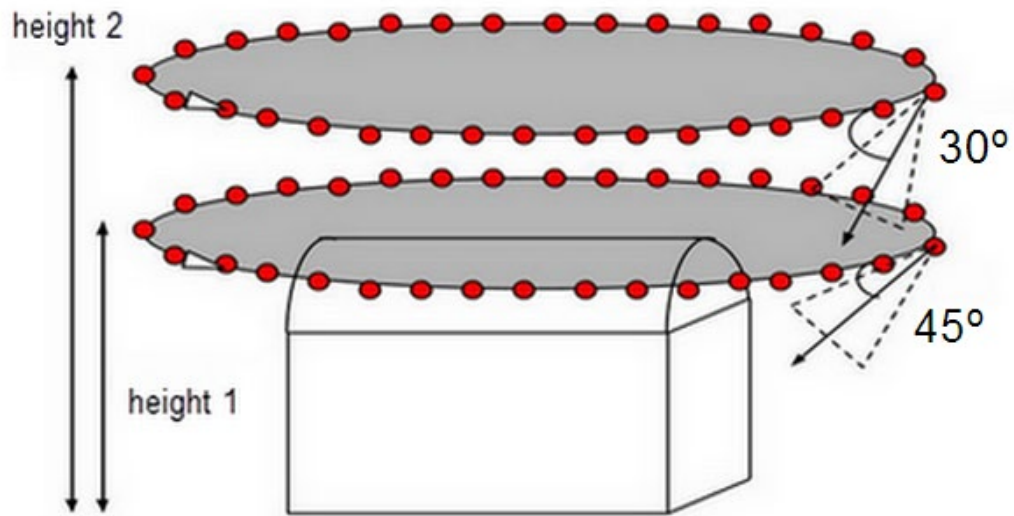


Figure 8: PIX4D Support. "Ideal Image Acquisition Plan – Building."⁴⁸

⁴⁸ PIX4D. "Step 1. Before Starting a Project >1. Designing the Image Acquisition Plan." 2015. <https://support.pix4d.com/hc/en-us/articles/202557459>

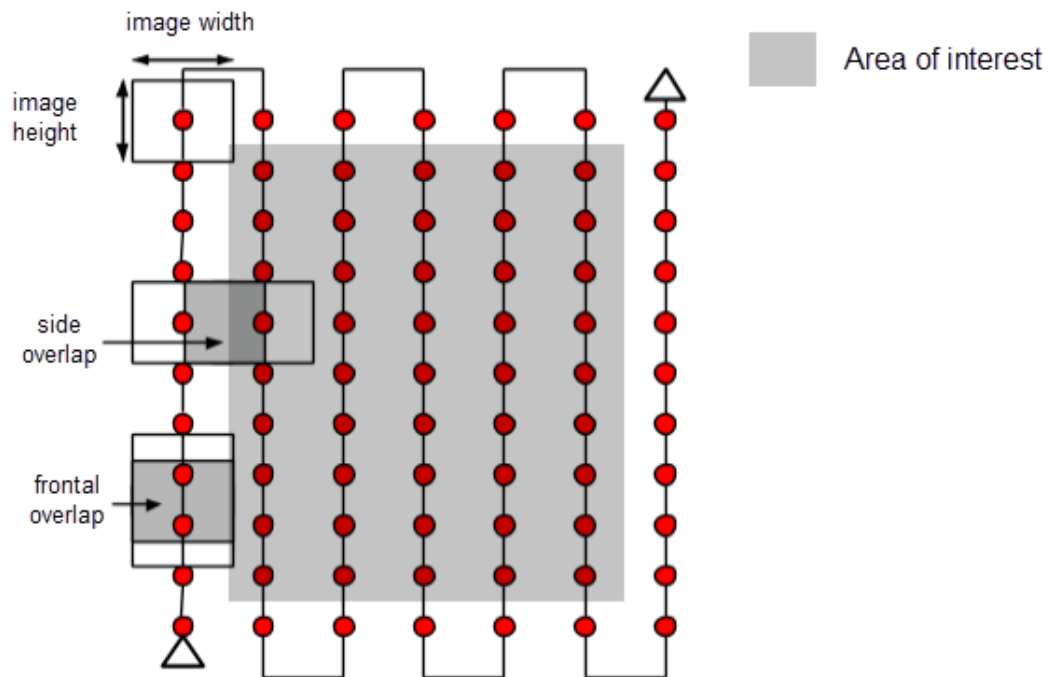


Figure 9: PIX4D Support. “Ideal Image Acquisition Plan – General case.”⁴⁹

In figure 8, the drone is positioned near the subject and carefully guided around the features for oblique photography. Flights in this manner are done with increasing altitude and camera angle. The oblique photography provides detail and dimension. Oblique photography is done much closer to actual features, allowing for increased spatial resolution—the closer you are to an object, the more the camera can detect and identify. The oblique angles of the camera enable the software to properly assess the size and dimensions of every single object in any given photo. The grid (figure 9) establishes a two-dimensional reference point for each feature of a given area that our

⁴⁹ PIX4D. “Step 1. Before Starting a Project >1. Designing the Image Acquisition Plan.” 2015. <https://support.pix4d.com/hc/en-us/articles/202557459>

software can implement into the creation of a more accurate 3D model. The drone is flown over the area of interest using a “nadir” or straight down camera angle. The grid also provides a detailed orthomosaic (map). This process is generally supplementary

Together, for example, if a nadir photo states that Moai A exists at GPS Coordinates XYZ, the 3-D modeling software will recognize Moai A in the oblique photography. When the oblique photography presents a fraction, or the whole of Moai A, the software will recognize that this is the *same* object from the nadir photo. It will then form a cohesive image using both GPS coordinate XYZ and corresponding objects in that area. This process works both ways: images of Moai A that the software recognizes will be assigned to the corresponding GPS coordinate faster, and photos with similar GPS coordinates will be integrated into the corresponding context.

In conjunction the flight plans seen in figures 8 and 9 provide us with excellent coverage of each archaeological site with an accurate and detailed two-dimensional map of an area and a corresponding interactive 3D model. The more accurate our work in both of these areas, the more “usable” the data. If the model is accurately scaled and flawless (at the full potential of the technology), archaeologists can conduct groundbreaking research without physically being on site. Additionally, a model like this can be used to procure volumetric and dimensional measurements otherwise impossible to acquire given the current politics of Rapa Nui. Consequently, drone technology for archaeology on Rapa Nui is attractive as it is a zero-impact method. Archaeologists like Dean Hunt no longer have to disturb artifacts to measure and

analyze them, satisfying the need for research and the preservation of the island's prolific archaeology.

...

I walked back toward Beau to inform him of the flight plan and he was holding orange athletic cones. It looked like we were doing ground control points. I laughed: "Well that oughta kill time." We split up and set up the ground control points under the disinterested supervision of the Ma'u Henua staff. The process was slow and cumbersome, a perfect measure to bore the oversight team—one we would not repeat for the rest of the trip.

...

An Explanation of Ground Control Points:

For structure of motion mapping as explained above, the use of ground control points (GCP's) can (sometimes) greatly affect the accuracy of 3-D model generation. GCP's are a series of 3-5 distinctly recognizable features added to a working site. For our research, we chose orange cones. The orange cones stand out in principal photography and are easy for both the software and its operator to find in post-processing. After GCP's are placed uniformly around the desired area, the pilot (or willing Clark Honors student) stands over each GCP with an external GPS device and records the precise coordinate of the GCP. Then, during the post-processing of images, the GPS coordinates of the individual GCP's provide the software with certain and reliable reference points. If the GPS information recorded by our drone is for some

reason inaccurate, or less accurate than desirable, the entire model can be jeopardized. Therefore, the use of GCP's can correct any unwanted GPS error by telling the software exactly where major features are in relation to orange cones, rather than more homogenized features such as rocks or grass. Figure 10 demonstrates the proper set up and use of GCP's (circled in red).



Figure 10: Zachary J. Larison. "Proper ground control point configuration." 2017.

...

With the ground control points in place, I was ready to begin. Sergio gave me the green light and I prepared the drone. Propellers in place, battery popped in, I

pressed the power button. I smiled as heads turned toward the obnoxious beeping. I surveyed the area and there was no secure place to take off. The site was littered with rocks that could break a propeller if the wind knocked the drone over. I opted for a handheld launch. I called Kris over, the most eager drone student on the trip. The handheld method is a bit tricky but extremely secure if done right. Given that the yellow drone was missing and we were isolated in the middle of the Pacific Ocean, this became our standard practice.

I handed Kris the drone and we walked out toward the ahu. He raised the drone overhead, just barely holding the landing bars with his fingertips. The scene looked ceremonial, as if Kris was a modern day Rafiki holding the drone over Pride Rock—celebrating the pride and joy of our research. Kris’s white button-up matched the polished plastic of the drone. It was the only type of shirt he brought for the entire trip. He had four white button-up shirts that he explained were “iconic archaeologist garb according to google.” Holding the remote control in my left hand I pressed the take-off button and the drone buzzed in his hands. I held my right hand up toward Kris with my thumb pointed horizontally. The noise of the drone eliminated any chance for verbal communication. When the propellers were at full throttle, I flipped to thumbs-up, simultaneously pressing the throttle up. Kris released and the drone shot into the air and immediately started drifting toward the coast. The wind was fairly strong, uninhibited by trees, or anything really. The stabilizers kicked in and the drone maintained position. I turned away from the display and let the remote hang at my

side, scanning the area for a seat. I found a flat rock next to a few bones and sat down to begin oblique photography.

The flight was straightforward and quick. The back of the ahu only had the one fragmented moai. The ahu itself was straight and had a strip of smooth stones perpendicular to the ahu—the remnants of an ancient ramp for moai. I completed three oblique circles around the site, at 10, 15 and 20 meters altitude, and landed for a battery change. Kris and I sent the drone back up the same way and I began positioning for the grid. I looked out across the horizon at 30 meters altitude just as the sun peeked out from behind the clouds. I could see the far off hills of the island and a long, curving coast. The nearby water was a frothy mix of light blue and pure white foam, crashing in and around rocky inlets. The ahu was just barely noticeable in the field of rubble, and the moai blended in. Turning the other direction, I saw the mountain Poike and the quarry Rano Raraku sheathed in shadow. Rano Raraku looked like a horseshoe sloping up toward the sky. The mountain rose up from the flat grasslands into the clouds. I rotated the drone back toward the coast and heard a familiar voice over my shoulder: “Snap that.” I turned around and Dean Hunt was watching the image on the display.



