

WHERE DRY RIVERS MEET: A PALIMPSEST OF
THE PAHVANT VALLEY, BLACK ROCK
AND SEVIER DESERTS

by

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STATEMENT OF THESIS APPROVAL

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ABSTRACT

The lands of the Great Basin are often considered to be bleak, empty places without history or stories.

When I was fifteen, my grandfather led me on a short journey around the center of the Pahvant Valley, a relatively small portion of the Great Basin. Using this trip as a frame, I illustrate the complexity of the place, exploring the biologic, geologic, as well as human history of the area. Simultaneously, I work to show the importance of memory in the creation of attachment and appreciation of people to a specific place.

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PREFACE

The seeds for this writing were planted very early in my life, probably before I can remember, during my first experiences in the Pahvant Valley and with my grandparents. Those memories are filled with warmth and love.

However, those seeds were watered, actually, with anger. Some years ago, I encountered an article about Notch Peak which lamented how ugly the Pahvant Valley is, and how absolutely empty it is.

I will concede that it is a stark, bleak land, but I see it as incredibly beautiful as well. Partly, this is because, from an aesthetic standpoint, the land seems to me to be like an extremely successful minimalist-abstract artwork. Its supposed minimalism and abstraction, on closer inspection, is revealed as complex and multilayered with subtle detail. I have loved this land as long as I can remember, and it continues to entrance and fascinate me as I have spent large amounts of time in the valley, looking at this landscape and moving across it, from the dusty soil to the sheer stone cliffs. I have also spent many hours studying maps of the area, thrilled by the almost blank spaces on them, in an era when you expect all the spaces to be filled. I have also studied aerial photos and satellite images of the land, following the traces of long dead rivers, abandoned towns, or modern roads and power-lines. Sometimes, I have made my own hand-drawn and painted maps of these places, and made artists books exploring these lands, so that I might understand the place from another perspective.

Aside from its visual aesthetics, I am also familiar with many of the stories that animate the land. These stories render the idea of the land's emptiness, for me, absurd. How, I wonder, could a place be empty when it contains so much human experience? My own family has 160 years of history with the place and before them, other humans inhabited it for at least 10,000 years. The plants and animals, even the stones, have stories to tell. Some of these stories are hundreds of millions of years old. Traces of all of these stories remain, and can be retold.

The other reason I was angered is that I took the complaint as a personal/family insult. My family has a long connection to the place, and I have conflated the two. It is not just the time my family spent there that lead to this conflation, but that the land and my ancestors, at least to my understanding, have come to resemble each other. For me, their lives, their names, their bodies and how they finally died, echo and mimic each other.

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August, heat banging down hammer hard into the Great Basin.

My brothers and I have come to stay with my grandparents, as we do every summer.

On the day we arrived, men burned chaff and straw from their wheat fields. On that rarest of all times in the Pahvant Valley, a windless day, smoke rose straight into the atmosphere so that each column of smoke looked like a pillar holding up the sky. Not even a draft swayed or dispersed the smoke. It rose high enough into the sky that moisture, let loose by the fires' combustion, condensed into white cloud capitol on those pillars, thousands of feet above the valley floor.

Windless, the wide open silence of the Pahvant Valley was not diminished by the rustle of leaves or whine of air through grass. An engine, a voice or the bark of a dog sometimes interrupted it, but only briefly. The quick vanishing of noise into that silence showed the bulk and strength of the quiet.

My brothers and I quickly adjusted to the heat and silence, the sense of static they engender. This is the place we had come from, in a sense, and we were comfortable in it.

I have never lived in the Pahvant Valley, but I am, nonetheless, intimately familiar with it, and feel that it is one of my homes. My father and grandfathers inhabited this valley

for five generations. Their histories and stories are woven into the basin so that I feel the whole land is family. History, anthropology, biology, geology... are all cousins, related to me somehow, albeit distantly.

This is the reason the silence does not bother me. It is the quiet of people at ease with each other, comfortable enough to not have to speak, because we already know each others' habits and stories.

Pahvant Valley is one of the individual basins making up the Great Basin, the region of the American west being pulled into a sprawling rift valley by tectonic forces. One theory as to why this is happening is because the Pacific plate rotates against the North American plate, shearing the edge of California away. This glancing collision stretches and fractures an area that encompasses all of the land between the Sierra Nevada on the west to the Colorado Plateau and Rocky Mountains in the east. As the land is pulled, the crust thins, valleys drop and mountains rise. Mountains erode. Valleys fill. The entire Great Basin is stretching over half an inch every year.¹ Sometimes, this stretching makes gaps in earth's crust running deep enough that magma wells up, a wound in earth's skin, and lava scabs on the surface. This particular basin, the Sevier Desert Basin, is bounded at a depth of 1.2 to 2.5 miles by a major detachment surface fault that gently dips westward at 3 to 4 degrees.² This is the bedrock of the valley, deep down and sliding, slowly, west. Because

¹ Sandy Eldredge, "Geologic Stretching," <http://geology.utah.gov/teacher/tc/tc12-96.htm>.

² R. Ernest Anderson, Mary Lou Zoback, and George A. Thompson, "Implications of Selected Subsurface Data on the Structural Form and Evolution of Some Basins in the Northern Basin and Range Province, Nevada and Utah," *Geologic Society of America Bulletin* 94(1983). P 1065

of this low angle detachment, the Sevier Basin is spreading or opening, much more than it is subsiding or down-dropping,³ as many of the other valleys in the Great Basin are doing.

The Pahvant Valley is somewhat arbitrarily divided into two deserts. The Black Rock Desert is in the southeast. It contains the majority of the area's volcanic activity. The Sevier Desert arcs from the northeast to the southwest, widely encompassing its eponymous river and lake. The entire valley is a desert place in the classic sense; sparsely populated, dry, with little vegetation. Officially, these lands are semi-desert and desert. Most of the cropland, around which the relative few human inhabitants dwell, is located in semi-desert areas, on alluvial deposits and lake sediments. The soils are deep but have little organic development. In the 1800s, Captain C.E. Dutton described the land surrounding the Sevier River as "...floored with fine loam, which, under the scorching sun, is like ashes, except where the fields are made to yield their crops of grain by irrigation."⁴ He was writing about an area of the river further upstream, but his observations apply just as well to this location. The soil across the valley, except at the edges of mountains and mesas, is fine and light. Subsurface soils contain accumulations of calcium carbonates. They are alkaline, with Ph over 8.0. Where they are exposed, these lake deposited marls are as white and dusty as baking powder. The desert lands, by official definition, are similar to those classified as semi-desert, occurring on lake bottoms and terraces, alluvial fans and flood plains. However, they also tend to be saline as well. The natural vegetation growing in both areas is comprised of ricegrass, needle and thread grass, winterfat, black

³ Charles G. Oviatt, "Quaternary Geology of Part of the Sevier Desert, Millard County, Utah," ed. Utah Geological and Mineral Survey (Salt Lake City: Utah Department of Natural Resources, 1989). P 28

⁴ C.E. Dutton, "Report on the Geology of the High Plateaus of Utah," ed. U.S. Geographical and Geological Survey (Washington, D.C.: Government Printing Office, 1880). P 170

greasewood, and shadscale.⁵ Russian thistle and halogeton, invasive species from the Asian steppes that thrive in overgrazed and disturbed environments, are now common as well.

In spite of the area's desert nature, maps show mud plains, marshes, two rivers and the second largest lake in Utah, if measured by surface area. This contradiction between wet and dry is carried over to the name of the entire valley. Pahvant has two interpretations. "Pah" means 'water' in the Pahvant Ute language. "Vant," however, might mean 'plenty'⁶ or it might mean 'vanished.'⁷ Depending on the particular historic moment, either translation is applicable.

The Canyon and Pahvant Mountains define the basin's eastern edge. The House Range makes the western border.

Little is known of the first inhabitants of the Pahvant Valley, or more generally, of the Great Basin. They were hunters of prehistoric megafauna, and left a few Clovis and Folsom points in the area, especially around the margins of paleo-lakes.⁸ Near Skull Pass, in the House Range, a Clovis workshop was excavated. Judging by a variety of factors, this site has been estimated to range in age from 13,950 to 10,000 years old. Nearly one quarter of the material from this site consists of obsidian, which likely came from Topaz Mountain in the northern end of the valley, or sources in the Black Rock Desert. Sources for all of the materials besides the obsidian, including quartz, quartzite and chalcedony, can be

⁵ "Utah State Water Plan Sevier River Basin," ed. Natural Resources Division of Water Resources (Salt Lake City: Utah Board of Water Resources, 1999). P 3-13, 3-15

⁶ Leonard J. Arrington, *The Price of Prejudice : The Japanese-American Relocation Center in Utah During World War II* (Delta, Utah: Delta, Utah : Topaz Museum, 1997).

⁷ Josiah F. Gibbs, "Gunnison Massacre--1853--Millard County, Utah--Indian Mareer's Version of the Tragedy," *Utah Historical Quarterly* 1, no. 3 (1928).

⁸ Clovis points have not been found in any excavated cave sites. They pre-date any cave remains that have been found in the region. Folsom points are contemporary with the earliest excavated sites.

located nearby.⁹ This may indicate that people living in the valley at this time had enough resources at hand that they could remain in a relatively small area for extended periods of time.

With post-glacial warming and drying of the region during the shift from the Paleocene to the Holocene, the area's inhabitants used a wide variety of adaptations and hunter-gatherer methods to maintain themselves until about 2,000 years ago. Throughout the post-glacial archaeological record, an arid environment, roughly similar to our current era, has existed. In spite of this, by roving across a variety of topographical ecologies, from high mountains to valley bottoms, people were able to procure enough resources to subsist. This early culture, as it is broadly understood, has been called the Great Basin Desert Archaic. Due to the variety of environments encompassed within the region, these people were able to hunt one of the widest varieties of mammals on the continent, including deer, pronghorn, mountain sheep and bison. Atlatls and throwing darts were the chief method of killing these animals, but the animals were not consistently procured. Small animals and birds, as attested by the archaeological record, were a more important source of meat than were the large game animals. Evidence suggests that large nets were used to capture jackrabbits, much as later historic Indians did. Even with the addition of smaller game, meat was a source of nutrition secondary to plant resources. Cave excavations have shown that these people utilized at least 68 species or genera of plants. Seeds of pickleweed, burrowweed and many others were consumed. The seeds and pollen of these, as well as saltgrass, greasewood, shadscale and sagebrush have been found in desiccated human feces, showing that they were consumed. Seeds were gathered in baskets, dried or parched by

⁹ William E. Davis, Dorothy Sack, and Nancy Shearin, "The Hell'n Moriah Clovis Site," *Utah Archaeology* 9, no. 1 (1996). P 55-69

tossing them with burning coals, then ground on milling slabs. Sparse representation of clothing in the archaeological record shows that clothing was simple and uncommon. The most common clothing is the robe or blanket, woven from twisted strips of rabbit hide, which is similar to that used by the historic people of the area. Technological and cultural changes continued to develop through this time. Toward the end of this period, 2,000 to 3,000 years ago, bows and arrows came into use, and a shift to higher elevation game resources was made. Finally, around 400-500 AD, pottery began to be manufactured, and horticulture becomes apparent.¹⁰

Following the Great Basin Desert Archaic, Fremont culture developed in the eastern Great Basin. There is a great deal of continuity from Desert Archaic to Fremont culture.¹¹ However, sedentary lifestyle becomes apparent in the archaeological record, with people building small villages of wattle and daub adobe. The settlements were typically built on alluvial fans in intermontane valleys, close to rivers and marshes. Fremont homes were usually semi-subterranean, with rectangular, above ground storage structures. There is also record of temporary encampments beyond the village sites, presumably for hunting or gathering trips. Though corn was grown, it seems to have been a small, supplemental, portion to the diets of the Fremont people in the Sevier Desert region. Instead, a heavy reliance on cattails as a basic food item is evidenced. Other foods, such as coots and muskrats, were also collected by the Sevier Fremont from their marsh and river habitats. Coil-made grey ware, corner and side-notched arrow points, trough metates and a variety of

¹⁰ *Handbook of North American Indians: Great Basin*, ed. Warren L. d'Azevedo, vol. 11 (Washington, D.C.: Smithsonian Institution, 1986). P 149-160

¹¹ *Ibid.* p 161-

bone tools were common. Genetic and cultural backgrounds for these people are unknown.¹²

Historically, the Pahvant Valley was an area where three separate Numic tribal territories abutted each other: Utes, Paiutes and Goshutes. These tribes are members of the same language group, and have some overlapping cultural practices and beliefs.

Of the various tribes inhabiting the Great Basin, Utes had the highest densities, concentrated near Utah Lake, along the Sevier River and in the Pahvant Valley. The Pahvant band inhabited the lands from the Wasatch Plateau, almost into present day Nevada, where they intermixed, to some extent, with the Goshute. Relations between Ute and Goshute have been described as amicable, and sometimes involved intermarriage.¹³

Traditionally, Ute clothing was different from that of their Paiute and Goshute neighbors. Women wore aprons of woven bark or fiber, as well as skirts and dresses of tanned leather. Other items of clothing were woven of sagebrush bark or tule fibers, especially poncho-like shirts. Men wore breechclouts, leggings and shirts of buckskin. In winter, skin blankets of rabbit, muskrat, marmot, badger, coyote and wolf were worn.¹⁴ The early Spanish explorer and Franciscan friar, Silvestre Velez de Escalante, who visited the area in 1776, described Pahvant men wearing a small piece of polished bone through the cartilage of their noses.¹⁵ They lived in houses made of willow, which were either domed or conical and covered in brush, bark or tule reeds.¹⁶

¹² David B. Madsen, "New Views on the Fremont: The Fremont and the Sevier: Defining Prehistoric Agriculturalists North of the Anasazi," *American Antiquity* 44, no. 4 (1979). p 711-721

¹³ *Handbook of North American Indians: Great Basin*. p 338- 340

¹⁴ *Ibid.* p 345

¹⁵ Silvestre Velez de Escalante, "Pageant in the Wilderness: The Story of the Escalante Expedition to the Interior Basin, 1777.," *Utah Historical Quarterly* 18, no. 4 (1950). p 189

¹⁶ *Handbook of North American Indians: Great Basin*. P 348

Pahvant Utes depended on all of the same resources as those exploited by the Fremont, but also fished, and had a variety of methods to do so, including fish arrows, wood or bone gorgets on lines, fish spears, weirs, nets and basket traps. They also cut holes in the winter ice to spear or shoot fish.¹⁷

Most Pahvant Utes were removed to the Uintah Reservation in Eastern Utah after white settlement. Some Pahvants remained on ancestral lands, but were eventually absorbed into the Southern Paiute tribe on the Kanosh and Koosharem settlements.¹⁸

Paiutes occupied the southern margins of the Pahvant Valley, and there has been confusion concerning which regional group belonged to which tribe. Southern Paiutes resembled Utes, with only an overlay of Plains traits to differentiate the Utes. Some confusion even arose within the groups themselves as to who was or was not a member of which group. Beaver Paiutes, who self identified as Paiutes, were considered to be Pahvant Utes by other Paiute groups. Relations between the two tribes were ambivalent. Historically, Utes raided Paiutes, capturing slaves. Evidence suggests that Paiutes were being captured and sold as slaves by Ute raiders as early as the late 1700s, and that this depopulated several Paiute areas, and limited their horticultural practices. However, Paiutes also adopted some Ute cultural practices, including the Bear and Sun Dances as well as adopting many styles of Ute dress.¹⁹

Paiutes practiced horticulture, either planting corn or encouraging the growth of other useful plants without actually tilling the soil or planting seeds. They primarily subsisted as hunter-gatherers, following an annual cycle across their territories to gather foods as they were available, much as earlier cultures had done. Because the environment

¹⁷ Ibid. p 342

¹⁸ Ibid. p 338-340

¹⁹ Ibid.p 368-386

they inhabited supported limited numbers of big game, Paiutes depended on rabbits, rodents and birds for meat. They also depended on rabbit fur for the bulk of their clothing. The majority of their diets came from gathered foods, especially piñon nuts and grass seeds.²⁰

Both the Pahvant Ute and Beaver Paiute lived independently, without a reservation until 1929 when the Kanosh Reservation at the foot of the Pahvant Mountains, was officially recognized. This reservation was terminated in 1954, so that Federal support for medical, dental and social services was cancelled, and the reservation lands were parceled out to tribal members. By 1968, less than half of the lands which had comprised the reservation remained under ownership of native people. In 1980 the Paiute Indian Tribe of Utah Restoration Act was signed into law, restoring federal support for the reservation, and funding acquisition of lands to compensate for lands lost due to termination.²¹ As of 2009, the Kanosh Band of Southern Paiute was comprised of only 132 members.²²

There are conflicting accounts of interaction between Pahvants and Goshutes. They sometimes intermarried. Eastern Utes raided both Paiutes and Goshutes, capturing women and children to be sold as slaves. Some accounts state that Pahvants did not own horses at this time, and so were not able to conduct slave raids.²³ However, other accounts state that Pahvant and Timpanogas Utes were involved in the slave trade, and took part in these raids.²⁴ After Mormons arrived in Utah, the slave trade was stopped. Wars between

²⁰ Ibid. p 373-375

²¹ Ibid. p 389-392

²² "Paiute Indian Tribe of Utah: Enrollment," Paiute Indian Tribe of Utah, <http://www.utahpaiutes.org/about/departments/tribalmemberservices/enrollment/>.

²³ *Handbook of North American Indians: Great Basin*. P 354

²⁴ Carling Malouf, *Shoshone Indians : The Gosiute Indians*, ed. David Agee Horr, American Indian Ethnohistory (New York: Garland Publishing Inc., 1974). P 102

the Mormons and Timpanogas Utes forced some Utes to join the Goshutes as refugees. Some of these refugees eventually became leaders of Goshute resistance against whites.²⁵

Goshute territory was sparsely populated, with fluid boundaries. In spite of a high incidence of intermarriage with their Ute neighbors, they maintained Shoshone culture. The majority of foods were procured by women, with a heavy focus on grass seeds and piñon nuts. A typical family could gather 1,200 pounds of nuts in autumn when the nuts were available. This supply would last the family about four months. Men hunted bighorn sheep and deer. Antelope were occasionally hunted and killed during communal drives that were organized by special Antelope Shamans, and were one of the few events where large numbers of Goshute came together. Area ecology limited the occurrence of these episodes however, because after a drive, a region needed several years for the number of antelope to rebound. Due to the small numbers of big game, the most important meat sources were rabbits and hares. Cottontails were typically trapped, but jackrabbits necessitated communal drives, when extended family groups came together in the autumn. At this time, they drove the animals into long nets and clubbed them to death. A variety of birds were captured, when available. Grasshoppers, crickets, bee eggs and larvae were also eaten.²⁶

Clothing, among the Goshute, was relatively scarce. The most common article was, like members of other cultures in the region, the woven rabbit skin robe. Clothing made from the hides of deer, pronghorn or sheep was made when available. If skins were in

²⁵ Ibid. p 110

²⁶ *Handbook of North American Indians: Great Basin*. P 262-268

short supply, women wore skirts made of bark or grass. Men wore tailored clothing, but sometimes wore only a breechclout of skin or twined bark.²⁷

Officially, Goshute no longer inhabit the Pahvant Valley. Their confederated reservation is located to the northwest, on the border of Utah and Nevada, centered around Ibapah.

When white settlers arrived in the Pahvant Valley, in the area of present day Deseret, Oasis and Hinckley, several mounds, the remnants of prehistoric adobe habitations, were raised to level fields for planting. These mounds were never large, and were easily destroyed simply by plowing them over. Potsherds, broken stone implements and stone working debetage were found in the debris. At one site that was destroyed in 1916, the mounds were reported to be the remains of single room shelters, containing earthenware vessels, bone awls and stone balls. The pots were plain or corrugated, dull slate grey ornamented with black geometric designs.²⁸

In 1851, Brigham Young decided that the Pahvant Valley should be settled by Mormon pioneers. It was decided that the capital of the territory should be placed in the area, as well. Autumn of that year, about 100 people moved from Salt Lake City to found the new capital of Utah, Fillmore.²⁹ This is when my family first came to the area, when Hyrum and Elizabeth Mace helped settle the town.

In 1859, the exploration of the western Pahvant Valley and settlement of Deseret were organized. Forty people moved to the area, built a dam, dug a canal and cleared land

²⁷ Ibid.

²⁸ Neil Merton Judd, *Archeological Observations North of the Rio Colorado* (Washington: Washington : Govt. Print. Off., 1926). P 61-62

²⁹ Edward Leo Lyman, *A History of Millard County*, ed. Linda King Newell and Society Utah State Historical (Salt Lake City , Utah : [Fillmore]: Salt Lake City , Utah : Utah State Historical Society ; Fillmore : Millard County Commission, 1999). p 40-41

to farm northeast of Black Rock. By the end of 1861, 142 families lived in Deseret. The settlers depended heavily on fish from the Sevier River, catching them and salting them for storage. In 1861 and 1862, the irrigation dams washed out. With the second washout, many of the settlers abandoned Deseret and moved to various locations in the east of the county. In 1863, the dam washed out again. Nearly all of the remaining people moved away. The remnant of settlers then hauled rock from forty miles away to build a new dam, which lasted for four years.³⁰ In 1868 the dam washed out again, and the town was abandoned.³¹ Between 1874 and 1875 an elaborate new dam was built and Deseret was settled once again.³² In the spring of 1882, a warm southern wind flooded the frozen Sevier River with spring melt. Masses of ice piled against the dam until it was overwhelmed and destroyed. Observers said that the earth shook from the grinding masses of ice.³³ Of course, a new dam was built.

My great-grandmother, Martha Eliason, moved to Deseret in 1879 with her Danish immigrant parents. She was four years old. The family's first home in Deseret was a dug-out on the edge of the Sevier River, soon destroyed in a flood.

In 1890 my great-great grandfather, James, Sr., moved his family from Fillmore to Deseret, opening a meat market and tannery. He built the family home across the road from his store. Deseret was more consequential then than now. The railroad passed through Oasis, directly east of Deseret, so the freight for all of the western communities, and mines in the western mountains all the way to Nevada, passed through town. Deseret also had two saloons and a dancehall. My great grandfather, James, Jr., twelve at the time,

³⁰ Ibid. p 102-104

³¹ Ibid. p 132-133

³² Ibid. p 146

³³ Ibid. p 161

assisted in butchering animals and delivering meat to people living at Swan Lake, Joy and mining camps in the Drum Mountains. Later, he also hauled silver ore from the Fish Springs and Drum mines back to the railroad, pulling the freight wagons with a team of six horses.

Martha first noticed James in church, singing a hymn in duet. She worked at a store near James's father's store, so over the years the two became friends. In 1901 James proposed to Martha. They married on 25 March, 1903. In 1904 they moved from Deseret to Eureka, where James worked as foreman of timbermen at the Little Chief Mine, and Martha ran a green grocery out of the family home on Angel Street. When he wasn't working in the mine, James made deliveries from the store to Eureka, Mammoth, and other communities in the Tintic Mountains, or he took odd jobs, such as knife sharpening. My grandfather often told the story of when his father was asked to sharpen all of the knives in one of Eureka's saloons. The son of a butcher-tanner, James honed the blades razor sharp. When the miners finished their shift and came in to eat, each man sliced his meat, stabbed the bites with the tip of the knife and put the meat into his mouth...and cut his lips. Out of pride and shame they said nothing to their friends in the way of warning, but left with bleeding lips and meals unfinished.

In 1906 James and Martha's second child, Martin Doyle, my grandfather, was born. Though his first name was Martin, he always went by Doyle. The name Martin was almost a secret. I did not know until I was a teen that his first name was not Doyle.

In 1909 James's health deteriorated due to his time in the mine, so the family moved back to Deseret. By wagon, it took three days to make the journey.

Martha's widowed mother was dying, so the family moved into her home to take care of her and James took care of her farm. 28 December, 1909, she died of pneumonia.

Around the same time, Doyle contracted spinal meningitis, nearly died and was confined to bed for weeks. When he finally recovered, he had to learn again how to walk.

James continued to take care of Martha's mother's farm until Martha's brother returned home. James also worked on various farms on a share basis. In 1910, he was able to buy his own farm. He continued to work other jobs, freighting in the winter when there was little to do on the farm, working at a sawmill near Gandy and helping plough and harvest other farms when the help was needed. My grandfather inherited the same habits of hard work. In 1933 he began working at the Nichol森 Seed Farm and Ranch. Helping with irrigation, and the ranch's cattle at Long Ridge, he was paid \$50 a month. James often accompanied him because the family cattle were on the same range. Doyle rode, and James managed the chuckwagon. During this time, my grandfather broke and trained horses, and built his own herd of cattle. His horses were well trained. He sold one for use as a polo pony. Many others were sold as cutting horses, while another horse was sold to the army. With the proceeds from that sale, he was able to buy ten head of heifers to add to his herd.

My great-great-grandfather built this home when the family first came to Deseret. Later, he moved away and sold it. In 1921 my great-grandparents bought the house, bringing it back into the family. They raised seven children here. My grandparents raised three more here later; my father, aunt and uncle. It is a strong house, still sturdy after 100 years and a few floods. Elms grow around it. A cedar grows outside the front bedroom window.

In the back bedroom, where my father slept as a child, where my brothers will sleep tonight, my grandmother keeps a pile of clothing. Old dresses, blouses, shirts and pants are neatly folded, waiting to be cut into squares, sewn together, made into new quilts.

She has firm opinions about everything, quilting included. Tied quilts are a travesty, their makers guilty of an almost moral failing. Quilts are stitched. Each stitch is precisely the same measure as the one before it.

Outside the window, behind the house, is the root-cellar. Next to the cellar is a tree stump, all that remains of a cottonwood that grew here long before the house or the town existed. Its shade was probably the reason the house was built here. It must have been a massive tree. Two men could barely wrap their arms all the way around the barkless, weathered bole. Six feet up, the tree is sawed off flat. A pile of steel-jaw traps are thrown there. Some are small, coyote sized. Most are bigger, for wolves and mountain-lions. They are rusty, triggers missing, springs cracked, unused for decades. The red-black rust makes them look blood soaked and scabbed. Massed on their weather whitened and cracked pedestal, they are a monument to a previous era, of taming and domination, an attempt to make this place into a different land.

The cellar is like a bunker. The walls are thick, built of hand-mixed, hand-poured concrete. Creosoted timbers hold up the roof, loose alluvial soil covers them, to block the winter cold and summer heat. In spring, foxtails and cheat grasses, some Russian thistle, sprout there as the snow melts. They quickly die. Logs, sawn and split for the fireplace, are stacked along the wall. A pickup-load of coal is heaped next to it. The door to the cellar is put together out of planks, salvaged from the granary at the farm. Sheets of worn carpet are tacked over it for insulation. Opening the door, I notice the smell and the temperature at once. In the summer, it is cool. In winter it feels warm. When winter's temperature drops, sometimes to ten or twenty below zero, a kerosene lamp is left burning in the center of the dirt floor to keep the cold from getting in. Then, of course, it smells thick with kerosene smoke, but more often, it smells of moist, lightless, soil. No matter what else the cellar

contains, this scent is there. Depending on the season, there was the scent of potatoes, tomatoes, squash, cabbage, carrots.... My grandparents kept the carrots in a big box full of sand. When my father went to the cellar to get them, he thrilled at the carrot smell, ran his spread fingers through the cold grit, finding the roots. The smells of all those vegetables, combined with the soil scent, was thick and musky, like a big and rare animal, lurking in its den. Now though, they rarely keep vegetables here. Shelves are empty, save a few bottles of peaches and pears in syrup that we eat for supper with a slice of bread.

The well-house sits just east of the cellar. It is small and painted white, resembling a bee-hive, only shorter and wider. Next to it is a pipe, capped by an old can. With a long pole that he dips into the pipe, my grandfather measures the amount of water they have in the well.

Near the well, there is an irrigation ditch. Along its side, is a tangled hedge of purple-skinned, yellow-fleshed plums. The trees produce fruit erratically. Some years they are bare. Most years, they have just a few lone fruits. Then, there are years the trees look like they will pull themselves down under the weight of their bounty. My grandparents cannot pick all the fruit, so the ground is littered with fermenting, vinegar scented fruit.

Beyond the cellar, the well and the ditch, is the granary. The building is like a Hollywood set façade. The south and west of the building burned away last year. I open the door of the building for the feeling of absurdity and vertigo that comes from looking into a structure that I knew to be solid (even though there were holes in the roof that let leaves and elm seeds settle to the floor and pile in layers, stratified like the layers of soil that fill this whole valley basin) until a year ago. The building was filled with mysteries, old saddles with cracked leather, a rusty .30.30 without a stock. Now, when I open the door, there are singed elms and an old corral. This land is so dry that the hay, straw and shit of seventy years

remains uncomposted in the corral, a foot thick concretion of vegetable fiber, an impenetrable mulch suppressing even Russian thistle growth. Beyond the corral is a cornfield, a tangled grove of Russian olives, Black Rock. The whole world, receding into the distance, has replaced the back wall.