Figure 11: Zachary J. Larison. "Hanga Maihiku and Vaihu Coast." 2017.

I finished the grid in a few minutes, soaring through the flight pattern. Up toward the coast, back toward the quarry, shift left. Up toward the coast, back toward the quarry, shift left, until the edge of the ahu disappeared from frame. I was beginning to enjoy the challenge of manual flight compared to the programmed flying I had used in Hawaii. Constantly maintaining position against the wind while guiding the drone through the flight plan was endlessly engaging. As I finished, Dean Hunt began to walk away and I lowered the drone to turn it toward myself. Dean Hunt turned at the noise of the drone hovering a few feet in front of him. I snapped a photo just as a wave splashed over the ahu, ending the first successful flight of Rapa Nui 2017.



Figure 12: Zachary J. Larison. "Dean and Drone Pilot, Rapa Nui Coast." 2017.

DAY 4: Maitaki Te Moa

After a few days of flying up and down the Vaihu Coast, Sergio, Beau and Dean Hunt planned a day of research at a remote location: Maitaki Te Moa, a large ahu in the hills along the north coast. We drove out at 9:30 a.m. on a winding coastal road. The road straddled the coast before turning sharply inland. The countryside was a sparse brown grassland covered with volcanic rock. We eventually reached a rusted iron service gate where Sergio was waiting. The Ma'u Henua logo was plastered on the side of the red truck, a moai with a pukao (hat) resting atop a reymiro, an ancient symbol of Rapa Nui culture depicting two elongated faces atop the ends of a boomerang-like shape. Gina and I eagerly waved at Sergio. He walked over to the gate and unlocked it. The rusted joints creaked over the wind as he pulled the gate open. Gina pulled down the road first, followed by Dean Hunt and Beau. Sergio followed last,

closing the gate behind him. The road was a barely distinguishable strip of dirt, grass and rock.

We drove for a few minutes before the 'road' gave way to a dense field of large rocks. Gina stopped the car abruptly: "Zach and Kris, hop out of the car and move the rocks for us." Her English was great despite being her third language after Spanish and Rapanui. Gina had worked for decades as a guide and research aide to both tourists and scientists like Dean Hunt. A light rain had started overhead and it became rather cold. I put on my rain jacket and hopped out of the car. The clouds were thick and gray, but far down the road I could see sunlight and blue sky. Kris and I heaved each rock too big for the tires off the road, slowly inching the caravan forward. The rocks were coarse and heavy, but I happily launched the rocks out of our way. One by one, we cleared the rocks from the road and the cars crawled forward toward the sunlight.

After a quarter mile or so, I was full-on chucking the rocks off the road, sending them careening into the grass. I heard footsteps behind me as Beau ran up to me: "Hey, just set these gently at the side of the road, throwing them off the road like that could damage or disturb archaeology—it's everywhere out here, dude. There's fallen moai in the grass all over here." The caravan's pace slowed as I returned to gently setting the rocks at the fringe of the trail, creating a safe path for the vehicles. Thirty minutes or so went by like this before we reached a clearing marked by a barren tree overlooking a steep hill sloping toward the coast. Maitaki Te Moa was a mile or so away, and the road from here was impassable by vehicle.

I put on my backpack, grabbed the gray drone case, and headed down the hill. The hike to Maitaki Te Moa had no trail and each one of us had to walk carefully without tripping over the rocks that dotted the landscape. Looking back, I noticed that each person had taken a different path down the steep hill. Sergio and Gina had veered toward the coast, while the others veered inland. We each had our own way of navigating through the rubble. I reached the bottom of the hill and looked out ahead. There was a hill a few hundred feet off and to my left I could see the ocean. The clouds cleared overhead and the sun shone over the area. The grass was still damp from the rain that had just rolled through, tracking further inland. Gina and Sergio pulled ahead of me, more accustomed to walking through the rocks. They started up the hill and effortlessly scaled it. I struggled to follow suit, and clambered around the rocks in an inefficient and winding manner. I crested the hill and looking out I saw a distinct stretch of stones far off, seated at the edge of a cliff—the ahu Maitaki Te Moa.

As I reached the ahu, I imagined the ancient Rapanui carrying each and every stone piled and carved into the ahu, heralding their culture to the edge of their world. The ahu dominated the cliff it rested upon. Smooth circular poro stones guarded the front of the structure and the back had a staggering seawall of carved and stacked gray stones. The seawall stones were set to perfection—10 to 15 boulders were stacked tight upon one another, leaving little room between them. The space between the rocks was like a seam stitching the stones together. The wall stood proud and intact over the center of the ahu's ocean-facing side while the rest crumbled toward the wings. Walking further around the back, I noticed that a mix of rock crumbled through

a chunk of the seawall, breaking the unity of the stones. I approached the seawall and noticed a clear distinction between the rocks. The seawall was made of gray stone flecked with white spots. The surrounding rock was the same volcanic rubble found all over the island. Even the poro stones at the front of the ahu were different, smoothed by the ocean over thousands of years. Nothing was here unintentionally. Every stone was brought here by generations of ancient Rapanui carefully crafting the impressive ahu.

I unpacked the drone and noticed that rain clouds were inching toward us from the direction of the cars. I asked Gina how long I'd have to fly the drone. In her expert island weather opinion, I had about 15 minutes to fly. I screwed on the propellers, called Kris over and shot the drone up and over the ahu. Rather than start oblique photography, I pulled the drone away from the ahu and over the coast as the others walked inland toward a cave tucked in the hillside. The seawall stood out among the black rocks that made up the ahu. The soft brown grasslands sloped toward the edge of a cliff before giving way to rock. The water below the edge of the island was calm as waves slowly drifted over the rocks, leaving just enough foam to stand out. Far off on the horizon, a mass of clouds brooded, carrying a rainstorm that made the surface of the water look gray. I snapped a quick photo as fickle sunlight peeked out from behind a cloud.



Figure 13: Zachary J. Larison. "Aerial of Maitaki Te Moa." 2017.

Returning to the ahu, I started oblique photography, taking extra care to capture the intricacies of the seawall. I finished two circles around the structure before feeling a light drizzle from overhead. I throttled the left joystick forward, sending the drone way above the area. I could complete a grid faster if the altitude was much higher, but at the expense of detail. I whizzed through the grid as the rain incrementally began to pick up. My eyes were glued to the display as I completed each and every line and turn. On the last line of the grid, I heard Beau behind me: "Zach, land the drone! It's pouring!" I protested, mindlessly smearing the water off the display before looking up and realizing the rain was torrential. I muttered a quiet "oh shit," and pulled the drone over my head, grabbing the landing bars myself. I dried the drone off with a rag and put it in the case. I looked up the way we came and the others

had already started up the hill toward the car. I picked up my backpack and with the drone in hand, I scurried over the rocks to catch up with them.

We hiked back to the car over the next hour or so before finally being relieved from the downpour. I jumped into the car and ate a few coconut cookies. One by one, the others popped over the hill taking photos of the area and drying off. As we drove back down our makeshift road, I noticed a break in the thick gray clouds that covered the sky over the ocean. The sun broke the veil of clouds, bathing a swath of the cloud, sky, and water in pure golden light. It looked as if the heavens had opened through the storm, baptizing a single cloud. From this cloud and onward, the gloom that lingered over the water gave way to an inextinguishable and unyielding golden glow that seemed to slowly fight against the storm. Light and dark clashed on the horizon, and I stared at the slow crawl of light, eating away the gray. It was dark here, and looking up I noticed that the light had only broken in that one place above the water. The rest of the day was gray, but I could not forget the beauty of the light enveloping the clouds.



Figure 14: Zachary J. Larison. "Light." 2017.

DAY 6: Poike and PVC Pipe Fishing

Rain battered Rapa Nui every day since Maitaki Te Moa. We only worked on a few ahu in the Vaihu sector during brief breaks in the storm. Two days passed like this, relaxed and casual. Kris and Rav received their bags from LATAM, but we heard nothing about the missing yellow drone. We were just barely operational with the three batteries for the gray drone. On our sixth day, Gina rolled into the driveway of our house and called me over just as I crawled out of my tent. Without my contacts or glasses I could hardly see that it was Gina; her voice was the only thing I recognized in

the indiscernible blur. She pulled open the trunk and gestured inside. I stuck my head into the trunk until I was inches from a beastly mechanical thing. It was an old-school gas-powered generator. She coolly flipped open the breaker panel, revealing a power outlet—we had power in the field. I could now drain an entire battery and charge it up, effectively eliminating our battery problem.

We walked inside and told Beau. He exuded happiness, a rare sight amidst all the rain. Beau was quiet Ph.D. student who preferred quiet, clear days in the field closely examining the archaeology. He was in the sixth year of his Ph.D. involving heavy research on the island. Beau was short, and had long shaggy hair and a thin beard was starting to grow on a once clean-shaven face. His hair was black, same as mine. Beau sipped coffee, smiling as Gina listened to his research ideas for the day. She told us that the rain would clear from East to West over the island, as if Beau could get any more delighted.

I walked out of the room as Beau and Gina continued chatting. I heard another car pull into the yard and looked out the window to see Sergio's Ma'u Henua truck. I called for Gina, Beau and Dean Hunt, announcing Sergio's arrival. We walked out to the porch and Sergio requested a trip to Poike, a mountain at the eastern end of the island. Gina translated Sergio's request: "Near Poike at the top of Ma'unga Parehe, there is a single moai. And, down that hill at the edge of the cliff is Ahu Motu Toremo Hiva. I would like to photograph it for Ma'u Henua's records." Beau nodded and affirmed that we could help.

We set out for Poike at 8:45 a.m. Dean Hunt remained in Hanga Roa to work on a presentation later that evening in conjunction with Hetereki Huke, a famously European-educated Rapanui. It was difficult for the small population of Rapa Nui to leave their isolated corner of the Pacific. It was notable when the occasional student left Polynesia for western education. After all, Rapa Nui was an island of strange predicament, by my interpretation. The island was not quite as lush and abundant as its more western counterparts. Rapa Nui bore a distinct poverty that washed over the streets with peculiar inconsistency. Every day we drove through Hanga Roa, I noticed it more and more. Stray dogs scurried about, digging through trash and sitting at the feet of destitute street merchants. Buildings were run-down and the architecture seemed at the mercy of erosion from weather or lack of resources. Tourists stood out among the poverty of the island. Their pristine clothing clashed with the rurality of the meager city. Tourism both sustained and took its toll on the island's health. The economy flourished from the influx of tourists but suffered environmentally. No island as small as Rapa Nui was ever designed for the amount of human traffic of contemporary travel. Even the ancient Rapanui seemed to defy all odds in merely surviving in a place that had nothing. There were no trees then. There were trees now. There were no foreign explorers then. There were now.