My grandfather keeps a galvanized water-trough behind the garage. In summer, when we come to visit, he rolls it to the front of the house and fills it with water. We wallow in it to escape the heat, until our lips turn blue. Grandma makes us get out of the water, come in the house and eat beef noodle soup, fresh bread, tomatoes.... There are certain foods I will always associate with my grandparents and their home: peaches and pears bottled in syrup, pine nuts, root-beer floats and the dinner we eat tonight.

After dinner we have honey on bread for desert. The five gallon bucket of honey is kept on the floor of the pantry. The vessel is never drained, usually mostly full, and mostly crystallized. Sometimes, rings mark the walls of the bucket like stepped shorelines of a receded lake. When I was younger, like conspirators, my grandfather and I would go down the hall to the pantry. I had a table spoon and a tea-cup, or a pint jar. He pulled the bucket out, pried its lid up. Previously, a pit had been dug in the center of the amber crystals. Into the bottom of this well, a little liquid honey had accumulated. I scooped it out, into the container. Now my grandfather took over. He gouged chunks of hardened honey out until the jar was mostly full. We returned to the kitchen, placed the container into a pan of hot water on the stove, and melted the honey. I licked the spoon clean. When the honey was melted, we drizzled it onto dark crusted, home-made, bread.

Evening, the sun is setting. South and west, thunderheads swell into the sky, white in the last angled rays of the sun, anvil topped, draping virga in a false promise of moisture. The storms bring only lightning, catching fire to sagebrush, greasewood, juniper and cheat-

grass. Strong winds fan the flames. The sky is dirty grey, horizons foreshortened, sunset the color of iodine. All the smoke in the air makes it look as though the whole of the White Rocks, Indian Peaks and Wah Wah Mountains are burning, as well as the Hamlin and Pine Valleys between them. Cheat-grass ash falls from the sky, black and whole as if entire blades of grass were lifted into the sky and burned there instead of on the ground. The ash sticks to spider webs on the outside of the white house, floats on the water's surface in the trough.

Speckle-breasted starlings, black feathers shimmering metallic purple green, sit in the Siberian elms north of the house, chattering and whistling. They run through their repertoire of mimicked calls, "kill-deer, kill-deer, kill-deer," laugh like magpies, call like quails and honk like geese before returning to their own chirps, gurgles and whistles. Sometimes, I wonder if the calls of starlings, the ones that we think of as their own, are the sounds of some extinct bird that we no longer remember.

Elm leaves, blown from trees by strong gusts of wind, curl in the grass. They litter the sidewalk, crunch when stepped on, like dry brittle eggshell.

It is dark now. Lightning is distant, thunder reaching us long after the flash, grumbling rather than roaring.

The humming mercury vapor bulb makes a pool of blue light in the darkness. Cutworm moths, green lacewings, sunflower beetles, spittlebugs... speed around the lamp, electrons around a nucleus. Beating themselves against hot glass, dizzied, stunned, they fall. Wally waits for them. A Woodhouse's toad, the biggest I have ever seen, he comes here every night, watching with his golden eyes for the choicest, fattest insects to fall.

Even at night, the heat is a physical presence, an enormous weight crushing everything beneath it. Inside the house it is a little cooler than out, but windows and doors

are open to the relative cool of early morning, to let it in as soon as it arrives, while we are sleeping. Now though, I lie awake and too hot.

A semi passes down the road, on the highway. A pick-up pulls out, driven by a man on his way to irrigate fields. A dog barks, bored, half-hearted. Insect sounds come through the screens. Up and down the road, bug-zappers make long electric rips scorching moths and beetles. Field Crickets sing loudly, manic, fiddling hard, throbbing an anxious rhythm to the heat. Angle-winged katydids, secreted in elms and cottonwoods, tick like intricate machines, clocks measuring time in a way we do not understand, rushing and pausing, adding and subtracting seconds, making minutes that were not there before, or pausing to let previous times catch up.

A field cricket has found its way into the kitchen, hidden behind the cabinets or the refrigerator. Cooler than the crickets outside, it does not match their rhythm, sounds slow and confused, out of time and discordant. Each night we try to catch it. We move things, wait for it to call again, but we can never find its hiding place. During the day we pull the refrigerator away from the wall, vacuum beneath it again, clean out the cupboards, rewash and restack pots, pans and pie plates. My grandmother loathes that insect for entering her home, damns it every time it makes a sound.

I shift in the thick cotton sheets, sweaty, sticking to the stiff fabric. Their laundry closet scent faintly lingers, scent of cotton bedding left in darkness for months, incomparable to any other smell, musky perfume of rest. I breath it in deeply, fall asleep.

When I wake, my grandfather is sitting at the end of the grey formica table in the dining room. Freshly shaven, wearing thick-rimmed reading glasses, he prepares to put his contacts in, spreads the towel, places the mirror on it. Carefully, he puts the tiny bowls on his pale blue eyes.

He is lit by early morning sun shining through closed roller-blinds and dense curtains. After passing through these barriers, it is still bright, golden, bonfire hot. He, and the room around him, glows.

He is quiet and reserved, and always has been. In twenty years, I will find a mention of him in a New York Times article, from a story from 1947 on what westerners thought of western films. "...taciturn Doyle Mace, a tall, smiling 35-year old Deseret cowpuncher, would merely say, 'not real enough.'"³⁴

He is old now, in his eighties, but still taciturn, tall and smiling. Even in diminution, winding down of old age, he is powerful. His fingers are thumb thick. His chest is broad, back straight. The thin cotton undershirt he wears reveals a web of white scars punctuated with rust marks, from an accident sixty years before while breaking a horse. His work was almost done. The horse was calm and gentle, used to bit and saddle, used to being ridden. Sometimes he got a little skittish, but settled down easy enough with a palm on his neck and calming words. A potential buyer was coming to see the horse, so my grandfather wore a new shirt to look his best. He was in the saddle when the horse spooked, bucked and would not stop, until my grandfather was thrown onto a barbed-wire fence. His boot caught in the stirrup. The horse ran down the fence, dragging my grandfather down the wire, barbs tearing through flesh, sawing through bone. He did not bleed to death or die of infection in that time before antibiotics.

He lifts his long-sleeved shirt from the back of the chair, puts it on, snaps it closed, tucks the tails in. His skin is paler than it was when my father was young. The sun no longer has the time to burn his hands and face black as he looks after his cattle, irrigates or cuts the fields. The history shows though, in the creases of weather made wrinkles.

³⁴Jack Goodman, "Love That Wild West," *New York Times*, July 13 1947 1947.

“There’s hot mush or cold mush, or bacon and eggs,” he says.

My grandmother pulls eggs and bacon from the fridge, making the decision for all of us. The granddaughter of a Prussian war hero, she is always poised and firm, in control and unflappable.

My grandparents met each other July 4th 1941, when my grandmother, Martha, came to visit her friend Angie, my grandfather’s younger sister. The two women had become friends while on a mission together. A month after he met her, my grandfather visited her in Salt Lake City, took her out to dinner and a dance. She in turn took him to meet her parents in Hanna. In the fall of that year, my grandmother took a position with the Ordnance Department and moved to Fort Lewis, Washington then Fort Winfield Scott in San Francisco, California. My grandparents exchanged presents through the mail. When she visited Salt Lake on vacations, my grandfather met her there. Finally, in 1946, Martha visited Doyle in Deseret and he proposed. They drove to Salt Lake to purchase rings and she returned to San Francisco to quit her job and collect her belongings. She returned to Deseret on December 1st. She and Doyle then drove to Hanna, purchasing their marriage license on the way. They were married in her parents’ home in Hanna on Jan 1st, 1947. By the time they married, all of my great aunts and uncles had moved away from Deseret. My grandparents settled into the town just down the road from my great grandparents, and my grandmother quickly made herself as much a member of the community as her husband or parents-in-law.

She gets to work frying bacon. With two canning rings, she cooks my eggs sunny side up in perfect rounds. Everyone gets their eggs cooked to order, while my grandfather slices the bread he baked last night, crust dark and flaky, inside moist and soft. All of his life he has baked bread, like his father before him. He is good at it, making perfect loaves. He

also slices fresh tomatoes into thick slabs. Their pink juice fills the bottom of the plate, green yellow seeds freckling it. We sit as far from the hot window as we can while we eat. In spite of the heat, we drink coffee, black, thick and acrid, having percolated since my grandfather first got up. The pot has been gurgling on the counter top for the last two hours. No milk or sugar is added to soften the coffee's edges.

"I thought we might go for a drive today, if you'd like," my grandfather says, scooping a teaspoon of apricot jam onto his bread.

"Where are we going?" my brother asks.

"Just going to be me and Dylan...needs some practice before he gets his license." Looking at me, he says, "Going to take a drive out in the desert to get you comfortable driving, if that's alright?"

After breakfast, I wash the cheatgrass ashes from the walls of my grandparents' home. Then, nervous, I back the blue Chevrolet out of the garage. It is a farm garage, big as a barn, with a concrete floor, walls and roof of prefabricated steel. The sun makes it into an oven, beating down on the steel, filling its space dense with heat. I drive the blue Chevrolet down the road, turn left, south on 257. My twice-great grandparents, the Eliasons, used to live on this corner. It is the corner where my uncle Jim kicked my dad out of the moving truck as he made the same turn that I do now. My father grasped and dangled from the truck's open door and didn't fall to the road.

Inside the car it smells of ozone, my grandfather's aftershave and silt. Everything in the Pahvant Valley smells of silt. The river is laden with it and runs tons of it into the valley, even in drought years. Wind dries it, blows it about, into everything.

Curlycup gunweed verges the road, just beginning to bloom. We drive past fields of wheat, corn and alfalfa. The wheat is golden, ready to be harvested. Corn is rich dark

green. Breezes make its long grass leaves flutter like a combination of water ripple and the horizon's mirage and heat shimmer. The alfalfa fields are the most variable. Some are freshly cut, stems raked into windrows for drying and baling. Others, not yet cut, are a richer, darker green than the corn. They seem out of place for this dry hot land, but originating in the near east and central Asia, this is a habitat they do well in. Other alfalfa fields are going to be harvested for seed, rather than to feed livestock. They are grown out and scruffy. The flower stems are gangly and covered in small purple blooms.

There are four kinds of birds that you almost always see when you drive out here: meadow larks, mourning doves, horned larks and magpies. They all make their appearance this morning.

We come to the fort.

In 1865 Nuchu, a Ute leader who the Mormons called Black Hawk, started an insurrection to take back Ute lands. In the same year, various Ute tribes were brought together to meet with O.H. Irish, Superintendent of Indian Affairs, Brigham Young and various other authorities of the Mormon Church, in Spanish Fork, near where Mormon pioneers had massacred the Timpanogos Utes in 1851. The intent of this meeting was to pressure the tribes to vacate their homelands, and settle on the Uintah Ute reservation in Eastern Utah. With a combination of threats and promises, all of the bands, with the exception of the San Pitch, agreed to move to the reservation. The Pahvants did not leave their homes until 1869, and stayed on the reservation for only a short while before many returned home. After the Spanish Fork meeting, raids on Mormon owned livestock by Nuchu and his followers increased. Pahvants, who had previously had good relations with people in Deseret, also began to steal livestock. The men of Deseret were organized into a

militia and ordered to build a fort, which they constructed in June of 1865. The fort is square. Each side is 550 feet long. Ten foot tall corner bastions were located on the northeast and southwest corners. At their bases, the walls were three feet thick, tapering to one and one half feet thick at the top.³⁵

In spring of 1866, Nuchu, and seventy-two Snake Valley Utes, Pahvant Utes and Goshute warriors appeared in Deseret. Four Deseret men met with Nuchu, promising to give him and his men as many cattle as they needed, so long as Deseret was not attacked. Otherwise, they would fight. Nuchu agreed to the proposal.³⁶

The fort is melting back into the earth now. The bastions are gone, collapsed to the ground and growing weeds. Tops of the walls have worn down. A good push would probably topple a wall. The landscape the fort once occupied has changed as well. When it was built, the fort was on the banks of the river³⁷, but the river now flows north and west of here. This old riverbed has been converted into an irrigation ditch, its banks lined with concrete to conserve water.

In a few years, the fort will be partially rebuilt. A new bastion will stand on the northeast corner. The walls of the rebuilt fort will be lumpy and leaning.

We do not stop at the fort, but continue on. Ahead and to the left, if we crossed the train tracks we would enter the old dump that was closed when stricter hygiene laws were passed. Scattered in the brush is the debris of 100 years of settlement, as if an antique

³⁵ Lyman, *A History of Millard County*.

³⁶ Lyman, Edward Leo. *A History of Millard County*. Edited by Linda King Newell and Society Utah State Historical. Salt Lake City , Utah : [Fillmore]: Salt Lake City , Utah : Utah State Historical Society ; Fillmore : Millard County Commission, 1999. 109-111

³⁷ Isgreen, Marilyn Corah. "Holocene Environments in the Sevier and Escalante Desert Basins, Utah : A Synthesis of Holocene Environments in the Great Basin." Thesis (M.S.)--Dept. of Geography, University of Utah, 1986., 1986. Pg 28

shop had been floating across the valley hundreds of feet above the ground when it exploded, raining its shattered contents to the desert floor.

The soil, over there, is mosaiced with broken crockery, glass (green, purple, blue, brown, clear but rainbowed with age), rusted through steel cans, and metal oddments the color of volcanic stone. There are remains of furniture, a bed post or cabinet, already broken but now warped and cracked by the weather to near annihilation. There are a few more unusual items as well, like half of the head of a porcelain doll, or a rusted meat cleaver.

“Can we go to the farm?” I ask. The farm is where most memories are nested, where stories and sensations have accumulated deepest. More than the house where my grandparents live, it is the anchor connecting me to this region.

My grandfather doesn't answer immediately.

“I sold it.” He pauses a minute more, “I didn't think any of you or your brothers were going to farm, so I sold it to Layne.”

I remember him, casually I thought, asking if I might ever want to farm. I imagined my grandfather would live forever. The farm would always belong to him, so I hemmed and hawed before saying I didn't know. Now I feel my answer betrayed him.

Just past the dead cottonwood, before the highway angles west along the Union Pacific tracks, he says, “turn here.”

Tires crunch on the gravel road as we drive west toward the farm. Meadow larks, with heavy yellow breasts, sit on strands of barbed wire, lean forward, ready to throw themselves into flight as we come closer.

We drive fast, keeping the dust cloud behind us. In the low spots, where ruts have accumulated windblown soil, our tires explode the dirt back into the sky.

Flocks of white-faced ibis, in Vs, Ws and strings of bobbing, flapping birds, move from one irrigated field to the next, gathering insects from the wet stubble of cut alfalfa. Individual birds move briskly across the sky.