It seemed as though the distinct poverty of the island mirrored some part of the island's tragic history. European explorers arrived on the shores of Rapa Nui with disease and subjugation that wiped out much of the indigenous population. But, for the Rapanui of today, the people from beyond the horizon—travelers and tourists—

endanger the health of the island itself, not the people. The island felt tentatively perched between thriving and suffering, between meeting the demand of modernity and crumbling underneath its weight. I like think our work was helping to preserve the island's legacy amidst this crisis.

We drove out of Hanga Roa, and turned toward Poike. As the road wove between Poike and Rano Raraku, I could see the staggering rocky cliffs from which the island's moai were carved and walked to their coastal resting places. We passed the quarry and the road lead toward the coast, heading north. Gina suddenly turned off the road and the car bumped along a poorly formed trail leading up to a house. A man wearing a beat-up red baseball cap, a dirty white t-shirt, and large rain boots emerged from the house. Gina waved at the man, and we pulled up in front of the house. Sergio pulled up next to us and jumped out of his truck, embracing the man before walking over to Gina's side of the car. They spoke quietly and quickly in Spanish. I picked up that the road from here on out would not be suitable for the rental cars and that we would have to pile into his truck.

Before Gina could say a word I jumped out of the car, shook the man's hand and began loading our equipment into the truck. Sergio, Gina and the man with large rain boots spoke for a little bit longer before saying farewell. The man walked over to a metal gate and opened it up, revealing a modest collection of livestock and horses. Muddy sheep grazed about and two horses looked directly at us. One was brown and spotted with white patches, and the other was pure white. The brown one continued grazing but the white horse began to neigh and move about restlessly. The man

walked over to the horse: “Shhhh, Shhhh, relajate!” (Shhh, Shhh, relax). He put his hand on the horse and guided it toward the rear of the house. He cleared the brown horse next, then the few sheep that were lounging about. Sergio thanked him and we all piled into the red pickup. Gina, Rav, Peter and Kris sat in the front cabin, and I sat in the back of the pickup to look after the drone gear.

We emerged into the plains at the feet of Poike. There was hardly a road. We bumped along violently, and I struggled to remain in place among all the gear. The generator started to slide toward me as we plunged down a hill and I reached out to grab it before it smashed either me or the styrofoam drone case. I clamored forward on my knees, bumping around while holding the generator in place and scrambled to find something to tie it down. A chunk of rope was tied around the frame and I frantically tied it to the side of the pickup before being thrown about once more. Sergio was blazing one hell of a trail. I slumped back against the cab and felt a wave of nausea come over me just as the pickup pulled to a stop.

We stopped around the edge of a large hill. The wind ripped around the curvature of the hill and tore into the valley, blasting my hair up like a 90s rocker. Beau hopped out of the cab and walked around to talk to me. Beau had to yell over the wind as it continued to rip through the area unlike any wind I had felt before. I hopped out of the bed to get closer to him. He told me that he, Sergio, and Gina were going to go find the ahu, and handed me a camera, pointing up at the large hill. I nodded and gestured to the drone but he shook his head. He was right—the wind was too severe. To describe the power of the wind, I must simply say that as a gust picked up I let my

weight fall forward into it and I fell *backwards*. I grabbed my backpack as Kris, Rav, Peter waited next to me. Beau yelled over the wind: “Ma’unga Parehe is one of these hills, check for an eroded moai at the top!”

I started up the hill first, forging a makeshift trail. The hills were rocky and dotted with brown grass. The hill was steep, so much so that I was forced to scramble and even pull myself up and over certain areas. The rocks were loose and ripped away often, forcing me to carefully measure my movements. The wind roared around us as we clung tight to the side of the steep face of the hill. After a few minutes of cliff-scaling, the slope eased up giving way to the peak of the hill. The two hills stood out against the low grassland surrounding Poike. Turning toward the ocean, I scanned the top of the hill for the moai—nothing. The hill was barren save for a patch of dirt with a few scattered rocks, hardly anything archaeologically significant. Toward the ocean there was one more hill and I could barely make out a blip in the otherwise standard features. A fragment of dark rock was erect at the peak of the hill, stark against the white clouded sky and the light brown grass. That was the moai. The others were close behind, and I called for them to follow.

The other side of the hill was rather forgiving. A long rocky slope led into a notched valley between the two hills. An easy grassy path stood before me and I walked effortlessly up the hill with the moai, save for the wind threatening to blow me halfway back to Chile. As I crested the hill, I came face to face with the eroded moai. The moai was made of the same rock as the others found around the island, which was his only redeeming quality. His features were completely faded. The once carefully

carved and precise craftsmanship of the ancient Rapanui that set him here had slipped beyond recognition. We snapped a few photos and scanned the area for Beau. I noticed three figures slowly walking toward the coast. The vegetation nearly concealed their entire presence, the only giveaway being the color of their clothing. They eventually stopped just as the island crumbled away toward the ocean. They stood over a hardly recognizable ahu, a lone strip of white and brown stones stacked in a crude line along the cliff.

Beau walked toward a grass clearing, holding the gray drone case. I scrambled down the steeper side of the hill and jogged over. I approached Beau with an inquisitive look and he nodded without saying a word. We were sending the drone up. The wind had not let up but I was excited for the challenge. If the wind kicked the drone too far one way, all I would have to do is manually calibrate the correct amount of counter-force in the direction opposite the wind. The wind was blowing inland, unmitigated over the water. I sat down and began setting up the drone. The other students moseyed their way down the hill and joined us, taking personal photos of the area. It was a rather stunning spot, completely isolated from all signs of modern civilization. There were no toll gates or tourists or Ma'u Henua employees, except Sergio who was more a friend by now. I couldn't hear cars or see the road. There were no birds. Nothing but the sound of the wind and the waves on the rocks below. Ahu Motu Toremo Hiva was a quiet place of subtle ancestry.

I called Kris over. Time to launch and pilot against the wind. Propellers in place and battery on, I handed Kris the drone. Standard launch procedure: Verbal

countdown followed by visual confirmation to release the landing bars. Kris held the drone overhead, the propellers whizzed and buzzed and after an anxious thumbs-up the drone was in the air. The drone immediately lurched inland before I gently eased onto the throttle, providing just enough mechanical leverage to counteract the wind. I spun the drone around and it shook with every movement. The ahu was about fifty feet to the east, and closer to the coast. The wind from liftoff had pushed the drone inland, overriding the automatic GPS-based positioning. I turned the drone into the wind and pressed the throttle forward. The drone barely moved. I pushed the throttle harder and the drone inched toward the coast.

Overhead, I could hear the propellers fighting the wind. I flicked the drone's flight mode from "GPS," the safest flight mode, to "SPORT." As soon as I flicked the switch, still holding the throttle fully engaged, the drone shot forward. I laughed triumphantly. I lined the drone up with the ahu, spinning away from the ocean to face it. It was much larger than I anticipated. The ahu was eight or so feet high and might have been much higher once. The center of the ahu was crumbled and dirt and rock slid away toward the ocean. Massive stones were nestled in the dirt, as if they hadn't been disturbed for a long time. The wings of the ahu were intact, a myriad collection of gray, black, brown and white stones perfectly stacked and slotted on one top of another.

I started with low-altitude oblique photography. I throttled forward eagerly toward the ahu and with the wind at my back, the drone lurched forward and nearly flipped. The landing bars swung up, and the drone began to plummet toward the

hillside. I slammed the throttle up sending the drone way into the air, narrowly avoiding a crash. I failed to account for the fact that sport mode with a strong tailwind would be the drone equivalent of rocket fuel. I flicked the switch back into “GPS” mode and gently descended over the ahu. I looked over at the others, who were paying no mind to the close call despite nearly flipping and crashing a mere six days into a nineteen day journey. I figured it best not to share this information with Beau, especially mid-flight. I was confident I could model this ahu.

I eased the throttle forward and the drone inched toward the ahu, wobbling the whole way. I started circling around the ahu, careful to provide just enough counter pressure against the wind. One thumb rested on the reverse throttle, keeping the drone from blowing inland. My other thumb guided the drone around the ahu, circling higher and higher before completing oblique photography. I throttled up and ascended for a grid of the area. The ahu was partially covered by bushes so the grid was straightforward and only took a few photos.

I called Kris over. Beau, Sergio and Gina were still talking, dangling their feet over the edge of the cliff. Kris stood with his arms up in the clearing we had started in. Yelling his name, I called off the landing. Instead, I ascended and explored the coastline. I could easily follow the island’s curvature, and saw the hills around Anakena beach off in the distance. Rapa Nui was small enough such that a quick drone flight could reveal easily discernible features that you might find on a map. The maps from old accounts of the geography came alive as I sent the drone north. I pulled inland and

faced the ahu and the hill with the lone moai. I could just barely make it out, a blip of rock on the hill.



Figure 15: Zachary J. Larison. "Ahu Motu Toremo Hiva and Coastline"

I pulled the drone back over my head and set about landing. Beau, Gina and Sergio were still chatting away. I walked toward the ahu and stood in front of it. The wind still threw the drone about but I had mastered countering it. I stood in a patch of grass in front of Ahu Motu Toremo Hiva. I stared out across the ocean, imagining what it must have been like for the ancient Rapanui to stand here not knowing whether or not anything would ever come from beyond the seemingly infinite line of water and cloud. I understood their reverence for the rocky coastlines of their beautiful island. The ocean brought them here, and its vastness kept them. I turned to face the drone and clicked a photo before dropping it into my hands.



Figure 16: Zachary J. Larison. "Drone Self-Portrait at Ahu Motu Toremo Hiva." 2017.