In my memories the farm is distant, as if I have to traverse half the valley to reach it, but suddenly there are the two cottonwoods, standing together like a gate, the entrance to a separate realm. They are like a gate because, to enter the farm, we pass to the west or east of them, not between them. They are slowly dying. In twenty years, the western tree will still have a few living twigs, sprouting leaves that flutter green and silver in the wind, but the eastern tree is almost dead now. Its trunk is hollow and rotting out. Its crown is bare. Just a few spots of foliage, low down the tree, show that it is still alive. When the other tree is still managing to put out new growth, this one will finally be dead, the bark falling away in great slabs. The bole will be filled with bees, a feral swarm filling its rotten innards with honey.

I turn slowly onto the two-track so that I do not accidentally scrape the juniper post holding the barbed-wire fence up. Just in front of us is the third cottonwood. It lies next to the old well. I don't know when the tree blew down. Long ago, but it didn't die. One of its branches remained alive. It is covered in green leathery leaves. Of the three trees on this part of the farm, it is the most vital.

The trees show that the river flowed here. They stood on its bank. On the other side of the road that we just came in on, the ditch follows the curve of the old channel. Aerial photos reveal oxbows and meanders of riverbed etchings, at least three tracing across this particular place that only has a circumference of one and a half miles.

I think of the farm as an enormous painting, an allegory of the land's relationship to settlement and change over the last 150 years. It is a palimpsest as well, revealing layers of time marked on the land.

At the southern end, where we enter, I find the most evidence of humanity. Some is visible, some resides in the memory of my grandfather. There is the corral. Its posts are juniper trunks and railroad ties. One big post is necklaced with hundreds of strands of baling wire. Thick slabs of milled, off-cuts and pine planks are bolted and nailed onto the fence, making a palisade strong enough to contain mustangs until they were tame. The wood is weathered, leaden silver grey. Fibers are softened and feathered until the surfaces of the old boards are soft as cotton fabric. It has been ten years since the corral held calves, even longer for horses. It is accumulating tumbleweeds. Nails holding it together are coming loose.

My grandfather trained many horses here. Breaking horses was more than just a way to make extra money, or supply himself with new horses. Men who could train horses had a higher status, in some ways, than run of the mill farmers and ranchers. They were able to capture something wild, and without destroying it, make it into something tame and useful but still powerful. It also meant sustaining himself and his family during difficult times. In 1929 the Oasis Bank, where the family kept its savings, went broke. My grandfather was able to sell one of his horses for 35 dollars and keep his parents solvent until new money came in.

Disused farm equipment is scattered about. Nothing has been discarded. The narrow economic margins farmers inhabit necessitate their never getting rid of anything. The ability to cannibalize old equipment to keep a newer tool functioning may mean financial survival instead of bankruptcy. So, an old chassis, stripped entirely bare, lies a few

feet away and half buried. Further out, plows, harrows, hay rakes... These are antiques, mostly, left over from when these fields were worked with horses.

Near the elm hedge, the troughs my great grandfather made still lie on the ground. They are burned out logs, reinforced with barrel hoops to keep the wood from swelling and shrinking with seasons, splitting open and spilling their buckets of water. In spite of these reinforcements, long decades have cracked and twisted them, made the wood soft, filled the basins with detritus. My grandfather tells about a jack-ass he once owned. When the animal drank from the troughs he put his face into the water. Suddenly, his belly swelled and the water level in the trough dropped an inch or more.

A darkling beetle, what we call a stink bug, determinedly makes its way across a bare patch of soil. Its abdomen is as big as the end of my thumb, and held aloft on spindly legs. Its feet leave marks like stitches on the fine soil.

Some things are gone. I never knew them, but as my grandfather speaks, he sees as it was fifty, or even eighty years ago and tells me. Here, near the troughs, is where his father's blacksmith shop was. Thirty years or more after the family bought their first automobile, a Model T, James still hitched up his wagon, packed a lunch and spent his days at the farm, tinkering in his shop. He worked metal scraps into useful tools: long bolts whose threads were stripped became hay hooks; worn rasps were made into drawknives. One year, he traded tools to a Goshute family for a fifty pound sack of piñon nuts. My grandfather fondly remembers the winter of that year, eating pine nuts by the fist-full.

There is where the granary was. My father and Jim tore it down when they were my age. It was the home my grandfather lived in, in 1914. It had a concrete floor and cabin walls made of railroad ties. After it was abandoned as a home, it was used as the granary for the farm for decades. During the three summers before they moved into the

granary, the family lived at the farm in tents. In winters, they rented spare rooms in Deseret. Later they bought the Mud Temple, an adobe, four-room house a little south of here, between the farm and Black Rock. Even after his parents bought the house where he lives now, my grandfather continued to live a less than rooted life. He worked for many years at the Nicholson Seed Farm, and lived there, sometimes, in a house he was provided with. He also ran his own cattle, and the cattle owned by the seed farm, so that he spent long periods living in a chuckwagon northwest of here, at Long Ridge.

We follow the road further into the farm, going along where it and the ditch straighten out, run due magnetic north, where the burrowing owls lived in the cottontail warren. When I was still an only child, I sometimes went to the farm with my grandfather and parents, to pick asparagus or check on calves. If my grandfather saw an owl, he stopped and pointed it out to us. The four of us, packed in the cab of the truck, craned to see the birds. I was incredulous. Birds lived in trees. How could a bird live in a burrow, especially these? How could they get themselves down a hole with those gangly legs?

The fields are all planted to alfalfa now. In years past, they were wheat. I remember thick clouds of pungent brown smoke, blowing off the burning wheat-stubble. The wind shifted, blowing the smoke back at us, so that my grandfather became a silhouette. My eyes burned. I coughed. Once, I lost sight of my grandfather entirely, when he had gone to light a back-burn. The panic I felt then still swells up inside me at the memory. Or, I remember the dust and grain scent billowing from the combine as it cut the stalks, threshed the wheat and blew the chaff and straw into flaccid windrows. In spite of the dust, the raw grain smelled delicious. Cutting grain, my father once assured me, was the worst task on a farm, a petty curse. It is done at the height of summer, in the hottest

weather. Chaff covers your body, sticking to your sweat, making you itch. Dust, which has accumulated on the grass stems of the grain all summer, comes free when cut. It sticks to your sweat, rivulets of mud coursing down your face and neck. Worst of all, he assured me, you invariably hit a skunk. The stink clings to you for days.

This land contains the blood of my family. Not blood spilled in war or murder, but the blood of labor and intimate relation. It is the result of the brutality that farming brings to the farmer's body, which, though horrific, is casual and routine.

My grandfather had other injuries besides being dragged down the fence by the horse. The distal phalange of one of his thumbs was split in half, lengthwise, from the time he and his father built a small irrigation dam. He steadied wooden pilings while his father drove them into the streambed with a wooden mallet. My grandfather's hand slipped off the pole. Hurriedly, he put it back, accidentally putting his thumb on top of the rod when the mallet came down. His thumb, he said, looked like a plum, deep blackish purple and swollen tight. The next day, he was training a horse who began to buck. His thumb hit the horn of the saddle and ruptured. He says it gave him the most intense feeling of relief he has experienced in his life.

On another occasion, his hand was badly cut when cleaning a jam from his hay bailer. The engine was off, the mechanism disengaged, but there was still tension in it when he pulled the tangled stems out. He and the doctor both lost count of the stitches it took to close the wounds. Months after the injury, stitches still surfaced through the scars on his hand.

My great grandfather cut one of his toes off in a scything accident. It was sewn back on, but crooked. For decades it annoyed him, catching when he put his socks on, rubbing

uncomfortably when he walked. Eventually, with a hammer and cold chisel, he went out to the woodpile behind the house, put his bare foot on a log round, and took the toe back off.

James was also kicked, square in the chest, by a draft horse, once. The horse was dozing when he slapped its ass. It startled and bucked. “That was the one time he didn’t put a full day of work in,” my grandfather says about his father.

My great-uncle Blaine lost a finger when he was a child, topping sugar beets here, in the days when sugar brought momentary prosperity to the region. Like his father’s toe, his finger was reattached, but crooked. The doctor tried straightening his finger, removing it to sew it back on straight, but the second surgery killed the finger. It did not knit.

Finally, my uncle Jim nearly lost an eye when he and my father were feeding cattle, throwing hay to the animals with pitchforks. Jim stepped in front of my dad as he swung the tool around. A tine stabbed into his lower eyelid. Later, my father wished he had taken his brother’s eye out, knowing that blindness in one eye would have saved Jim from being drafted.

Of course, the farmer is not the only one to feel this brutality. The soil is stripped bare, brush grubbed out and burned to make way for crops. The soil is graded, plowed. Plants are cut, bound and threshed.

Predators are exterminated because they might kill the livestock.

Burning weeds out of a ditch, my grandfather was once attacked by a rabid badger. He pinned it to the ground with a pitchfork and ran for the shovel. Each time he let go of the pitchfork handle, the animal pulled the tines out of the soil and chased after him. My grandfather grabbed hold of the handle each time, pinning the animal to the ground again. This went on the forty feet it took him to reach the shovel. He finally killed the badger by hitting it over the head with the shovel blade.

My twice great-grandfather, James Sr., had a team of wolfhounds. They were huge animals, long-limbed, like a colt more than a dog. He used to course with them. They hunted jack-rabbits and cottontails for sport and food, something to distract from the tedium of domesticity. When chores were done, James rode out into the desert with the dogs. They were tense and alert. This was not sport. James was sharp-eyed. Mounted on the horse he had a great vantage but his hounds spotted coyotes and wolves before he did. In a burst of dust, the dogs ran at some distant point. James followed their trajectories to where a grey or tawny shape suddenly became alert to the danger, startled, ran in panic. Even the long-legged wolves weren't a match. They were run down, necks gripped and snapped, shaken to death by whichever dog reached it first. At some point James stopped killing wolves and coyotes. Wolves were almost extirpated by this point. The last of them were hunted out, trapped and poisoned by men who were professional killers, with vendettas against the animals. James' hounds grew old and died. He did not replace them. He still hunted and trapped coyotes, but he didn't kill the little wild dogs. He notched their ears and let them go again. I wonder if, in a sense, he was researching the animals. Notching their ears, he could estimate their age when he saw them again, or he could learn their range. Or, perhaps, he realized killing coyotes was a war of attrition that could not be won. He continued along in the habit he was raised with, but avoided that final act of killing, knowing it had no purpose.

Carnivores were not the only wild animals to be killed. In summer, rabbits decimated the alfalfa fields. Squatting together in clusters, they gnawed the plants to the ground. The alfalfa looked like a moth-eaten sweater, soft and lumpy with empty places chewed out by the rabbits. With a spotlight plugged into the truck's cigarette lighter, my father and uncle raked a beam of light across the fields. Where eyes shined back, they

fired. Taking turns, one held the light while the other unloaded the .22s. One was a single shot, the other held fifteen bullets.

Crack. The hollow-tipped bullet blew through the glowing eye, the brain, into soft soil behind the animal. Knocked by the bullet into a sideways somersault, the animal landed and twitched for a few seconds, nerves cross-wired and confused. Then, whoever was shooting traded guns. The gun that held fifteen rounds felt more delicate. The pump action, levering the spent casings out and a fresh bullet into the chamber, sounded like a snapping twig. In the darkness, it was a little more difficult to line up the sights. Sometimes a rabbit was missed, or worse, didn't take a fatal headshot, bucking and flopping around, squealing until it was shot again. This didn't happen often, though. My father taught himself to shoot doves in the dark, targeting whistling wings and weeping calls. Jim practiced shooting individual petals off of sunflowers without using the rifle's sights.

Cottontails were dressed. Jacks were left where they died, a taboo in the family against eating their flesh. Coyotes would find them by scent of blood if not by squeal. If coyotes didn't come, ravens did when the sun rose.

We continue on. The concrete lined irrigation ditch edges the right hand of the road, alfalfa on the left. One evening, my father and grandfather were irrigating. The sun was down, barely any light left. In the twilight, they saw indistinct movement along the edge of the full canal. As they watched, the shape came closer, became a little girl, a four-year-old who lived down the road from my grandparent's home. My father picked her up, called the names of her parents, but no one answered. They took her to her home. Her mother answered the door. "Oh, so you found her. God was looking after her." The girl's family had not gone looking for their daughter, had notified no one that she was missing, leaving her to wander miles into the desert along an irrigation ditch.

Three more cottonwoods stand ahead of us marking the shore of another old riverbed. For years, the jumbled bones of a dead cow lay among these trees. I used to wait in the shelter of the trees when my grandfather irrigated. I passed the time by arranging the bones in the order I thought they should lay. There was no skull, so the pelvis, with its wide round holes, stood in for it. The bones were cracked. I handled them delicately to avoid slivers. When I tired of bones, I gathered blown down oriole nests, and tried making my own. I did not have the skill of the birds though.

My grandfather told me about the golden eagles that nested here until another farmer shot them. The birds never harmed my grandfather's animals, but the other man was sure they would kill his calves.

My father also sheltered here when my grandfather irrigated.

Sometimes he heard his father's voice, singing too quietly, too far away to make out words.

In the stag-antler dead crown of the tallest cottonwood, the eagle's nest blocked the flow of the Milky Way, spilling it, pouring through the sky. He watched the nest, thought he saw the golden birds stirring, eager for dawn, hungering for lanky jackrabbits. If he could have reached the first limb, he could have climbed to the birds, tamed them, flew across the land on their backs, over the horizon straight into the glare of the sun as it rose. Or, he could have climbed to the ends of the limbs, into the clear night, gone tip-toe hopping on stars, to the moon. It was a wet moon, horns pointing up. Must have been cool in the cup of the moon. No mosquitoes. Could have slept there all night, until his father was done in the fields and they went home.

He lingered in the tree shadow, watched breeze-sway of oriole nests on limb tips, like drips about to fall. Pushed hands into crevices of tree bark. Hugged the tree, fingers

found purchase, pulled himself up the trunk. His slick soled shoes slipped. Moving to the shortest tree, the one dividing into three trunks, he scrambled into the lowest of the forks, looked into leaves and branches, gave up climbing, moved to the bee-hives tangled in tree shadow. Ran palms across galvanized steel tops, paint chipping from them. Crouched on knees, breathed sweet hive scent, pressed his ear against a hive, heard hum and whine, pulled away from the sound, like a million particles about to burst apart.

“Joe!” When his father called his name it, sounded like a cough, an exclamation, a strong and solid thing bursting into the world. “Come help me with the tarp. You can sleep later.”

“I’m here Dad, in the trees.” His voice fluttered away, like a poorwill, into the darkness. “Just a minute.” He ran down the dirt road, feet scuffing, to his father holding the flashlight, batteries dying, shining dim amber light. Dizzying mosquitoes whined around him as he ran.

“Hold the corners, up here,” his father said, stepping into the ditch, water rising up his rubber overboots. “Watch your fingers.” He scooped soil from either side, laying it on top of the canvas, careful not to hit his son’s fingers. When the top was secure, he placed pock-marked black stones on the canvas in the water, closing gaps where water leaked through.

They stood together. Did not speak. Bulk of his father beside him, my father looked across the dark land. He heard eddies spinning at the water’s verge, gurgling a thin flood into the alfalfa field. Water tongued, lipped its way along, like an infant exploring the world. Horse breath green scent of alfalfa mixed with carp slime algal aroma of the water. Breeze blew smell of greasewood and dust to him from the south.

The western horizon lit with sun bright blaze, a misplaced too early dawn. Shadows of greasewood reached across the field toward them. He looked to his father, wanted assurance the earth had not spun off its axis. He saw the features of his father's face, skin black from years beneath the sun. My grandfather looked at his son, into his sleepy green eyes. "That's what I've told you about. Feel it hit, soon, like an earthquake, or a kick from a horse. Don't think they've the damndest idea what they're doing." The sky glowed, diminished, went dark again.

Later, a flesh-colored cloud passed with a murmur. Sand and dust, cinder and ash rained down, with a taste of salt and metal.

Bees are inextricably linked to this place.

Five white beehives sit in the shade of the three trees. Mormons say Deseret means honeybee. They also say that ancient Jews crossed the Atlantic and settled the Americas, bringing honeybees with them. However, the first honeybees in North America were imported to Virginia, by the Dutch, in 1621. Native Americans called the honeybee the "Englishman's fly,"³⁸ because the insects often heralded the coming of white settlers.

Aside from making honey, honeybees are effective generalist pollinators and are used throughout the world to pollinate crops. They pollinate alfalfa, but are inefficient. When honeybees take nectar from the flowers they go at it sideways. Often, they do not unhinge the keel and wing petals of the flower, which would release the stamens and stigma within, fertilizing the flower.³⁹ Mostly honeybees are on my grandfather's farm to make honey.

³⁸ Claire Preston, *Bee*, Animal Series (London: Reaktion, 2006). p 10-11

³⁹ Stephen L. Buchmann, *Forgotten Pollinators*, ed. Gary Paul Nabhan (Washington, D.C.: Washington, D.C. : Island Press, 1996). P 186

Mormons believed honeybees were paragons of puritanical industriousness. Wanting to follow that example, they adopted the honeybee as a sort of talisman for the land they were settling and the relationship they endeavored to have with it, going so far as to call all of Utah and most of Nevada 'Deseret.' However, the metaphor of the industrious / domestic bee is only a human construction. "The bee was technically among the first domestic animals, but... it has never been, strictly speaking, domesticated. Even though the honeybee is not the creature of metaphor that some suppose, its reality is still a reason to maintain it as a totem, a genius even, of this land and the people who live here. The land is domesticated, providing for the people who live here, but it is fundamentally wild.

The honeybee, though, is not the only bee to be found here. Arguably, it is not even the most important.

In the first half of the twentieth century, central Utah, with its great number of alkali patches, became the foremost producer of alfalfa seed in the country, producing 300 to 600 pounds of seed per acre. By 1940 research showed that alkali bees were responsible for this. Alkali bees, native to the Great Basin, make their nests in the desolate alkali patches which are too salty for plant growth. Prior to the arrival of European style agriculture, alkali bees depended on indigenous legumes, such as locoweed, for forage. With the arrival of alfalfa, also a legume, alkali bees found an excellent forage, which they efficiently pollinated. In a single day, a female alkali bee can fertilize 2,000 flowers. In her lifetime she may fertilize as many as 25,000. They can fertilize more flowers than a plant can mature into seeds.⁴⁰

In an inadvertent case of killing the goose who laid the golden egg, farmers in the area plowed more of their land in the 1920s and 30s as the demand for alfalfa seed

⁴⁰ Buchmann, *Forgotten Pollinators*. P 186

increased. The land that they plowed tended to be the unproductive alkaline soils upon which the alkali bees depended to nest in. As the farmers tilled, flocks of seagulls followed the plows, devouring alkali bee larva. In the 1950s and 60s, dieldrin and parathion were used extensively in the alfalfa fields to control lygus bugs, a major pest to alfalfa. Both of these pesticides are extremely toxic to alkali bees, which are more susceptible to insecticides than honeybees are.⁴¹

Because honeybees are inefficient, and alkali bees have suffered reduced numbers, another bee has been brought into the area to fertilize alfalfa flowers; the leafcutter bee. Alfalfa leafcutting bees are native to Europe, and were inadvertently introduced to North America. By the 1940s they had been detected on the continent, and by the 1960s these solitary bees that nest in wood cavities, had increased productivity in alfalfa seed fields dramatically.⁴²

White structures, looking like outhouses on wheels, missing their eastern walls, sit on the edge of the fields. Racks are arranged in the structures, steel poles mounted horizontally, holding thick blocks of pine. The bottoms of the boards show grids of drilled holes, nests for the cutter bees. The wood must be salvaged from some earlier use, because they are stenciled with parts of words, in many faded colors. They are like old advertisements painted on walls, cut up and collaged back together. Female bees find their nests partly through their ability to see color contrast and color patterns. So, all of these conflicting patterns and colors help individual bees locate their nests.⁴³

⁴¹ Ibid. p 189-190

⁴² Theresa L. Pitts-Singer and James H. Cane, "The Alfalfa Leafcutting Bee, *Megachile Rotundata*: The World's Most Intensively Managed Solitary Bee," *Annual Review of Entomology* 56(2011). p 222

⁴³ Ibid. p 229

The bees emerge from their nests in hot summer weather, mate, and eat nectar and pollen while their first eggs are maturing. Within a week they begin constructing and provisioning the cells for their eggs in wood cavities. Each cell uses about 15 semicircular leaf pieces that the female has cut with her mandibles from the edge of a leaf. She provisions the nest with pollen and nectar, lays her egg and seals the cell. It takes between 81 minutes and 2.5 hours for the bee to complete a cell. She forages for 5-6 hours per day. The female bees' ability to fertilize alfalfa is comparable to that of alkali bees.⁴⁴

As farming expanded in the area and irrigation increased, excess alkali began accumulating in the already high Ph soils. To move salts beyond the root zone, larger amounts of water were applied to fields. Increased irrigation, in turn, raised the water table and drowned crops. This made farming unprofitable on the family farm, which they began to call "The Bogs." James jokingly declared himself to be "Bishop of the Bogs." To cope with this new problem, four drainage districts were created in the area in 1914-1918, installing drains through 80,000 acres of cropland.⁴⁵

The farm is bounded by drainage ditches along its northern end, and most of its western edge. As we reach the northern end of the farm, I make the ninety-degree turn at the edge of the ditch. I was terrified of this point as a child, thinking the truck, and my family within it, would tumble into the deep, wide trench. Time to time, the channel is dredged. Raw earth, pale chunks of silt, clay and marl are dumped on the verge. Now, though, the ditch has become a narrow strip of feral wilderness. Various animals make their home along the frog-skin algae waterway clumped with cattails, between tamarisks and

⁴⁴ Ibid. p 222-223

⁴⁵ "Utah State Water Plan Sevier River Basin." P 3-20

greasewood growing on the higher walls of the ditch. Ducks dabble there. Coyote and antelope use the place like a fox-hole, out of sight of anyone with a gun. At night, they make forays into the fields, leaving their tracks to be seen in the morning. Stopping the car, we stand on the brink of the drainage ditch. A great blue heron takes flight, leaping out of the stagnant water just below me. Beating its wings slowly, it flies away, remaining below the surface of the fields the entire way.

We enter the portion of the farm that has never been plowed. Cattle hooves have made narrow, chalky trails through the greasewood. One trail leads through the thick rabbit brush and greasewood, from one anthill to the next, making the anthills, where harvester ants have stripped the soil bare, gathered the seeds, hauled away stems and built their hills, like beads on a necklace. Russian thistle grows thickly around the ant clearings, making a fence for each ant hill's land.

A clump of burnt tamarisks stands along the side of the road. New green growth, lacey fronds, sprout from the bases of these dead limbs. On top of the tallest dead limb, eight feet up, sits a butcher bird, hunched and surly. He flies away at our approach. There are coyote tracks in dried mud puddles.

We are nearing the southwestern gate of the farm, where we will exit this place. There is another piece of farm equipment, my grandfather's old International hay baler, with greasewood growing up around it. Its red paint is turning orange-pink beneath the bleaching sun, and flaking off in a few places. The rubber hydraulic hoses are cracking. The last hay my grandfather ever baled still sits in the chute, rotten and brown now. I dreaded his bales when I was younger. Each one weighed between ninety and one hundred-twenty pounds. The baling wire was so tight it was hard to get the hook of a pair of fence pliers under it, let alone my fingers. Moving those bales felt hopeless, just too

heavy. My father was never sympathetic. “You don’t have to throw them onto a moving hay wagon,” he’d say, “and your brother isn’t tossing them back off because he says you’re going too fast.”

We leave the farm now, but it stays with me. In twenty years, I will still be making pilgrimages to the place, taking away bits of soil and twigs as if they were religious relics.

We follow the road away from the farm, to the west and south, toward **Black Rock**. There are three different **Black Rocks** in the area: the desert, a ghost town further south, and the mesa. The mesa sits low and dark in the near distance.

An old, disused derrick stands at one of the road’s bends. My grandfather tells me how my uncle and dad used to play on those machines as children, one dangling from the end of the crane while the other spun it around. “It’s a wonder neither of them got killed,” he says.

I see an old rusty culvert lying abandoned in a field. First I believe it is the body of an Ayrshire, dead in the desert, but then realize it is just a big rusty pipe, half smashed, covered with the white soil that makes up this land. Then, there is the paintless body of an old truck. It is freckled with bullet holes, half the parts are missing, cannibalized for another machine before abandonment, or carried off to sell as scrap. Still, it seems so solid, and has the desert patina of the volcanic stones, so I first see it as a boulder, flung far from any one of the dormant volcanoes.

My grandfather points to a low mound, where the **Mud Temple** used to stand, but its adobe has melted back into the ground.

Near here, my grandfather and great-grandfather dug a ditch in the thick, dry, stoneless alluvium. The top two feet of soil were light and dusty; easy work with a shovel. They almost swept it away instead of digging it, after grubbing out the greasewood roots.

Deeper down it was harder, compressed silt and clays, but it broke up easily enough with a pick. The two of them could smell moisture, mixed with the dusty mineral scent of the soil.

While digging the ditch, they found the grave of a man. My grandfather thinks he was native, but doesn't say why. He was buried upside down, standing on his head that was deep in the ground, feet near the surface. He wore a cavalry jacket, whose buttons were covered in verdigris and the wool fabric was rotten. The man wore nothing else. All around his head, like a halo in the hole, were rattlesnake heads. "Maybe he was a medicine man," my grandfather says, "or he sure made somebody mad."

There were other mysteries in the ground as well. While building a fence, digging a post-hole, a clod of soil broke open, making a gasping sound. My grandfather and great-grandfather investigated. My grandfather's description of the thing makes it sound like a lungfish, but they have been extinct in North America for millions of years. Maybe it was a tiger salamander hiding in a burrow. I like to believe it is some creature that has remained unknown to science. Maybe the ground is filled with them, waiting to come out of hiding when the climate changes and this desert is covered in water again.

We cross another old riverbed. Of all the former channels embroidered across this land, this one is the most defined. This is the course the river followed when the first American explorers passed through the region. The river has long since flowed in a different direction, but this course maintains a sort of half living, ghostly presence. Its channel is still well defined, plainly visible on the ground, far more so than other old channels which can only be seen from the air. Many drainage ditches empty into it, so it often contains water, albeit stagnant and hypereutrophic.

My grandfather says, “there’s Swan Lake,” nodding to the southwest. It is dry now. Mirages make it look wet. The old river’s water does sometimes run all the way to the lake, turning it into a marshy, algae-green, salt pond.

He nods again, toward the western horizon, like he is greeting someone. “There’s Saw Tooth,” he says, as if the mountain is animate, coming and going at will, so that it is worthwhile to note its return. Of course, it has been visible all day. It is always visible unless storm clouds hide it, or winter fog obscures things.

We come to the crossroad at the foot of the most northern promontory of Black Rock.

“Why don’t you turn right.” It is not really a question. I follow his direction.

We follow the gravel road that brings us along the foot of the volcanic slope.

The Pahvant Utes used to winter here, between Black Rock and the Sevier River, when Black Rock was almost an island. A band of Goshute also wintered here, migrating from the Deep Creeks to the north bank of the Sevier each winter. The river wrapped around the mesa from its southeast corner, around the north and finally down the west side, following the course that we just crossed. Each spring, the river overflowed, depositing silt, and flooding large areas of valley bottom, creating lush meadows. Willows grew abundantly. Flocks of geese and ducks overwintered here. The river was full of fish. With willows for fuel, the river thick with birds and fishes for the people to eat, and the meadows providing grazing for horses, the area was an ideal winter home. A herd of buffalo also wintered here, migrating every year from the Cherry Creek Mountains in the north, where they summered. As soon as winter camp was established by the Pahvants, most of the men would go to the Canyon Mountains to hunt deer, returning before winter set in fully. About twenty-five years before Mormon settlement, the hunting party departed

as usual. Immediately after they departed, snow began to fall. For a month it snowed. Shelters in the village collapsed. Rabbits, coyotes, ducks and geese froze and starved to death. The buffalo did not arrive at the river. The entire herd perished. For five months, the village waited for the men to return. Finally, when the snow had melted enough, the strongest old men went to the mountains to look for their lost hunters. The hunter's camp was buried under snow. When the old men found it, and dug down to the shelter, all the men were dead. The last of the hunters had resorted to cannibalism before they too died.⁴⁶

As the snows melted, the river flooded much more violently than ever before, covering much of the valley in water. The course of the river shifted, so that it flowed just east of where Deseret was later built. This new river channel entrenched deeply into the valley, so that floods did not replenish the meadows to the extent of previous years, and willows did not grow as thickly.⁴⁷

Jagged boulders, mottled with lichens, are tumbled down the hillside.

“There used to be baskets under there...looked like someone just set them down,” my grandfather says, pointing to boulders on our left as we drive along the foot of Black Rock. “Suppose I should have taken them before someone else did.”

A whole museum's worth of artifacts must have been secreted away in various nooks around the north side of Black Rock, the way he recounts it. Listening to him talk is like taking a tour through a museum where the paintings are gone from the walls, statues removed from their pedestals. The only thing left is the docent's memory, that he has learned from over eighty years relation to this place.