We piled into the pickup truck and headed out. As we rounded the corner of the hill adorned by the single moai, Gina told Sergio to stop the car: "Zach, me sigues con el drone" (Zach, follow me with the drone). Confused but intrigued, I obliged. The others started to climb out of the car, but Gina held up a hand and politely told them this would be quick. We walked a hundred feet or so away from the car toward the base of the hill we climbed earlier that morning. Gina ran her hand along the stone, carefully inspecting the rock before stopping and nodding. She pulled me closer and pointed out two faces subtly carved into the rock. She told me that only the Rapanui knew that these faces were here, visages carved by her ancestors. The faces were barely discernable on the gray and black rock, covered in moss and chipped away. But, when Gina gestured to a nose, I could see one. When she pointed out the eyes, they stared back at me. The faces materialized more and more with her every gesture. I

pulled the drone out of the case, and took a few photos of the faces, careful not to bash the drone into the rocks. Before landing, I sent the drone over the hill to look one last time down the coast. A rainstorm broke across the center of the island in the distance, drawing a line of mist. The rain moved fast, consuming all in its path in a wispy fog. The clouds seem to melt into the landscape as it crept closer and closer toward us. I landed the drone and returned to the car. Gina thanked me, concluding our work on Poike.



Figure 17: Zachary J. Larison. "A Storm Heading for Poike." 2017.

We returned to the man's farm where our cars were waiting just as the storm hit. I grabbed the drone and jumped into our rental car. We took a short lunch break while the rain passed over us. Lunch for the day was the usual cold white bread from Panadería Mana (that I still purchased every morning) and thick slices of ham from a local butcher. We grew quite accustomed to this meal, and even had it for dinner

sometimes. By the end of the trip, I daresay anyone involved in Rapa Nui 2017 would opt for anything other than ham sandwiches. Forty minutes went by listening to the sound of the rain pitter patter on the windshield before the storm passed. Our caravan rolled out from the farm just past midday, heading for Vaihu.

The Vaihu coast was sunny and scattered wisps of cloud trailed across the sky. We parked in front of an ahu with a single moai lying face down. I came to learn over the course of the trip that the iconic standing moai perched atop an ahu was a sight only possible through reconstruction of archaeological sites. Every moai erected over the course of the island's history had been toppled, falling face first or backward depending on circumstance. The moai of famous photos, from places like Ahu Tongariki and even Ahu Tahai where our journey began, were faithful reconstructions of a bygone era in Polynesian history. Dean Hunt often lamented these places, as reconstruction eliminated any possibility of serious archaeological study.

The ahu had a pukao⁵⁰ made of red volcanic rock a few feet in front of the moai. Both the moai and the pukao were massive given the size of the ahu, and it was no small feat that they had come this far. I looked back toward Poike in the distance and saw Rano Raraku, the quarry. The distance between the moai and its birthplace was incredible, renewing my awe at the genius of the ancient Rapanui to walk their moai this far, and even farther in some cases.

⁵⁰ Large cylindrical hats for moai.

I started to set up for flight and noticed that Kris and I were the only ones in the area. Kris explained that Peter and Rav had walked down toward the shore for their own research interests on aquifers. Beau, Gina and Sergio were walking out toward a rocky outcropping near the coast to fish. I caught a glimpse of Sergio before they dropped down toward a hill toward the water holding an orange bucket. I immediately scrambled to find a way to go fishing with Sergio. After every day of work on the Vaihu coast, Sergio would graciously thank us for our time, and wave us off before heading toward the coast to fish. The ocean provided him and his family reliable and accessible means of food on the table every night. Kris was an Alaskan-born professional fisherman himself and had little interest in fishing that day, having spent most of his life at the reel. I asked him if he could fly the ahu while I joined the others at the water. Kris worked closely with me as a student learning to pilot the drone both before and during our trip. His skill as a pilot developed rather quickly, despite the generally slow speed of his flying. We had two fully charged batteries and he was capable of handling the generator if he needed more time. Kris usually took about three to four times longer than I did to complete any given structure, but he was a motivated and eager student. He happily accepted the responsibility for working on the ahu.

I ran toward Gina, Beau and Sergio who were now on a cluster of rocks twenty or so feet from the water. I approached Sergio and asked him if I could fish alongside him, warning him that I had little to no experience. He laughed and handed me a gray chunk of PVC pipe. I was confused at first, but realized the ingenuity of the contraption. Sergio did not have a standard fishing pole, or net, or anything I was

familiar with. Instead, Sergio had made his own fishing reels. The PVC pipe had a thick rod of wood fitted through the center as a makeshift handle. I stuck my hand inside the pipe and found it comfortable to grasp. The outside of the pipe had fishing wire wound around it, with a slightly rusted but sharp hook at the end.



Figure 18: Zachary J. Larison. "An Ingenious Device." 2017.

Sergio, a man of few words, beckoned me toward him by waving a PVC rod at me. Before explaining how to use it, he pointed toward the water and told me that the most important part of fishing in Rapa Nui was a careful eye on the waves. His voice was stern: "No matter how big the fish, tus ojos, your eyes, must watch the waves, or

they will take you.” A wave engulfed a massive section of rock ten feet to my right, spraying saltwater over us. “There are lot of fish here, do not worry about that. Remember, you are not the predator. The waves are.”

Continuing his lesson, Sergio showed me how to properly prepare the PVC reel. He took the gray reel out of my hand and set it down next to his backpack. Beau and Gina were watching his lecture, attentively following the man’s every word. Gina surely knew what she was doing, but she did not take part in fishing that day. She told us she enjoyed being close to the water, and that every night her father used to take her here to fish for dinner. Even the Rapanui of today, the few that survived the onslaught and oppression that plagued the island for years after European contact, still relied on ancient methods of sustenance—it was humbling to take part.

Sergio pulled a loaf of stale white bread from his backpack, and set it down on the rocks. He ripped a chunk of the bread and tore away some of the crust, revealing only the soft white fluff. In an instant, Sergio picked up the reel and somehow tied the piece of bread to the fishing line. Sergio pulled out a raw chicken thigh and plopped it down next to the bread. He sunk his teeth into the raw flesh and tore a scrap of raw chicken, and skewered it on the hook. He then told me to follow him toward the water. We walked toward the edge of the rocks before he stopped suddenly. He surveyed the outcropping and quickly backed up: “Cuídate! Ola!” (Watch out! Wave!). I jogged after him and a wave smashed the rocks right where we were standing, as if his impassioned speech from earlier was not enough to incite fear of the water.

We walked away from the area, and headed toward a much taller section of rock. He watched the waves silently as they failed to breach the elevation and moved forward toward the edge. He carefully drew the fishing line into his hand and began twirling the hook. In one fluid movement, Sergio released the hook toward the ocean and thrust his arm outward holding the PVC pipe. The line uncoiled rapidly off the pipe and he cast impressively far. His stance went from upright and casual to a low powerful stance. He held the PVC reel in his left hand in front of his chest as he guided the fishing line with the pointer finger of his right hand. He gently guided the hook zig-zag through the water mimicking the motion of a fish. His voice was calm and intense as he explained the movement: "Let fish eat the bread, and when you feel them, move the hook faster but don't pull." This trick entices the fish to chomp onto the raw chicken impaling their flesh on the hook, ensuring their place at his dinner table. I looked into the water where Sergio's hook was dancing about. It looked like a hundred fish had shown up, a feeding frenzy for raw chicken and bread. The fish swarmed around the hook but Sergio was steady. Suddenly, Sergio, still holding the line atop his pointer finger, thrust his arms upward and he began reeling rapidly. A fish erupted from the water, flopping and flailing on the rocks. He reeled the fish in, effortlessly outmatching its struggle.

Sergio walked away from the edge of the rock to display his catch. The fish violently wriggled on the hook and Sergio knelt down and dislodged the hook from the fish's mouth, stabilizing its movement with his free hand. Before I could blink, Sergio plunged his hand into the fish's side and tore the gills from its body. The fish's eyes

seemed to widen and its mouth puckered as the blood drained from its body onto the wet rock. The fish was gray and fairly round, nothing seemed remarkable about its species. The fish's movements slowly became less and less violent as the blood continued to drain from its torn gills. Sergio handed the reel to me and picked up the fish with both hands, and placed it in a tide pool. The fish flopped one more time, splashing water and blood on his boots, but Sergio paid no mind to the creature.

We painstakingly prepared our reels over the next twenty minutes or so. Sergio's mastery of his makeshift craft was evident as I struggled to tie the bread to the line. After all, his family depended on him for it. Gina rested on a rock with her legs crossed, laughing at our struggle. Her laugh was helplessly infectious, despite being at our expense. After mangling a few chunks of raw chicken and wasting several fluffs of white bread, I finally had a reel ready to go. I carefully stepped out onto the rocks and began twirling the line. Triumphant, I threw the line forward and jutted my arm out as Sergio had, hoping to guide the unraveling hook. The hook soared a whimsical ten feet before snagging on the rocks below. I guided the line back into my hand and began twirling again, steadfast and determined to yank sustenance from the Polynesian ocean. With each cast my line went ever so slightly farther. The waves splashed water onto my feet, soaking my shoes, but I heard no cry or warning from Sergio and remained in my position.

The bread was a soggy muck, and little remained on the line—the rest must have splattered on the rock or drifted into the sea. The chicken was wet and shriveled but I was determined to hook something rather than returning to the raw leg and loaf

empty-handed. I crouched down into a more athletic stance and spun the hook rapidly through the air. I could hear the whirring of the cord and the hook slicing the air. I released and rotated my PVC reel forward and the line shot over the water. I wiggled my shoulders and loosened up, ready to bait my meal for the evening. I gently caressed the fishing line with my right index finger, guiding it to and fro through the water. I followed the thin transparent line, tracking the exact location of my hook. Fish frenzied for the scraps of chicken that had survived my novice casts.

Sergio walked up next to me, attracted by the wealth of fish surrounding my hook. He gently placed his hand on my right arm: “Más rápido, más rápido” (Faster, faster). I hastened my movement, hoping to entice one of the fish. I felt tension at the edge of the wire and Sergio exclaimed “TIRON!” (Yank!). I threw my both hands above my head and a gray fish burst from the water before submerging once more. I had the fish on the line and the battle begun. I felt a strong tug as the fish began to swim away. I frantically started reeling the fish in, gripping the PVC reel with all my strength. This was a mighty fish. I tugged and tugged, and our quarrel seemed endless before the fish burst above the water and slammed into the rocks, flopping through his final moments. It felt as though either the fishing line was going to snap, and set my fish free, or I was going for a swim. I could see the swell of the water as the waves raged about below the struggling fish, and the threat of drowning invigorated my weary arms. I grunted and heaved and the fish flopped onto my shoes. I grabbed the end of the line and picked him up. The fish was hardly a foot long, and was light in my hands. I stared into the fish’s eye, a peerless black sphere circled by scaly silver lining. The fish

wriggled and flopped about, threatening to break free from the hook wedged in his mouth. Sergio told me to kill it quickly before it wriggled free and fell back into the ocean.