⁴⁶ Margaret W. Roper, *Echoes of the Sage and Cedars; a Centennial History of Oak City, Utah, 1868-1969* (Oak City, Utah: Oak City, Utah : Oak City Ward, 1970). p. 2-5

⁴⁷ Ibid. P 2-5

We stop, briefly, in the cove of Black Rock. There are many miles still to drive. On the south rim of the cove is the Devil's Chimney. Everyone else calls it the Great Stone Face, or The Guardian of Deseret. That is how it is marked on maps. The outcrop is supposed to look like a profile of Joseph Smith, but my grandfather goes on calling it the Devil's Chimney. When he calls it that in front of my grandmother she shudders and scowls at him.

On the north side of the cove sits a large boulder, marked all over its western side with petroglyphs. There are other boulders with petroglyphs scattered higher up the slope, patterns and symbols pecked and scraped into the black stone, but this is the primary rock art at Black Rock. I have seen photos of my great grandparents sitting next to this boulder in 1926. In the photo, my grandfather sat on the ground in front of the boulder. He looks just like my father, tall and lean, with high cheekbones. He holds his right hand on his chin, the same way my father does. Also, in the photo, my great-grandfather looks like my grandfather.

The petroglyphs thickly cover the boulder. Images overlap and obscure each other. It is difficult to understand what is being portrayed in this frieze. Here and there I make out horned or antlered animals, probably mountain sheep. At the top right is a bisected circular shape, below it is an image that looks like a rod of Asclepius, a long snakelike shape zig-zagging back and forth down a staff.

A BLM sign inside the protective chain-link fence that surrounds the boulder says, "...some authorities think these symbols were an agreement dividing water and hunting rights among Indians of the lower Sevier River area." I do not believe this. Neither do many anthropologists, including A.L. Kroeber who said, about another rock art site,

It has sometimes been conjectured that the symbols served as boundary marks, direction signs, or for some analogous practical purpose. Yet this interpretation fits neither their character, their location, nor the habits of native life. The Indian knew the limits of his territory and his way around in it; and as for strangers, his impulse would have been to obscure their path rather than blazon it.⁴⁸

Earlier theories about rock art, especially the theories put forward by Robert Heizer and Martin Baumhoff, assumed the art was made as part of hunting magic ritual, by people living in a landscape with minimal resources which they desperately needed to procure. Rock art, according to this theory, was often situated by game trails. However, re-examining rock art sites shows that many of them are situated near villages,⁴⁹ much as this one once did. Ethnographic reports conflicted with these theories as well, so Heizer and Baumhoff argued that the art was ancient. Modern native informants simply did not know what the art portrayed, because it was beyond their cultural memory, according to Heizer and Baumhoff's theories.

David Lewis-Williams, who was trained as a cultural anthropologist rather than an archaeologist, has brought much more convincing theories to the field of rock art. He has argued that rock art and ethnographic sources both need to be understood in a metaphoric manner. When this method is used, a great deal of relevant information can be gleaned from the ethnographic record about the art. For example, a common figure in the ethnographic record of the Great Basin is a figure whose name is variously translated as the rock baby, water baby, mountain man or mountain dwarf. Some ethnographers have assumed this figure is equivalent to European elves and faeries. Native people often report that this figure is the creator of rock art. Therefore, ethnographic information is

⁴⁸ A. L. Kroeber and A. L. Kroeber, *Handbook of the Indians of California* (Berkeley, California: Berkeley, California : California Book Company, 1953). p 939

⁴⁹ D.S. Whitley, "Sally's Rockshelter and the Archaeology of the Vision Quest," *Cambridge Archaeological Journal* 9, no. 3 (1999). p 232

discounted for the interpretation of rock art. However, a deeper understanding of the rock baby reveals that it is an extremely powerful ally of the shaman. Because there is often little or no differentiation between the shaman and the shaman's helpers when they are discussed, to say that the rock baby made the art simply means a shaman made the art with the rock baby as his assistant. Also, because there is a taboo amongst Great Basin indigenous peoples against naming the dead, if a shaman who made a particular mark is deceased, rather than name the individual who made the marks, the spirit-helpers of that individual can be named without breaking the taboo. With this understanding, it becomes clear that the informants are communicating concrete understandings of the art.⁵⁰

Another important metaphor related to rock art, which was misunderstood in earlier theories, is that of death. Informants said that the makers of rock art had died. However, the individual may not have been literally dead, because the altered states of consciousness achieved by a shaman who is in a trance state are metaphorically understood to happen during death, when the shaman enters the realm of the spirits. Westerners would more easily understand this if it was said that the makers of the rock art had created the work while in a dream or trance. There were, however, instances of informants giving literal explanations of who made the rock art, and in what situations; reporting that the art was made to show dreams, or was made by specific types of shamans.⁵¹

David Whitley, an archaeologist who has done extensive research on Great Basin rock art, argues that rock art production was done as part of a vision quest experience, in an effort to gain or report on altered states of consciousness. The art was made after a

⁵⁰ *New Light on Old Art : Recent Advances in Hunter-Gatherer Rock Art Research*, ed. David S. Whitley and Lawrence L. Loendorf (Los Angeles: Los Angeles : Institute of Archaeology, University of California, Los Angeles, 1994). p 81-82

⁵¹ Ibid. P 81-82

dream, to record it. If a shaman was unable to remember a dream they experienced in a trance, it could result in sickness or death. Among Numic people, these vision quests were undertaken at sites that were known to be centers of power in the landscape: high peaks, rock outcrops or caves, and near permanent water sources. The ethnographic record reports that Goshute shamans went to certain caves or rock outcroppings which were known to be abodes of helpful spirits. These areas were often marked with numerous pictographs.⁵² The names of these places, *pohagani*, meant the house of supernatural power.⁵³ In the Great Basin, the bighorn sheep was a particularly powerful helper of the shaman, especially for weather control. Killing a bighorn was a metaphor for this weather control. Depictions of bighorn sheep are therefore common, and the depiction of a wounded bighorn does not portray hunting magic, but the control of weather.⁵⁴ Another common design in the Great Basin is a zig-zag. Zig-zag patterns are universally referred to as rattlesnakes in the ethnographic record of the region. Rattlesnakes were common helpers to shamans.⁵⁵ The overlapping of designs found at Black Rock also points to the place as being a location of shamanistic activity, as superpositioning of motifs is a characteristic of trance imagery.⁵⁶

In other regions of the Great Basin, examination of the markings themselves and detritus around petroglyph sites shows that the marks were made with quartz hammerstones. Supernatural qualities are attributed to quartz, which is sometimes called magician's stone or lightning stone, because when quartz is struck or abraded, it

⁵² Malouf, *Shoshone Indians : The Gosiute Indians*. p 81

⁵³ Whitley, "Sally's Rockshelter and the Archaeology of the Vision Quest." p 232

⁵⁴ *New Light on Old Art : Recent Advances in Hunter-Gatherer Rock Art Research*. p 83

⁵⁵ ———, "Sally's Rockshelter and the Archaeology of the Vision Quest." p 226

⁵⁶ Ibid. p 227

fluoresces.⁵⁷ No one has checked for quartz detritus beneath this boulder, but it seems likely that it could be found if it was looked for, in light of all of the similarities this site shares with other rock art of the region. In light of this information, it seems apparent that these petroglyphs are not some sort of map of the area, but a record of shamanistic activity.

We are back in the car and driving when my grandfather says, “Every year after round-up, several head of sheep were left up top of Black Rock. Your Dad and Jim used to take their horses up there to round them up. I think they made pretty good money bringing them back to their owners.” We return to the crossroad and keep driving east. On the left side, where greasewood grows tall on fields that have not been irrigated or plowed for so long that the scrub has grown back in, made the places almost wild again, my grandfather names the owners of each segment of property, working back through each transaction as far as white settlement goes. Listening to him, it sounds like he is reading official records, but it is all in his memory. He has an oral mind, one capable of remembering details that seem impossible to me.

He started school in 1912, but began classes late in the season. The hardest working son in his family, he stayed on the farm to tend crops, or he was on the range with the cattle, until winter. It was only when the farm work was done that he went to class. As soon as calving started, or it was time to plow, he was out of school again. In 1918 he had an argument with his teacher, who he threatened to beat up when he got big enough. He began skipping school at this point. He eventually graduated the eighth grade, but did not continue beyond that.

⁵⁷ *Handbook of Rock Art Research*, ed. David S. Whitley (Walnut Creek, CA: Walnut Creek, CA : AltaMira Press, 2001). P 369

My grandfather cannot read, my father told me. I do not know if this is true. Because he completed the eighth grade, I assume he has at least a rudimentary grasp of it. Perhaps my grandmother taught him more. She is proud of how literate her children and grandchildren are. When my father failed a book report in high-school, because the teacher did not believe he had read the book, my grandmother said to the teacher, “You stupid son of a bitch, he can read better than you.” In light of this pride and anger, it stands that my grandmother would have made sure my grandfather could read.

My grandfather reads whenever I visit. He sits at the kitchen table, in his recliner, sometimes on the couch with a lamp shining onto the pages. He wears his thick-rimmed reading glasses, the ones my grandmother will donate to the reservation after his death. He studies the pages. I do not think he is pretending to read because he is embarrassed or ashamed. If he truly cannot read, then he pretends in front of me so that he can set an example.

The road is straight from here to 257. A few farms lie along it. On the right is a collection of outbuildings, old trucks and farm equipment. “Watch the dogs,” my grandfather says as we approach it. Lean, but not starved, a couple dogs are already in the road. They are mostly labs, in the same way that the others running to join them (not wanting to miss the excitement of the passing car) are mostly German or Australian Shepherd. There is a lot of mixture going on. Some even look a little coyote, but bigger. With enough time, maybe some new Black Rock breed will come into existence, long limbed, sharp eyed with dark grizzled fur.

The dogs come running, bare-toothed, snarling and barking. I don't hit any of them.

We come to 257. Black Rock is distant now, far behind us. I wait for a semi to pass, on its way to the lime plant further south, where they are tearing down the mountains, burning the stones to make concrete. I pull out slowly, and my grandfather tells me to speed up. New to driving, and having gotten used to the speed of the dirt roads, 55 miles per hour feels terrifying. I'm afraid if I glance to the side, the car will follow my line of sight. We will end up in a ditch.

The road angles southwest, so we soon approach the southeast corner of Black Rock. The low eastern scarp runs almost directly north south, and may be a fault face. A number of faults run through Black Rock, trending to the north, with a displacement of 10 to 50 feet over the present geologic era.⁵⁸

The scarp dwindles to a small promontory. Its flat peak is only forty feet above the basin floor. There was a deranged jackass who used to live here. He stood among the boulders, watched the road below, the train-tracks beyond that. Whenever anything passed, he brayed. The jack-ass lived long enough, two or three decades, that it seemed he had always been in this place, immortal. Sheep-herders never shot him. No one ever caught him and sold him to the army. How else could an unsheltered animal avoid these dangers, stand in the hot sun or winter winds, eating only sparse grass of the mesa that the sheep had missed, without possessing some sort of divinity?

Much of the land that that beast looked out over had been farmed from the end of the 19th century, into the first third of the 20th. It has all reverted now, to a desolate and empty place. There is no human habitation in sight. The houses, train station, hotel and school that used to stand out there are all gone, hauled away whole, or piecemeal, and spread across the valley. The Jack-Ass, that long-eared beast, with blaring creaky voice,

⁵⁸ Oviatt, "Quaternary Geology of Part of the Sevier Desert, Millard County, Utah." P 28

hide the same color as the stones around him, watched it all pass by—was the feral, sterile, genius of the land, a god of undomestication, the liminal space between wild and tame. He called down his judgments, and because He had no worshippers, He became his own street-corner preacher declaring the doom that is about to befall society for its wicked ways, recounting the vision of destruction He has seen.

Across from the promontory, between the steel train tracks that are so hot beneath the summer sun that they make their own mirages, a freshly dead coyote lies. A train must have run it down while it was searching for rabbits or bits of train kill. A raven sits on the coyote, plucking fur from the carcass, letting the wind blow the tufts from its beak.

Further down the road, and across the tracks, is Pig Turd Hill, a lump of earth, low, short and slumped, resembling its namesake perfectly. On maps and signage, it goes by the much more romantic name of Sunstone Knoll. Locals know its real name. When I was younger and we passed this way, sometimes I saw the hill. Sometimes I did not. It was as though it was coy, did not want to be seen.

The hill is formed of basaltic lava and volcanic breccia from Pleistocene era vents that erupted sometime between 1.6 million years ago to about 750,000 years ago. It retains enough heat to melt off patches of snow in winter. The lava of the hill contains sunstone, a labradorite crystal that is transparent and yellowish. They range in size from about 1/8 inch to nearly one inch. Many of these sunstones have eroded out of the hill, and can be found

on the surrounding flats.⁵⁹ They resemble broken windshield glass. In 1985, a small rocky meteorite was found near the hill.⁶⁰

There is a volcanic vent in Pig Turd Hill, a stony pit that descends sheer into the ground. Just past the point of the tube that can be seen from the surface, no more than thirty feet down, the vent constricts and prevents passage. The top of the shaft is open to the unwary. You can walk or drive right to the lip of it and fall in. In the future, they will put a barbed wire and sheep-wire fence around it.

The Clear Lake Fault runs east of Pig Turd. Neither side of the fault stands above the other, but its location is readily visible, the sides plainly demarcated. The soil on the western side of the fault is buff colored, and sparsely vegetated. The eastern side is dirty grey white, without vegetation, too salty and alkaline for anything to grow on. The fault is at least 12 miles long and has a displacement of at least 9.8 feet, cutting through Lake Bonneville deposits.⁶¹ It lines up perfectly with the eastern slope of Blackrock, so it is likely that the fault extends at least that much further.

Sugarloaf lies beyond Pig Turd. It is the tallest volcano in the area. Even on the earliest maps of the area, it was called Pahvant Butte, but like many other landforms here, it has a local name. Sugarloaf erupted 16,000 to 15,300 years ago, from beneath Lake Bonneville. Ash accumulated in the north and east of Sugarloaf, but very little to the south or west of the mountain, showing that the wind was blowing from the southwest during the eruption.⁶² The eruption created an island in the lake. The lapping waves etched beaches

⁵⁹ "Sunstones at Sunstone Knoll, Millard County," Utah Geological Survey, <http://geology.utah.gov/utahgeo/rockmineral/collecting/sunstone.htm>.

⁶⁰ William F. Case, "Have Meteorites or Meteorite Craters Been Found in Utah?," <http://geology.utah.gov/surveynotes/gladasked/gladmeteorites.htm>.

⁶¹ Oviatt, "Quaternary Geology of Part of the Sevier Desert, Millard County, Utah." P 26

⁶² Ibid. P 22

on its flanks, but those shorelines are anomalously low on Sugarloaf, when compared to those on surrounding mountains. The highest shoreline is 56 feet lower than it should be, while the Provo shoreline is 33 feet lower than it should be. This may be because of magma chamber subsidence beneath the mountain, or it may be because of isostatic loading of volcanic stone on the surface. Immediately east of Sugarloaf is the site of the area's most recent volcanic activity, at the Ice Springs basalt flow. Root fragments from beneath the flow have been radio-carbon dated to 660, plus or minus 170 years, before present.⁶³

The Dominguez-Escalante Expedition, the first Europeans known to visit Pahvant Valley, entered the valley October 1, 1776. Having entered the basin from the mountains on the east, they hurried to an area that appeared from a distance to be covered in lakes or marshes. When they reached the place, they discovered the ground was dry, covered in patches of salt, saltpeter and alkali. They continued their march until night, when they camped just south of the present site of Deseret, naming the area, in their journals and on the subsequent map of their journey, Llano Salado. Suffering from a lack of potable water or decent grazing, some of the men continued on with the horses, and became lost. The next morning, the expedition was visited by men from the local tribe. Escalante remarked in his journals, repeatedly, how friendly the Indians were in this area.⁶⁴

The following day, Dominguez and Escalante continued on to the foot of Sugarloaf. Having struggled through the marshes and lakes which they found filling the area, they spent the night at the foot of Sugarloaf, where they found good pasturage, but salty water.

⁶³ Ibid. P 26-27

⁶⁴ Escalante, "Pageant in the Wilderness: The Story of the Escalante Expedition to the Interior Basin, 1777. ." p 190-193

By their estimation, the area was not suitable for any sort of settlement. Leaving Sugarloaf the next day, crossing the Sevier, which they described as abounding with fish, they continued southward, following the basic course of the Beaver River out of the area.⁶⁵

In 1813, the Mauricio Arze and Lagos Garcia trading expedition entered the Pahvant Valley, looking to purchase pelts. They were guided by a member of the San Pitch Utes, who also acted as their translator. Rather than the warm response Dominguez and Escalante received, Arze and Garcia were met with hostility. The Pahvants said they would fight rather than trade. After discussions, aggression seemed to subside, and the Spanish and Pahvants agreed to trade the next day. However, during the night, the Pahvants were overheard planning to attack and kill the Spanish. Under cover of darkness, before they could be attacked, the Spanish fled.⁶⁶ Later reports provide a likely reason for this change in attitude by the Pahvants.

In the 1830s, according to fur trappers, it was common for Spanish Mexicans to visit the Great Basin to buy native slaves.⁶⁷ Thomas Farnham, an early explorer of the west, describes the people living around the Sevier, in 1839, as dying in great numbers over the winter, then being preyed upon by other tribes in the spring, who captured them and brought them to Santa Fe to be sold as slaves.⁶⁸ Yampa Utes, accompanied by Spanish Mexicans, raided the Sevier area for slaves in the 1850s.⁶⁹

⁶⁵ Ibid. P 190-193

⁶⁶ Joseph Hill, "The Old Spanish Trail," *Hispanic American Historical Review* 4, no. 3 (1921). P 462-463

⁶⁷ William J. Snow, "Utah Indians and the Spanish Slave Trade," *Utah Historical Quarterly* 2, no. 3 (1929). P 69

⁶⁸ Thomas J. Farnham, *Travels in the Great Western Prairies, May 21-October 16, 1839*, ed. Reuben Gold Thwaites, 32 vols., vol. 28, Early Western Travels (Cleveland: A.H. Clark Co., 1904). P 249

⁶⁹ Orson Ferguson Whitney, *History of Utah*, 4 vols., vol. 1 (Salt Lake City: G.Q. Cannon & Sons co., 1892). P 510

Today, the Clear Lake Waterfowl Management Area wraps around the west and south sides of Sugarloaf. It consists of a shallow reservoir and series of diked ponds and marshes, all fed by the adjacent springs at Spring Lake,⁷⁰ lying to the west of Sugarloaf. Avocets and killdeer sing on the dikes. Canada geese swim nervously about, hiding in the rushes if anyone approaches. Terns cruise the sky, looking into the water, sometimes hovering for a moment where they thought they saw movement, or swooping to grab a too slow fish and swallowing it down.

In this dry land, the marshes provide important habitat for several migratory birds. In mid-February, great flocks of Snow Geese rest in the valley, with the birds spread from Clear Lake to the city of Delta, gleaning fields and eating marsh plants. These particular birds winter in California's Imperial Valley, summering and raising their chicks near the Anderson River, in the Northwest Territories of Canada.⁷¹ Spring flocks, of individual and family groups migrating to their summer grounds, are usually small, including only 35 to 400 individuals. Autumn flocks, migrating south, are often comprised of 1,000 or more birds. These medium sized white geese, with grey primary coverts and black primaries, are one of the most abundant species of waterfowl in the world, nesting in dense populations in areas from Siberia to Greenland. They winter in British Columbia, various regions of the US and Mexico. Historically, the western population was composed entirely of white birds. However, recently, the blue morph of the species, a bird with a mostly grey body

⁷⁰ "Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List the Least Chub as Threatened or Endangered," ed. Department of the Interior (2010). P 35401

⁷¹ "Delta Snow Goose Festival - Education," Delta Area Chamber of Commerce, <http://deltagoosefestival.info/festival/education>.

and a white head, that is relatively common in mid-continent populations, has become more common in the western populations.⁷²

As the small flocks arrive in February, they consolidate into enormous flocks that cover acres of fallow farm fields. They gather spilled grain, graze on grasses or grub for roots. All those birds look like drifts of snow in the cornfields. Each one keeps up a conversation with all those around it. The flocks are noisy, a crowd of thousands with voices rising and falling. For long periods of time, they continue to feed, until, across the fields, a few birds leap into the air. More and more of the birds take flight until there is a throbbing clattering squall of black and white moving like a windblown winter cloud. They depart and the fields are quiet, filled only with the yellow corn stubble and patches of icy snow.

Snow geese are not the only birds who come here. Sandhill cranes, in smaller numbers, make their way through. You hear them, rattling, trumpeting up in the sky. Their flocks make disjointed Vs and Ws. The individual birds, gliding, flapping minimally, look abstracted, their wings are wide, bodies narrow. They look like crosses painted by Kazimir Malevich.

Sometimes, unusual birds arrive here, completely out of their range. On 16 September, 1938, a U.S. Biological Survey of Millard County recorded a wood stork at the refuge.⁷³ "On July 25, 1962, Don Nielson, manager of the Clear Lake Refuge, observed an

⁷² Thomas B. Mowbray, Fred Cooke, and Barbara Ganter, *Snow Goose*, ed. A. Poole, P. Stettenheim, and F. Gill, vol. 514, *The Birds of North America: Life Histories for the 21st Century* (Washington, D.C.: American Ornithologist's Union, 2000). P 1-11

⁷³ "Rare Bird Sightings in Utah," (Utah Bird Records Committee).

American flamingo.... It stayed in the area through Columbus Day."⁷⁴ On 20 May 1959, a fulvous tree duck was shot here.⁷⁵

There are also a few species of fish inhabiting the shallow ponds of Clear Lake, including least chub, Utah chub, mottled sculpin and common carp.⁷⁶

Common carp are non-native, and invasive.

Mottled sculpin are small bottom dwelling fish, growing no more than six inches long, with bodies that are nearly black to olive green, striped or spotted, with pectoral fins that are banded, while their other fins are speckled. In appearance, they resemble the common aquarium fish *Plecostomus*. They are widely dispersed across North America, and inhabit most cold streams in Utah. Because they prefer cold mountain streams, it is a little surprising that they dwell in these warm desert ponds.⁷⁷

Another of the fish found here, the Utah chub, in optimal situations, can grow to 22 inches, but they rarely grow larger than five to eight inches. Their color is highly variable, being metallic olive green, blue, dark green-brown to black on their backs. Their sides may be silver or gold, while their bellies may be silver-white or black. Fins may be olive, yellow or golden. Utah chub may be found throughout the Bonneville basin, as well as parts of the Bonneville drainage. They eat a variety of foods including plants, crustaceans, snails,

⁷⁴ Williams, Terry Tempest. *Refuge: An Unnatural History of Family and Place*. New York: Vintage Books, 1991. P 88

⁷⁵ William H. Behle, John B. Bushman, and Clayton M. White, "Distributional Data on Uncommon Birds in Utah and Adjacent States," *The Wilson Bulletin* 75, no. 4 (1963). P 451

⁷⁶ Kevin K. Wheeler and Richard A. Fridell, "Least Chub (*Iotichthys Phlegethontis*) Monitoring Summary Gandy Marsh, Bishop Springs, and Clear Lake 2006," ed. State of Utah Department of Natural Resources (Salt Lake City: Utah Division of Wildlife Resources, 2006). P 6

⁷⁷ William F. Sigler, *Fishes of Utah a Natural History*, ed. Inc NetLibrary and John W. Sigler (Salt Lake City: Salt Lake City : University of Utah Press, 1996). P 231

insects and other fishes and thrive in a variety of habitats, including relatively alkaline and salty springs on Great Basin valley floors.⁷⁸

In 2003, a population of least chub, a fish endemic to the Bonneville Basin, will be found in the Clear Lake marsh.⁷⁹ They were once common in the Sevier and its tributaries, as well as many other springs, lakes, marshes and ponds in the Great Basin. However, by 1995, the fish will only be found in the Harris and Bishop spring complexes, as well as the Gandy Salt Marsh.⁸⁰

The fish is well adapted to a variety of natural habitats, but is threatened by the introduction of non-native species, especially mosquitofish, who prey on the eggs and young of the least chub, and compete with the adults for resources. Besides the trampling of riparian areas caused by livestock, which destroys habitat, least chub are preyed upon by game fish, Utah chub, bullfrogs, fish eating ducks, herons and gulls.⁸¹ The fish are small, less than 2.1 inches long, but live for as many as six years. They are colorful, with gold stripes along a blue side. Their fins are white or yellow. Spawning males' backs are olive green. Females and young are pale olive with silver sides and white fins. Their eyes are silver with gold flecks.⁸² Because of the fishes' vibrant colors, the Latin name for least chub means, 'small fish with a color resembling a river of fire.'⁸³

In 2007, 340 Least Chub from Clear Lake will be captured and transported to Willow Pond in Box Elder County. The purpose of this introduction is to provide a

⁷⁸ Ibid. p 75-77

⁷⁹ "Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List the Least Chub as Threatened or Endangered." P 35399-35400

⁸⁰ Ibid. p 35402-35412

⁸¹ Sigler, *Fishes of Utah a Natural History*. P 92

⁸² "Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List the Least Chub as Threatened or Endangered." p 35402-35412

⁸³ ———, *Fishes of Utah a Natural History*. P 90

genetic refuge for the fish, in case calamity were to strike the population at Clear Lake. Habitat for the least chub at Clear Lake, because it is a wildlife refuge, is protected against threats from human land use and livestock grazing. However, water levels fluctuate dramatically at Clear Lake. Some ponds dry annually, and some perennial ponds drop to less than a foot in depth over the summer. Also, non-native fish are at the site. A year after the population is introduced to Willow Pond, they will be doing well, and reproducing.⁸⁴

“Slow down. I want you to turn to the right, up here,” my grandfather says. “There used to be a town here, but its pretty much all gone now.”

In the spring of 1880, the railroad reached Clear Lake. A road leading from Fillmore, on the east side of the valley, to Garrison and Gandy on the Nevada border, crossed the tracks here, so a siding was put in. When a train station was built, a town soon grew up around it. The first post office, servicing a ranch to the west and other people in the area, was established in 1881.⁸⁵

In the early 1890s the Aldrach family moved to Clear Lake, buying much of the property in the area, forming the Clear Lake Land and Irrigation Company, and working to develop and market the land.⁸⁶ In 1891, when she was 16, my great grandmother Martha worked for the Aldrachs. A series of people and companies followed the Aldrachs in owning the land, but the place followed a trajectory of slow decline from early on, and only lasted about fifty years. There was never enough water to irrigate the fields. There were charges of fraud against the promoters of the town. Finally, on March 20, 1936, the Utah

⁸⁴ "Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List the Least Chub as Threatened or Endangered." p 35402-35412

⁸⁵ Venetta Bond Kelsey, *Life on the Black Rock Desert: A History of Clear Lake, Utah* (Provo: Kelsey Publishing, 1992).p 26

⁸⁶ Ibid. p 27

Department of Fish and Game bought out the water rights for Clear Lake⁸⁷ to create the bird refuge. The town quickly disappeared.

Buildings were lifted from foundations and hauled away, or torn down so their pieces could make new buildings somewhere else. Pieces of Clear Lake are scattered around the valley. Homes, even the railroad depot, were carried away and made into new homes elsewhere. The school was torn down. Its wood was used to build a house in Deseret, as well as the granary whose remnants stand behind my grandparent's house.

Human structures were entirely removed. Posts were pulled, wire coiled. Marks of domestication are still etched on the land, though. Fence lines, irrigation ditches and plow cuts were all abandoned, but remain starkly visible. Tamarisk hedges, overgrown and thick before, but falling down and mostly dead now, outline houseless yards. Three concrete steps, growing lichen, lead to a door in a wall that no longer exists. Otherwise, the town is gone.

We continue west along a well maintained dirt road, that angles and bends, until we are at the foot of Pot Mountain, a modest sized hill with dramatic projections rising from its flat top, eroded volcanic dikes that give the hill its distinctive shape. There are four of these promenances, three on the top of the hill and one on the north slope. These, my grandfather points out, look like the tops of pots, hence the name of the place. Early maps and descriptions of the hill name Pot Mountain 'Dunderburg Butte.'⁸⁸ No one knows why it was called this, and no one ever calls it that now. The hill is relatively old, being the remnant of a volcano whose upper layers have eroded away. Small amounts of basaltic tuff on the mountain show that at least one eruption occurred under water, but it is unknown

⁸⁷ Ibid. p 28

⁸⁸ Grove Karl Gilbert, *Lake Bonneville* (Washington, D.C.: Government Printing Office, 1890).p 335-336

whether the volcano erupted beneath Lake Bonneville, or some earlier incarnation of this lake.⁸⁹

In winter, flocks of horned larks animate the extinct volcano, congregating on the sun-warmed south flank of the hill. They flap about like a murmuration of starlings, like smoke that rises from the stone of the hill.

“Just stop in the middle of the road,” my Grandfather says. “No one is going to come along while we’re here. If they do, we’ll have time to move the car before they get to us.”

Shutting off the engine, silence crashes down on us with a smothering completeness.