I set the fish down on the rocks. I stamped down on the fish's tail with my foot and drew the knife clasped to my belt. Sergio nodded and pointed to the fish's brain, pinpointing the exact location to deliver a merciful death. I flipped the blade open and anxiously placed it over the brain. I braced the tip against the fish's scaly armor. I jolted and sunk the blade into the fish's flesh. It leapt nearly a foot into the air and I lost the grip of my knife. My incision missed its mark. I grabbed the fish with my other hand as it flopped around, impaled far from the center of its skull. Without hesitation, Sergio noticed my error and tore the gills from the fish's body, sending a cord of glistening red flesh flying back into the water. The fish gasped and shook, slowly dying as the blood rushed from his head wound and from the torn gills. I yanked my knife from his flesh and calmly stabbed him through the brain, ending his suffering. I sheathed my knife and picked up the fish with both hands, careful to not let the slippery scales slide into the sea. Sergio told me to find Gina to prepare my fish for the evening.

Gina was thirty feet or so east of our position by now, kneeling over a pool of still water. Beau was kneeling next to her, shucking scales from a fish's body. I hadn't noticed his catch in the heat of my own. His fish was unlike mine and had a slender colorful body. I greeted them, holding my fish and knelt down to join the preparation. Gina was working with a fish like mine, gray and bug-eyed with a round body and large tailfin. The scraping of the scales was rough and arhythmic. Every stroke of Beau's

Swiss army knife sounded like it was scraping over hard rock. The beauty of Beau's fish caught my eye as I looked closer. He explained that it was a wrasse, a common fish in this part of the Pacific. The fish's skin was a bright green color, same as the leaves of the palm trees in Hanga Roa. The fish's head was a display of myriad patterns and vibrant colors. A large orange stripe adorned the bottom of the fish's head that trailed into a light blue as if the fish had stolen the sky in its pigment. The fish's lips were translucent and white. His eyes were singular black dots circled by yellow and orange spirals of color. Beau flipped the fish back over and continued shucking away the beauty, scale by scale. I frowned at the thought that such beauty was about to be gutted, charred and consumed. But this was the way of life for Rapa Nui and her people, both ancient and contemporary—a practice more beautiful than the fish itself.

I drew my knife from my belt and began shucking my fish, careful to rinse the accumulating muck and torn flesh in the cold seawater. I asked Gina if we were cleaning them here out of convenience, suggesting that it would be easier to clean them again back at the house. Gina's merry expression turned stern in an instant: "Never touch these fish, or any fish with fresh water. They were born in saltwater, and they will die in saltwater too!" The serious look broke on her face and she started laughing, exclaiming "Y para el sabor huon!" (And for the taste dude!). I shook my head and laughed along. I had grown quite fond of Gina's company. Her spirits were always up even when things went awry. While we were descaling the fish, Sergio intermittently walked over and placed more fish in the bloody tide pool. He accumulated a surprising amount in the time it took Beau and I to descale our fish.

By the time we finished descaling, Gina had scoured seven or eight fish. Sergio walked over and plopped one more fish into the pool, splashing bloody water everywhere. He sat down and told us to pay attention. He told us the next step of the process: to gut the fish and enjoy the “hígado.” Sergio grabbed a fish from the pool and set it at his feet. He pulled back the front fin and placed a finger underneath it— “Press your finger underneath the fin, until you are under the scales.” To my surprise there was a small opening where my finger just barely fit. The fish felt cold and slimy as I buried my finger under the fin. “Now make your finger a hook, and yank the flesh toward the belly.” I heard an awful ripping noise followed by the uneasy *squish* and the fish’s guts spilled out into Sergio’s hand. Brown paste sprayed everywhere. Sergio removed a dark red ovular thing, and popped it into his mouth, smiling as he chewed. Sergio pulled away the brown intestinal tubing and handed it to Gina.

I steadied my hand and yanked toward the fish’s belly. The flesh tore easily and fish shit splattered onto my hand. The fish’s guts dangled from its belly, pink and brown and red and purple. “Now reach in and remove the guts gently. Do not burst them or you spoil the whole fish.” I tentatively reached my fingers into the fish’s belly, grimacing and laboring not to look away. I felt slippery tubes and tough sinewy bits of flesh wrapping and writhing around my fingers as I pushed further into the belly. I slowly pulled the intestines from the poor beast and one by one each organ dripped out. There was *a lot* of brown intestinal piping filled with shit. I noticed the dark red thing that Sergio had eaten. This must be the hígado. “Cómelo!” (Eat it!). Sifting the guts away from the hígado, I yanked it from the mess. It was dark red and blood

seeped into my hand. I smelled it and winced at the rancid smell of iron and bile. *Yuck, the liver.*

Gina chewed on a hígado from the fish she was gutting fish and repeated Sergio's words: "Cómelo, huon!" I winced at the thought of eating the thing raw, from a fish I had caught minutes ago. It was fresh at least. I looked down the coastline and the sun had disappeared behind cliff and cloud, bathing the sky in vibrant light. I figured there was no better place or time of day to celebrate the catch. I anxiously placed the hígado into my mouth. It was slimy and tasted like blood. I bit into the tough sinew. Blood and bile exploded into my mouth. I gagged and spat it out, spraying mangled bits of flesh into the murky tide pool. Miscellaneous bits of intestines and chunks of fish floated about the water, which was now dark red. A sour and disgusted look rested on my face as Gina and Sergio laughed at me before each merrily popping another hígado into their mouths. It was something that they had enjoyed their entire lives, a practice passed on by their parents.

I stood up and walked over to another tide pool nestled in the rocky coastline and splashed saltwater into my mouth. I felt immediate relief as the salt overpowered the lingering taste of bile and blood. I returned to the bloody pool. I knelt back down in front of my fish, an unmoving corpse splayed on the black rock. Following Sergio's lead, I picked up the intestinal tubes and handed them to Gina. Gina responded "No no, you eat them!" I stared down at the shit-filled tubes, and genuinely considered the idea. Gina's laughter broke her ruse, cackling at her own prank. She told me: "Hold the tubes over the water and squeeze out the poop. We will cook them tonight." I pumped

the bile from the intestinal tubing and handed them to Gina. The horizon was darkening as the sun continued to fall behind the water. Sergio finished the last fish and grabbed the orange bucket resting near his backpack. He walked around, collecting each of our fish. I offered to carry the bucket back up to the car and Sergio handed it to me with one hand. I took the bucket in my left hand and nearly dropped it, surprised by the weight. Sergio's lean build had concealed his rigorously practical strength. I set the bucket down, heaved it into my arms with both hands and headed up the rocks toward the car.

I set the bucket down in the back of Sergio's pickup truck and he pulled a pot from the rear of the bed. He politely asked me to transfer the fish from the bucket and place them in the pot. "The fish appear more gourmet in this," he joked. Their slimy, cold corpses slid around in my fingers. The fish were smeared with intestines and blood that began to let off a rather foul stench. The others were lounging around the ahu taking notes and writing on tablets and laptops, enjoying the warmer weather. It was winter in Rapa Nui, but the days were warm and comfortable when it wasn't raining. Kris lamented a frustratingly long flight to complete photography of the ahu. I commended his patience and thanked him. We loaded up the rest of our gear and headed out.

I rode in Sergio's Ma'u Henua truck back to the house, holding the overflowing pot in my hands. We arrived later than the others, stopping nearly every thirty feet in Hanga Roa to greet friends and family. Sergio knew everyone in town and even gave away a few of the fish. I remember one family in particular came up to the vehicle. The

man was distinctly Polynesian, with dark-brown skin and a round wrinkled face. A young girl sat atop his shoulders. Sergio reached into the kettle on my lap and picked out the colorful wrasse that Beau had caught. He handed the fish to the girl and she giggled excitedly. The two men nodded, thanked each other, and we drove home.

When we arrived at the house, the festivities of the evening had already begun. Dean Hunt and a tall man with a round portly face were sipping wine by a blazing barbeque fire. I got out of the car, holding the kettle of fish and walked toward the barbeque. Dean Hunt's deep resonant voice greeted our arrival merrily. He poured me a glass of red wine: "A merlot from Santa Ema back in Chile." I graciously accepted and set the fish next to the fire. The man next to Dean Hunt introduced himself as Hetereki, the European educated Rapanui. His skin was surprisingly pale, owed to his half Rapanui, half Chilean heritage. He had big smile and a hearty laugh that weaved its way in between his words. He was smoking a cigarette and sipping a can of soda, wearing khaki pants and a rose-colored sweater with a white collared shirt underneath. He was a European-educated architect who worked to incorporate his Polynesian heritage into modern design.

I took the glass of wine inside and found Gina preparing a wide variety of food. Potatoes and vegetables were strewn about the kitchen, and two children ran around chasing each other. I recognized the little fat boy from Ahu Tahai our first night on the island. I washed my hands in the sink, scrubbing away the grime of fishing with "el poder de cien limones!" (the power of 100 limes), a popular dish soap in Chile and Rapa Nui. The green goop made quick work of the fish oil and guts. I dried my hands

off, and took a sip of wine. I definitely understood Dean Hunt's enthusiasm for Chilean wine. I noticed a plastic bowl with about ten potatoes and a whole raw chicken: "Gina, why is there a raw chicken on top of those potatoes." Without looking up, she told me it was for the "umu" and to go outside to help Sergio.

Sergio was digging a hole in the ground to the left of the barbeque. I approached him and told him Gina sent me to help him with the umu, still not quite understanding what that meant. He nodded and asked me to cut banana leaves from the trees on the side of the property. I drew my knife and walked toward the trees. Tiny green bushels of bananas clustered around the leaves and I hacked away at the thick stalks connecting them. They were thick, smooth and heavy. I cut four leaves and returned to Sergio. He had carved a neat hole that was shaped like a cauldron. With intense focus, he patted the sides of the hole, smoothing out the dirt. I set the leaves next to a pile of rocks near the hole. Sergio stood up, satisfied with his dig. He grabbed a few pieces of wood from the pile near the barbeque and buried them in the hole, igniting them with a match that he drew from his pocket. He nestled stones underneath the timber, weaving his hands through the infant flame. He picked up a machete and hacked away at the leaves, slicing them into long strips. He stood up, shook the dirt off of his hands and told me it was time to tend to the fish. I eagerly followed.

After the grueling process of gutting and preparing the fish on the coast today, I expected an elaborate cooking process. However, Sergio took the fish out of the kettle one by one and simply tossed them onto the hot metal grate. The fish sizzled and

crackled and the stench returned. Hetereki inhaled deeply and gleamed with excitement, standing up to inspect our lot. He exclaimed: “Oh, how beautiful! Que bueno Sergio.” Sergio’s eyes hardly left the grill, except to grab a can of Escudo, a popular Chilean lager beer. After ten minutes or so, Sergio flipped the fish over and returned to the umu without a word. The fire was roaring and embers glowed red beneath the flame. Sergio put more wood and rocks into the pit before returning to the barbeque.

For the next few hours the umu crackled and the flame continued before dwindling down. Sergio splayed each fish open and we each took turns ripping flesh from the exposed bones. The fish was tender and fresh, despite lacking any seasoning or spices. I recognized my fish right away from the incision in its skull. I made sure to eat a few bites of it, proud to have fed myself as the Rapanui did, if only partially. The others joined us after showering, sharing bits of fish fresh off the grill and playing card games by the fire. A few stray cats lurked around the edge of the grove, meowing and fighting with one another for the right to prey on the sizzling fish. I kept a close eye on Sergio’s care of the umu, which turned out to be a rather lengthy endeavor—only embers remained. Sergio placed more stones inside the pit, creating a bed of hot rocks. Sergio then took the whole raw chicken and the potatoes, and placed them atop a thin layer of leaves. He covered the chicken and potatoes with more leaves, and then piled dirt and rocks on top of the whole thing. Faint wisps of smoke rose from the soil, penetrating through the leaves and food buried within.

An hour or so went by and in the middle of a card game, Sergio set down his Escudo, and unearthed the contents of the umu. The once raw, pale and dripping chicken was perfectly browned, as if it had been spinning on a rotisserie. Sergio grabbed the chicken and set it down on the table. One by one he carefully grabbed the potatoes, juggling them in his hands and set them in a bowl. Now I must admit, I was both drunk and exceptionally skeptical of the quality of this chicken. It had just been buried in the ground of our front yard essentially, cooked with random garden rocks and covered with dirt. Hesitant, I stepped up to the chicken and Sergio tore a strip of white meat and handed it to me. I put the chicken into my mouth and tasted a perfectly balanced smoky flavor. It melted in my mouth. My western preference for “proper” chicken cooking was shattered in an instant. This was the best chicken I had ever tasted. To this day, the chicken from that umu was the most tender, perfectly cooked chicken I’ve ever had the fortunate pleasure of eating. I drunkenly bothered Sergio for more and more before he laughed and shooed me away, gesturing to the others behind me in line. He tossed me a whole potato instead.

I sat down, took another sip of wine and drew my knife. I cut the potato in half. To my surprise it was a purple kumara, a love of mine from New Zealand. The three Maori women I lived with for a time in Dunedin, New Zealand, always cooked beautiful potato dishes with orange, yellow, white, gold and purple potatoes. The purple kumara was always the best, bearing a unique sweetness that was just so, and not overbearing. I chomped into the potato. It was as soft as a potato baked by an expert chef. I realized the brilliance of the umu—the quintessential Polynesian earth oven.

The smoky flavor was present, but not overwhelming, letting the flavors of the potato flourish despite being cooked in what I had once considered a mere hole in the ground. Sergio taught me that day, in both fishing and in cooking, that some practices persist thousands of years and carry from generation to generation not always out of necessity, but from preference.

After everything was said and done, Gina laid the fish intestines on the grill. The fire had died down quite a bit but was just hot enough to fry the pallid tubes. After about two minutes of sizzling sinew and popping pustules, Gina took the intestines off the grill, handing a short length of tube to each of us. Hetereki and Sergio devoured them. Dean Hunt waved his hand at the offer and politely passed. Beau, myself, Kris, Rav and Peter each accepted and one by one grimaced and spat as we tasted the foul thing. Except Kris. He had grown up eating every morsel of every fish. The intestines were somehow rubbery and crunchy with an overwhelming salty flavor. I smacked and strained my neck in protest, but swallowed the intestines no less. Hetereki, Gina, Sergio and Kris happily finished the rest of this island “delicacy” while we struggled to purge the taste from our mouths with spare scraps of chicken and potatoes.

The night dwindled down and we fed a stray cat a few fish heads. The same clumsy stray from our first day appeared in the driveway. We cheered at the return of the dog, whom we eventually named Lola, and gave her a fish head and the remains of the chicken. One by one, everyone retired for the evening. Full of food and fulfilled by good company, I crawled into my tent and fell asleep to the sound of Lola gnawing on chicken bones.

DAY 18: A Crater, a Cave, a Curanto

Every day after that barbeque seemed better than the last. Sunny skies and stupendous flying conditions heralded unprecedented productivity in the air. From the first day of the trip to the eighteenth day, we compiled over 30,000 photos of major archaeological sites around the island. Every model that came back from our software was impeccable. Through the drone's eyes, I witnessed archaeology with centuries of history and ancestry—each ahu and each toppled moai told its own story. I even flew the drone in popular places with reconstructed archaeology like Ahu Tahai and the famous Ahu Tongariki. And I flew in places where moai were buried in tall grass among dirt and rock and fragments of obsidian that were once mata'a, a tool of the ancient Rapanui. With every step, and every meter that the drone traveled, I appreciated more and more the sheer genius of the ancient Rapanui. They carved and walked their stoic visages *miles* across an island isolated from the world. From the tiny moai at Poike, to the largest one still resting in the heart of Rano Raraku, they carved their lives into permanence.

On the morning of our last full day, Sergio arrived at the house earlier than usual, rolling in at 8:00 a.m. Now fully adjusted to the call of the roosters, I was wide awake and tending to some of our photography. I made Sergio a cup of coffee and he gladly accepted, drinking it black. He asked me to find Dean Hunt and Beau, who were both in their rooms. I collected the two groggy archaeologists and they came out into

the living room, each pouring themselves a cup of coffee. Sergio suggested we travel to Rano Kau to photograph the cliff-top village of Orongo, the historic site of birdman culture. This cultural practice, known as Tangata Manu, was a notable shift from moai culture. I knew little beyond that detail. I was particularly excited for this field lecture. Dean Hunt and Beau agreed to the proposition. Before departure, Sergio informed us that he only had until noon to work at Orongo. We set out at once.

Given the size of Rapa Nui, and the low-altitude flying I had grown accustomed to, I had seen Rano Kau looming in the distance. I had seen photos of a vast crater at the western tip of the island, but nothing more. We drove out from the house taking the drone and thankfully not the generator. Nearly every day of our research was spent alongside the obnoxious rattling of the thing. I enjoyed the more peaceful flights along the coast, listening to the buzzing of the drone and the waves. We left Hanga Roa to a brisk and partly cloudy morning, the perfect combination of weather for enjoyment and drone flight (one can fly during cloud cover, and relax or take scenic photos when the sun shines).

We followed the cobblestones out of Hanga Roa one last time. The road up Rano Kau was winding and lush. When we pulled into the gravel parking lot and I noticed a sheer drop about twenty feet to the left of the car. We were perched atop a vast, still swamp that looked like the dead marshes from the *Lord of the Rings*. I grabbed the drone and headed toward the visitor center. The walls were covered with Spanish descriptions of the birdman cult and of the legacy of Orongo. I skimmed through the writing as the others slowly filed into the hallway. I kept reading as we

waited for Sergio, who was chatting with the Ma'u Henua employee manning the entry desk. I read about Motu Nui, a rocky spit of land off the coast from Orongo, recognizing the name from Disney's *Moana*. The description of Motu Nui mentioned something about a rigorous physical test for Rapanui men, but before I could decipher the Spanish, Dean Hunt and Sergio exited the door toward Orongo.

I emerged onto a narrow path between the ocean and the crater. A handcrafted wooden rail ran low along the edges of the trail. After a hundred feet or so, the trail opened up to a wide grassy plateau. The path stood out among the green, circling around a series of stone houses. The sun shone through the clouds and illuminated the white and gray stones. Dean Hunt pointed to the stone structures before us. He explained that these were the famous houses of the *Tangata Manu*, or birdman. At this sacred place, perched atop the large volcanic caldera of Rano Kau, the Rapanui people of centuries ago hosted an annual competition that began here. He pointed out that each stone was carefully and perfectly stacked, a modern replication of what the original Rapanui most likely did. Dean Hunt lamented that the original archaeology that once existed here had been consistently tarnished throughout history. And, a moai once rested here, the centerpiece of the village. But the British crew of the HMS *Topaze* took the moai, named Hoa Hakananai'a, from the island, robbing the already diseased and dying Rapanui of their heritage.

The structures followed an even pattern across the narrowing plateau. Dean Hunt turned toward the coast and pointed out the islet of Motu Nui about a mile off the coast: "The Rapanui sent their most able-bodied and respected men on a

dangerous quest there.” These brave islanders, called *Hopu*, would scale down the steep rocky cliffs of Rano Kau and swim the incredible distance to Motu Nui in a race to acquire the egg of a manu tara bird. Many *hopu* died from drowning, exhaustion, and the sheer challenge of the task in their pursuit of the egg and glory. The first man to acquire a perfect egg, swim the mile or so back to the foot of the mountain, and ascend the rocky cliff was crowned the *Tangata Manu*. For the next year, the *Tangata Manu* would hold a sacred place in Rapa Nui culture.

As I followed Dean Hunt, I could see rectangular openings leading inside the structures, but it hardly seemed large enough to fit a chicken, let alone a man. We walked toward the end of the path, and stopped in front of the last structure. It was precariously placed on a narrow part of the crater’s rim, perched between the steep slopes toward the marsh and the ocean. There were a few boulders stacked at the back of the structure. They appeared out of place and perhaps too large to move but this was Rapa Nui—no stone, no moai, no pukao, was too large to be moved. The ancient Rapa Nui decorated their island with intention, precisely placing each stone to fulfill a sacred purpose. The houses of Orongo heralded the great competition of the Birdman culture. The ahu and moai of the island’s rocky shores marked fresh water aquifers. Moai walked the same roads as their predecessors, either stumbling on a beaten path or arriving at their coastal temples, the ahus I had grown so familiar with.

The sun passed behind a cloud and I could not make out anything special about these boulders. Dean Hunt went silent and nodded, his gaze never leaving the rocks. He knew each stone and statue on the island as well as any ancient Rapanui, perhaps

better. He seemed at peace among archaeology that would perplex and frustrate most who stand before it. He had solved the island's greatest mysteries—mysteries that stunned humanity across hundreds of years. From Jacob Roggeveen and his Dutch crew in 1722, to modern-day tourists like ourselves, the archaeology of Rapa Nui mystifies even the brightest minds. It is not uncommon to hear of otherworldly and extraterrestrial explanations for the archaeology of the island, even in places like Orongo. I stared at the stones, and I wondered their purpose. Dean Hunt took a deep breath and walked back down the path toward two long brown benches. He gave me the green light to fly, and Sergio nodded in approval.

I unpacked the drone and sent it up without problem. The wind was fairly calm despite our location. Dean Hunt spoke up: "Fly over those boulders and take a few photos." I throttled forward and followed the path we had just left. The boulders were perched just at the edge of the cliff, and some seemed to barely hang on to the brown grass that sloped toward the ocean. The rocks were clustered around the curvature of the final stone house at the end of the village. As I hovered the drone above the rocks, the sun broke through the clouds, illuminating a wealth of intricate carvings. There were several stones with carved the *tangata manu*, an artistic rendering of birdman culture. I could make out the iconic body, a curved and elongated representation of the human form tucked into itself, adorned with a beaked skull. The more I looked, the more carvings I could make out. They were etched heavily and precisely in the rock. Some even had claws or fingers, and the detail was well preserved. There were strange

circles and etchings spotting any area not covered by a birdman. I heard the same familiar line from behind me: “Snap that.”



Figure 19: Zachary J. Larison. “Carvings at Orongo.” 2017.

After staring a moment longer, I pressed the throttle up and sent the drone over Orongo. As the drone effortlessly ascended, I could start to see the entire village in its context, a modest string of stone houses perched atop a staggering mountain. The crater was verdant, a brown and green marshland of low brush tucked around pools of still water that reflected the sunlight above. A shadow crept across half the crater.



Figure 20: Zachary J. Larison. "Aerial: Orongo and Rano Kau." 2017.

I gently eased the right throttle forward, following the crater's rim toward the mouth of the crater. The clouds shifted suddenly and a strange strip of violet caught my eye. Amidst the rock and dead brown grass, wildflowers grew into the side of the crater. The color was stark against the familiar, dull Rapa Nui palette. Dean Hunt inched forward and squinted at the screen, noticing the line of flowers nestled in the rocks on the hillside—"Wow, snap that."



Figure 21: Zachary J. Larison. "Wildflowers at Rano Kau." 2017.

I pulled the drone back over toward the main compound. Tourists walked along the path leading into Orongo. They looked like colorful ants, slowly walking and taking pictures. I lowered the drone and guided it back over to the stone structure with the carved boulders, hovering low over the ocean facing side. Maneuvering closer to the stones, careful not to bash the drone into the rocks, I could see that the boulders were fused to the stacked stones. Grass and moss grew in and around the slightest crevices between the otherwise perfectly stacked stones. Most of the them were stained pure white. The structure was immaculately contoured to the arrangement of the boulders. It seemed older than any of the other houses, despite likely being the last house made—the final structure at the narrow edge of the plateau. Perhaps this one had survived the cull of imperialism.



Figure 22: Zachary J. Larison. "The Edge of Orongo." 2017.

I continued around the compound, snapping photos at my leisure. Due to the influx of tourists and our limited time, it was unlikely that I would be able to properly photograph the area for modeling. I heard Sergio quietly ask Dean Hunt if we could take a few photos of Ana Kai Tangata. The name was unfamiliar and I made no note of it. Dean Hunt responded: "I'll take the students back to the house for an early lunch. Zach and Beau can help you at the cave when we finish here." After about 15 minutes of flying, Dean Hunt told me to land the drone, and I dropped it over Kris's head as he was having a conversation. He looked up shocked as the drone blew his long brown hair about before he instinctively grabbed the landing bars. I took the drone from Kris and packed up. We headed toward the visitor center.

The mountain went dark as clouds rolled in overhead. A light rain shocked a group of Asian tourists, sending them scurrying back to the dry comfort of the visitor

center. They snapped photos out of the windows of the tourist center, refusing to venture back out into the rain. We exited the building and I put the drone in the back of Sergio's truck. Dean Hunt explained the plan to the others as Beau and I climbed into Sergio's truck and our caravan headed out. The rain picked up. The weather here was always sudden and powerful. A storm like this could persist for the entire day, or blow away in a matter of minutes. Looking off toward the coast, it appeared this storm would stay for a few hours, but the light broke through a few miles toward the horizon.

As we neared the edge of town, Sergio pulled off the road suddenly. We bounced along on a dirt road for a few minutes before stopping at the edge of the island. Sergio hopped out of his car and headed toward the water. I turned to Beau and asked what "Ana Kai Tangata" was. Beau responded: "A cave," and walked off. I shrugged the short response off and walked over toward the edge of the cliff, revealing a narrow stone staircase. I could see Sergio's scrambling on the rocks below, and he stopped in front of a massive opening. The storm continued to intensify and the rain battered the area. The opening of the cave was situated at the edge of the ocean, only separated by a short field of rocks worn by the continuous crashing of waves. Sergio suddenly turned toward the ocean and ran back up the stone staircase just as a wave smashed into the cave. Without hesitation, Beau walked down the stone staircase. The water lurched back out toward the sea. Sergio kneeled about halfway down the stairs, perched atop a large flat stone. Beau turned to me: "Go grab the drone."

Confused, I walked back to the truck, grabbed the drone, and returned to Beau. I placed the drone case in front of him and began to pull it out. As I started to put the first propeller on, Beau firmly said “No, you aren’t going to fly it, you are just going to use the camera manually.” I looked back at him puzzled: “the camera doesn’t detach Beau.” He pointed toward the cave: “Up on those cave walls are carvings and drawings of *tangata manu*, all you have to do is hold the drone up and I’ll shoot the photos from up here.” Another wave smashed into the mouth of the cave and the lagoon in front of the cave churned with the commotion of the storm.

Beau grabbed the drone remote and Sergio nodded: “I’ll warn you if a wave comes.” I powered the drone up, shielding it from the rain with my jacket. I waited for the next wave to hit the cave and then bolted down the staircase. I clamored over the rocks, and moved inside. Sweat and rain mixed on my face as I turned toward the water. Sergio said nothing and a mild wave splashed the rocks in front of the cave. Beau gave me a thumbs up and I began looking for the carvings. The walls of the cave were heavily eroded. Large slabs of multicolored rock were peeling away, eroded by water and wind. The rocks toward the base of the cave were white and gray and looking further up, I noticed jagged sections of brown and red. I heard “OLA!” (WAVE!), and ran back up the staircase as water poured over my former position.

As soon as the water dripped back out toward the sea, I rushed back in and scanned the walls for birdmen. I could just barely make out a few birdmen carved into an area of fragmented slabs. They were fairly high up the cave wall. I held the drone up high over my head, pointing the camera directly at them. I heard the camera gimbal

operate above my head, the buzzing of the motor barely audible above the storm.

Beau shouted directions from the staircase, telling me to shift up, down, left and right a number of times, shooting as much as he could.



Figure 23: Zachary J. Larison and Beau DiNapoli. "Birdmen, Ana Kai Tangata." 2017.

As I panned toward the rest of the cave, I heard "OLA!" from Sergio. Without lowering the drone, I turned toward the water. A massive wave swelled, building toward me. I held the drone over my head and pressed the drone's local camera button. I barely made it up the staircase as the water smashed the rocks where I was standing. Some of the spray doused my pants. I did get this photo though.



Figure 24: Zachary J. Larison. "Storm at Ana Kai Tangata." 2017.

We repeated this process for a few more minutes, snapping careful photos of the rest of the cave. It was fairly deep and I did not dare to venture further in. I imagined the Rapanui people of a few hundred years ago carving the icon of their culture into the cave wall and wondered how on earth they managed to do it—ever the ingenuity of the Rapanui. The most prominent birdmen carvings were fairly high up the wall and seemed difficult to access, hence their excellent preservation. Any lower and I'd imagine tourists or water would have smeared them away from the rock. Beau yelled at me to step back for a final photo of the whole cave:



Figure 25: Zachary J. Larison and Beau DiNapoli. "Ana Kai Tangata." 2017.

I walked back up the stairs toward the car, noticeably soaked from the spray of the waves and the rain overhead. I dried the drone off with a utility towel tucked into the car door of Sergio's truck, and gently placed it back into the case.

We rolled into town around noon and Sergio thanked us for our time. Beau responded "Sure thing, our pleasure," ignoring the fact he simply pressed a button safely atop the staircase as I scurried about the cave, dodging waves on uneven rocks. Truth be told he was right, it actually was a pleasure. Sergio told us to come to his "curanto" later that day. I nodded despite having no idea what a "curanto" was. If Beau knew, he didn't bother explaining. Sergio looked up at the storm as the rain continued to pour, and nodded: "The weather will be perfect for the curanto, this will pass." Beau ensured him that we would be there.

We relaxed at the house for a few hours, working on this and that until the rain cleared. I woke from a short nap on the couch to sunlight peering through the windows. The clouds rolled toward the other side of the island, taking the storm with it. Sunlight and warmth filled Hanga Roa. I walked into the kitchen and surveyed our supplies. Ham. White bread from Panadería Mana. A single apple. I frowned at the selection as fruit flies buzzed around the pocked and marred apple. I reached for the bag of white bread as I heard Gina behind me: “No! Vamos al curanto de familia de Sergio! Espérate huon!” (No! We are going to Sergio’s family curanto! Wait dude!). I put both my hands up, as if to proclaim my innocence. Gina giggled for a moment and then told me to find containers for food. I searched the cabinets, most of which were empty. I found two tupperware bowls, two pots, a chrome bucket and two plastic bags. Gina smiled at the results and left the room to rouse the others. It was time for the curanto. One by one, Peter, Rav, Beau, Kris, Dean Hunt, Gina and I grabbed a container and headed toward the cars.

We drove a few blocks up the road before turning into a large neighborhood. Hundreds of people flooded the area, forming a single line that ran from the street corner to the far end of the neighborhood. We parked in a field away from the commotion and walked over to the line. Men, women and children alike, all carried tupperware containers or pots, and some even had dingy paint buckets. The line funneled the crowd toward a large row of tables set in front of an impressive field covered by tarps. I turned to Dean Hunt and asked him what was going on. He smiled: “Prepare for some of the best food you’ve ever eaten. Sergio and his family are

honoring a patron saint by hosting an open feast for the entire island. It's one of the last forms of costly signaling still in practice." Costly signaling is "simply a kind of communication. It conveys honest information about qualities being advertised that benefit both signalers and recipients."⁵¹ In this case, Sergio's and his family displayed their economic power and generosity by providing an open feast for the island. Certainly, not every single person in Rapa Nui was in attendance, but with every minute the line behind us grew bigger and bigger. It was a visual display of their success and commitment to the island's people—anyone who showed up was welcome to the food. Looking around, the feat was undeniable. Hundreds of people continued to pour into the area as each minute passed. There was even a band playing groovy tunes from a modest stage. The people in line danced with partners and children, while those beyond the line feasted from a myriad collection of containers.

As we reached the tables after an hour of waiting, about eight or so women served food that was being unearthed from a giant umu. The earth steamed through gaps in the tarps. Not only was Sergio and his family feeding the entire town, but doing so from an earth oven. Gina told us that Sergio and his family tended to the umu carefully, maintaining the fire for over twenty hours. We stepped under a white floral archway, decorated with the same flowers as our leis when we arrived. We inched forward toward the women but I could not keep my eyes from the men working the umu. Every few minutes, six men would heave industrial pallets of potatoes from the

⁵¹ Terry L. Hunt, and Carl Lipo. *The Statues that Walked. Unraveling the Mystery of Easter Island*. New York: Free Press, 2011. 131.

ground and set them near a group of children. The children, wearing blue plastic gloves, would then place the potatoes into clean white buckets. There must have been ten thousand potatoes. I watched this process repeat over and over. The men sweated and panted with each pallet, and the children merrily played a grand game of hot potato.

I heard the word “VACA!” yelled from the umu and Sergio appeared out of nowhere, dashing toward the pit. The women serving food turned toward the umu and cheered. The crowd of people amassed to watch and cheered as the men unearthed an entire cow that had been flayed and cooked. It was staggering and perfectly browned by the slow heat. Meat sloughed off the beast as the men struggled to grip it. They heaved it toward a stout Polynesian man, wearing shorts, work boots and a bloodied apron covering a bare glistening chest. His arms were grizzled and muscular. With his right hand he guided the cow onto the table in front of him, and in his left he held a shining cleaver. The men set the cow down onto the table and the cheering ceased, the band resumed, and the hacking began. A crowd gathered in front of his table. The man carved at the cow with intense focus, mesmerizing everyone around him. He smiled and chanted in Rapanui as he lopped off inedible limbs and cut perfect slabs of meat. Each slab of edible meat was taken by a group of boys, gently wrapped in foil and handed to the serving women.

I stepped under the floral archway in front of the first woman. She smiled and handed me two potatoes sliced in half. One was white, and the other purple. The next woman handed me a strange bread-like thing that was brown and yellow—a slice of

“po’e” as Gina called it. I reached the woman closest to the butcher and she placed a large chunk of beef wrapped in foil directly into my tupperware bowl, warning me that it was very hot. The penultimate woman in the row handed me two bananas, much to my delight. Over the course of our trip, I had grown to love the petite and tangy Polynesian banana. The final woman in the row was stirring a bucket of chunky, discolored milk, pouring it into an array of cups. I passed on the milk and walked out of the line.

By the time everyone had their food, most of the neighborhood was packed with families and groups of people eating. People sat on porches, on blankets in the middle of the road, in fold-out chairs, and some just sat in the dirt, shoveling food from their containers. We walked into the backyard of one of the houses where a few families with young children were gathered in a circle. They had several bottles of wine nestled in the tall grass and a portable radio played Spanish music. Gina asked them to share the space behind them and they graciously welcomed us. We sat down and dug into our food. Despite our umu a few weeks prior, I was skeptical of the beef, being cooked and cut in the manner that it was. I started with the potatoes instead. They were perfectly soft and still warm from their underground journey on the pallets. The po’e was delicious and moist, owed to the fact that it was made with a significant amount of milk, as Dean Hunt later informed me—something I should have asked before eating the entire thing as I am severely lactose intolerant.

Finally, I pulled back the foil covering the hunk of beef. It was soaked in blood and juice. The exterior was browned and the meat inside was medium, with just

enough pink. I ripped a morsel of beef off the chunk and popped it into my mouth. The meat melted as it hit my tongue. A phenomenal flavor exploded in my mouth, at once smoky and tender and rich. Once again, the brilliance of Polynesian earth ovens surprised me and I shall repeat the same sentiment from my first umu: Without a doubt, this chunk of beef that was given to me by the grace of Sergio and his family was the best, most succulent, most delicious beef I have ever tasted. I wolfed down the entire thing. We relaxed in the grass until the po'e churned in my stomach, signaling an urgent need to depart from the merry event. We headed back up the road and people still filed in from the street. Hundreds of people celebrated the day with food and music courtesy of one man and his family. Color me costily signaled.

...

That night we returned to Rano Kau to gaze at the stars. Perched at the edge of the crater of Rano Kau, whose waters faintly shimmered with moonlight, I stared into the vast void of the Milky Way sprawling across the night sky. Hundreds, no thousands, no millions, of stars, more and more as I looked up, dotted the night sky. There was more star than darkness, more colorful nebula than nothingness. Light was truly unmitigated here. It at once made sense what Dean Hunt had told me in class years ago. The Polynesians had voyaged to this spit of rock and dirt further east than any other island in Polynesia in part guided by the stars. I imagined the first Polynesian inhabitants of the island floating along the Pacific Ocean in double-hulled canoes, guided by the lights twinkling above them. I felt the same luck they must have—to find an island so far from their homes. The opportunity to come to Rapa Nui is one I shall

never forget. Just as the ancient Rapanui drifted into the right place at the right time, I drifted into the employment of Dean Terry Hunt at the right time—after all, he hired a drone pilot who had never flown a drone before.

We flew out of Rapa Nui the next day, concluding the last of my travels in Polynesia, for now. The stunning archaeology and landscape of Rapa Nui that has inspired millions of travelers and explorers and scientists for centuries, embraced and welcomed me. Thanks to the generosity of Dean Hunt and the kind citizens of Rapa Nui, like Gina and Sergio, the smallest island of my two-year voyage will forever hold an immense place in my heart, imagination and memory.

Kia Ora, Aloha, Iorana,

Thank you for reading,

-ZJL

EPILOGUE: The Luggage Room

Following the trip to Rapa Nui, I spent a week in Valparaiso, Chile bumming around as a proper tourist. Seven days after my departure from Rapa Nui, I found myself in the airport in Santiago speaking with a lost baggage representative from LATAM Airlines. The case of the missing yellow drone was still one hell of a mystery. The woman told me nothing changed since the day I left the Rapa Nui airport with a flimsy piece of paper in hand. She offered to take me into their lost baggage room. I happily obliged, thinking that the yellow drone was surely in there. I walked into the room, backpack in tow and sweat on my brow from the stuffy heat of the airport. I looked around at what seemed like a thousand bags stacked haphazardly into a heap. The thought, *are you fucking kidding me*, crossed my mind as I turned a corner and saw a stack of surfboards piled up to the ceiling. How on earth does an airline lose something as large as a surfboard? I asked the lady how long the surfboards had been there and she shrugged, telling me the older ones were at the bottom. I shook my head in absolute disbelief. I scoured low and high for twenty minutes, checking behind bags and around corners—no luck. The yellow drone was still missing.

To this day, as I write these very words, the yellow drone's true location remains an unsolved mystery. Dean Hunt and I have concluded that some lucky Chilean now enjoys the full utility of an archaeological research drone. We like to think he takes beautiful photos of his family, of his country, and of himself even. We also like to think that the bastard that stole the drone when we checked in, is precisely that: a bastard. As of April 2018, we have yet to receive compensation from LATAM Airlines

for the missing bag. The case of the missing yellow drone is an ongoing saga. To all that may travel to Rapa Nui, and enjoy the majesty of her mysteries, whether solved or not, I firmly recommend *not* checking your bags.

Bibliography

- De Botton, Alain. *The Art of Travel*. New York: Pantheon Books, 2002.
- Davidson, Robyn. *Journeys: An Anthology*. London: Picador, 2002.
- Fischer, Steven. *Island at the End of the World*. London: Reaktion Books, 2005.
- Fish, Shirley. *The Manila-Acapulco Galleons: The Treasure Ships of the Pacific: With An Annotated List of the Transpacific Galleons 1565–1815*. AuthorHouse, 2011.
- Historic American Landscapes Survey, Creator, Edward Byrdey, Khanh Kao, and Alex Wilson. Hale O Pi' Ilani Heiau, Honomaele Gulch vicinity, Hana, Maui County, HI. Hana Hawaii Maui County, 2000. Documentation Compiled After. Photograph. Retrieved from the Library of Congress, <https://www.loc.gov/item/hi0757/>. (Accessed April 04, 2018.)
- Hunt, Terry L., and Carl P. Lipo. *The Statues That Walked: Unraveling the Mystery of Easter Island*. Berkeley: Counterpoint Press, 2011.
- Hunt, Terry L., and Carl P. Lipo. "The Last Great Migration: Human Colonization of the Remote Pacific Islands." In *Human Dispersal and Species Movement: From Prehistory to the Present*, edited by Nicole Boivin, Rémy Crassard, and Michael Petraglia, 194-216. Cambridge University Press, 2017.
- Park, Mungo. *Travels in the Interior of Africa*. Edinburgh: Adam and Charles Black Publishing, 1858.
- Salmond, Anne. *Two Worlds: First Meetings between Maori and Europeans 1642-1772*. Honolulu: University of Hawai'i Press, 1991.
- Smith, Philippa Mein. *A Concise History of New Zealand*. Australia: Cambridge University Press, 2005.
- Thompson, Carl. *Travel Writing*. New York: Routledge, 2011.
- Thompson, William J. *Te Pito Te Henua or Easter Island*. Washington: Government Printing Office, 1891.
- Williams, Glyndwyr. *The Death of Captain Cook: A Hero Made and Unmade*. Harvard University Press, 2008.