He gets out of the car and crosses the road, walking through the brush. Our footsteps on the gravel soil, the whistling zip of wind through the golden grass or the words of my grandfather, do nothing to dispel the silence. Instead, they help define it, and that definition makes it even stronger.

“There are some graves here,” he says. After a few minutes of walking, scanning the ground, he finds the low rings of stones that mark the graves. “There are three people buried here,” he says. “Two adults and a little girl. The child was from Holden, died of scarlet fever. They were afraid of contagion so they brought her out here. I don’t know who the adults were.”

The adults were two members of the Aldrach family. In a few years, a marker with their name on it will be put up. No mention will be made of the girl.

The soil on the southwest of Pot Mountain is dark, carbon stained with plant debris, where the Beaver River used to flow. From the top of the hill, you can make out

⁸⁹ Oviatt, "Quaternary Geology of Part of the Sevier Desert, Millard County, Utah." P 22

some of the curves and meanders marked on the ground by the river, but for the most part, this is a very level land, with little definition and only sparsely covered in yellowed grasses and rabbitbrush.

Until about one-half million years ago, the Beaver River was independent of the Sevier River, draining into a closed basin east of the Mineral Mountains where it created a shallow but perennial lake. During the Pleistocene, the basin was breached between the Mineral and Black Mountains, allowing prehistoric Beaver Lake to drain through the Escalante Desert into the Pahvant Valley.⁹⁰ During this time, the Beaver River was an important tributary to the Pleistocene lakes of the region. By the time of European settlement, however, the Beaver River contributed only minor amounts of water to Sevier Lake.⁹¹

In 1852 a small party of Mormon settlers left Fillmore to look for lead deposits in western Millard County. They found no lead, but followed the Sevier River to its lake, and explored the lower Beaver River. Albert Carrington, a member of the party, described the area as being exceedingly beautiful and fertile. He was impressed with the large stream of the Beaver, whose confluence with the Sevier was about 5 miles from the delta.⁹² At the time, a band of Pahvants spent most of their time living along the Beaver River and near Clear Lake.⁹³

Today, the river rarely flows as far as Milford, except in flood years. The river stopped flowing north to the Pahvant Valley when,

⁹⁰ Marilyn Corah Isgreen, "Holocene Environments in the Sevier and Escalante Desert Basins, Utah : A Synthesis of Holocene Environments in the Great Basin" (Thesis (M.S.)--Dept. of Geography, University of Utah, 1986., 1986). P 31

⁹¹ Charles G. Oviatt, "Late Pleistocene and Holocene Lake Fluctuations in the Sevier Lake Basin, Utah," *Journal of Paleolimnology* 1, no. 1 (1988). P 2

⁹² Lyman, *A History of Millard County*. p 53

⁹³ *Ibid.* p 37

The Minersville Reservoir and Irrigation Company built a reservoir dam in the early 1890s,... After the reservoir was constructed, there was no perennial flow in the Beaver River beyond Milford, causing an area near the Beaver-Millard County line to turn from marsh/swamp area to one of sand dunes and blowing dust, threatening the highway and the railroad.⁹⁴

Though the river is gone, groundwater still flows from the Beaver Basin to the Sevier Basin, deep beneath the surface of the land.⁹⁵

We continue driving west. The alkaline soil bounces the heat and light of the sun back up to the sky. I squint against the harsh light, and my narrow view is distorted through an eyelash blur.

From time to time we drink from the plastic bottle, filled with ice, that my grandfather brought along. It is a big bottle, that retains a little bit of the fruit flavor of the juice concentrate it held, a faint memory that is still familiar enough to recognize. The drinks are good, but never enough. They do little to cool me. I am wearing shorts and a t-shirt. Sweat drips from my body. The sweat that drips from my armpits down my flanks is the worst. It feels colder than the water we are drinking, and startles me every time it drips.

My grandfather, though, is wearing his Stetson hat, Justin boots, a long-sleeved shirt buttoned at the wrists, and brown Wranglers. He does not sweat, as though it is a pleasant seventy degrees. Maybe all of his hot summers and cold winters have balanced out in him, and he no longer feels temperature. Or, he has filled his quota of sweating during his life, and no longer has to do it.

My grandfather found a lost three-year-old boy out here. The child had followed some older children away from home. They quickly outpaced him. When the parents

⁹⁴ "Utah State Water Plan Cedar/Beaver Basin," ed. Utah Division of Water Resources Utah Department of Natural Resources (Salt Lake City: Utah Board of Water Resources, 1995). P 3-5

⁹⁵ Isgreen, "Holocene Environments in the Sevier and Escalante Desert Basins, Utah : A Synthesis of Holocene Environments in the Great Basin". P 26

realized he was missing, a search was organized. As the small boy walked across the hard alkaline soil, he left almost no trace of his path. Eventually, by the time my grandfather found him, the boy had travelled nearly ten miles. He was thirsty, but otherwise fine.

Just to the south, the Cricket Mountains sit, running down the southern end of the valley. They are comprised of Cambrian limestone, the range is only about two mountains wide. A series of narrow valleys runs down its center. They were once part of the Pahvant Mountains, but have been pulled away, to become a separate range.⁹⁶ Nearly forty miles now separate the two mountain ranges.

A road runs south from the road we are following, up into the gap and pass into the first valley. It seems mysterious to me, and I hope that my grandfather will tell me to go that way. We keep going west, toward the lake.

At the dry confluence of the Beaver and Sevier Deserts just north of us, in a labyrinthine tangle of ox-bows, abandoned by the rivers even before they were dammed, there is an outcrop, low, nearly imperceptible, called Rocky Knoll. It is the northernmost portion of the Crickets. It is a buried mountain, its peak of ancient Cambrian stone a low island in a sea of modern sediment.

We pass under high-tension wires carrying Intermountain Power Plant's electricity to California. The cables sizzle like a hot frying pan filled with butter. To the north, a coal smoke yellow smear begins its arc across the cloudless blue sky. None of the electricity stays in Utah.

The soil is mostly bare, sandier than it was further east, with a thin scattering of saltbush and greasewood. In a blowout near here, the oldest open site showing human

⁹⁶Halka Chronic, *Roadside Geology of Utah* (Missoula: Mountain Press Publishing Company, 1990). p 234

occupancy anywhere in Utah has been dated by radiocarbon test. There are a few caves that have older material, in other areas of the state, but with a date of 7,700 to 9,500 years before present this is the oldest unsheltered archaeological site. This place was under water until shortly after 10,000 years ago. For the next 4,000 years it was a marsh, filled with streams and ponds. It had high levels of biomass, and as such, would have been a prime area for the native human inhabitants of the area to procure resources. They did, and left evidence of their activities. A variety of early stone technology is shown at the site. Examples of Folsom, Meserve, Plainview and two items that resemble Agate Basin lanceolate points have been found here. A local man possesses a resharpened Clovis point, which is probably from this site as well.⁹⁷

Most families who have lived in the area for a long while have a few arrowheads. My grandfather had an old coffee can filled with arrow and spear tips he had found out in the desert, decades before. I don't know what became of the can and its contents and I forget to ask him, but I remember some of the pieces. There were many small obsidian arrowheads, made from the local red and black stone, but there were others that were far older, Clovis and Folsom, chipped from cream colored stone. One was seven or eight inches long, originally, but was now broken into three pieces.

Years later, I will go back to this area, by myself in the twilight, planning to sleep there. I will walk around, to acquaint myself with the place. The sun will be down, but there will be enough light to see clearly. I will find a blowout where the sand has been stripped away. The heavier paleo-soil beneath it is left behind. The densest lithic scatter I have ever seen will litter the ground. I will see no points or scrapers, but pieces of

⁹⁷ Steven R. Simms and LaMar W. Lindsay, "42md300, an Early Holocene Site in the Sevier Desert," *Utah Archaeology* 2, no. 1 (1989). P 56-65

obsidian, quartzite and chert, the waste remains of tool knapping will thickly cover the area. The stones are attractive, intriguing. I will pick them up, feel their warm surfaces, that are smooth, hard, sharp. I will study their fractures and how the dim light plays on their surfaces. It will have rained recently, so that I can pick the stones up, then place them back precisely where I found them because of the marks the rain has left around them, and the marks the stones will have left in the dry mud. When I put them back, they will fit right in, like puzzle pieces. I will be fascinated, excited by the antiquity I presume the site holds. Perhaps that piece of obsidian, marked with crescents of concoidal fractures, its glassy surface sandblasted almost matte, has not been touched by another human hand in 10,000 years.

The people who left this scant evidence of their own existence knew a place very different from the one I know. Rather than a desert, with sparse plant growth, they would have looked out over a marsh filled with cattails and willows.

Suddenly, I will feel tremendous unease, a violently aggressive unwelcomeness, as though I have just entered a room filled with people who do not want me there, who are likely going to punish me for the intrusion. The sensation will bother me enough that I will repack my car and drive through the now dark desert, to get away from the place. I may describe the experience as a confrontation with the classic sublime, because this is a vast space, empty of human habitation, with little apparent mark of modern humanity upon the place. At the same time, the ground is littered with evidence of ancient humans, showing inhabitation extending into a vast antiquity of perhaps 10,000 years. That is a span of time that I cannot fathom except in an abstract sense.

I might just as easily describe the feeling of dread that I felt in the place as a fear of ghosts.

As we near the river, the plants grow taller, a mixture of tamarisks and willows replacing saltbush and rabbit brush.

Decades before, while rounding up cattle, my grandfather saw something black moving about in the brush. One of the men he was with said, "bet I can hit that crow." He leveled the barrel of his rifle. It was a long shot. He took his time, but before he pulled the trigger, the crow stood up, the black hat on an Indian who was getting his bed ready for the night in a shallow draw, surrounded by brush that would shelter him from the wind.

We drive on and cross the river. It is dry. I can scent no water in its sand and silt bed, only that all pervasive dust that defines the scent of this entire region. The road dips down into the channel of the river that is bare as a bulldozed trail. A mixed herd of cattle, Angus and Herefords who have sheltered in the relative cool of the riverbed, is startled by our approach.

Through the historic period, this river has had several names. The Dominguez-Escalante Expedition initially believed the Sevier was the Green River, which they had called the Rio Bueneventura. After realizing their mistake, they named the river Rio de Santa Ysabel.⁹⁸ Jedidiah Smith called it Ashley's River. Another trapper/explorer, Daniel T. Potts, called it the Rabbit River. William Wolfskill and George C. Yount referred to it as the Pooence River, purportedly the indigenous name for it.⁹⁹ In 1813, traders Moricio Arce and Lagos Garcia called the river Rio Sebero, Severo or Seviro, meaning severe or violent.¹⁰⁰ It is unknown whether Arce and Garcia named the river based on its own nature,

⁹⁸ Escalante, "Pageant in the Wilderness: The Story of the Escalante Expedition to the Interior Basin, 1777. ." P 189

⁹⁹ "Utah State Water Plan Sevier River Basin." p 5-24

¹⁰⁰ Hill, "The Old Spanish Trail." p 462-463

or the hostile reception they received from the local inhabitants. Whatever the case, this is the name that remained with the river.

The Sevier Basin covers 6,768,070 acres, and begins near Bryce Canyon National Park in southern Utah.¹⁰¹ The river depends on two seasonal moisture patterns for its water. In winter and spring, frontal storm systems from the Pacific Northwest push into the area, bringing snow and rain to the higher elevations. In late summer, early autumn, thunderstorms move into the area from the south and southwest. However, the Sevier Desert, where the river comes to an end, receives less than eight inches of precipitation in an average year.¹⁰²

By the time the Sevier River enters the Pahvant Valley, it has extremely high concentrations of dissolved solids. Partly, this is because of irrigation return flows, which leach salts from soils into the river, but the solids also come from geologic sources such as the Arapien shale in the middle section of the river.¹⁰³ The last bit of water flowing through the river is extremely laden with dissolved solids, over 10,000 mg/L.¹⁰⁴

Flowing into this dry land, the Sevier provides habitat for a variety of organisms that would be rare, if not absent, otherwise. Along its course, and especially in these lower reaches, the river is verged with Fremont cottonwoods, coyote willows, Russian olives, and tamarisks. A variety of insects, including mayflies, caddisflies, aquatic moths, dragonflies, damselflies, and true bugs live here. Oregon floater, Nuttal's high wing floater muscles, and Asiatic clams live in the water. Utah chub, leatherside chub, redbreast shiner, speckled dace, mottled sculpin, mountain sucker, and Utah sucker are the native fish who still live here.

¹⁰¹ "Utah State Water Plan Sevier River Basin." P 3-15

¹⁰² Ibid. P 3-5-3-9

¹⁰³ Ibid. P5-24

¹⁰⁴ Ibid. P 6-13

Longnose dace and Paiute sculpin may have lived in the river, but have been extirpated, like the least chub, if they did. Many nonnative fish have been introduced, including fathead minnows, western mosquitofish, channel catfish, largemouth bass, yellow perch, walleye, common carp and bluegill. Amphibians who live in the river are tiger salamanders, Woodhouse's toads, boreal toads, northern leopard toads, Pacific chorus frogs and Columbia spotted frogs. Muskrat and garter snakes are also found.¹⁰⁵ The present ecology of the river has changed dramatically since European settlement, "...the impact of man is so great that the communities existing today are unlikely to resemble or function like those that existed 150 years ago."¹⁰⁶

A federal report on the exploration of the Sevier River, published in 1880, said, "In any ordinary region the Sevier would not be dignified by the name of a river. In the early part of July its flow is a little less than 1,000 cubic feet per second, and this volume diminishes to about half that in September. Nevertheless it is the largest stream between Great Salt Lake and the Colorado."¹⁰⁷ This report was made during a period of drought. There is other evidence that the river, during recent prehistoric time, has been far more voluminous. During the middle and late Holocene, the Sevier River has deposited at least thirty feet of sediment in portions of the Sevier Desert, showing that the river, before it was dammed, carried enormous amounts of sediment into the valley.¹⁰⁸ Now, the river only rarely flows as far as its lake because, "the Sevier River is one of the most completely consumed rivers in the United States."¹⁰⁹

¹⁰⁵ *Rivers of North America*, ed. Arthur C. Benke and Colbert C. Cushing (Boston: Elsevier Academic Press, 2005). P 671-672

¹⁰⁶ *Ibid.* P 672

¹⁰⁷ Dutton, "Report on the Geology of the High Plateaus of Utah." P 212

¹⁰⁸ Oviatt, "Quaternary Geology of Part of the Sevier Desert, Millard County, Utah." P 19

¹⁰⁹ "Utah State Water Plan Sevier River Basin." P 5-1

All of the recent change to the river, be it damming and diversion by humans or the wetting and drying of the region due to shifting weather patterns, does not seem terribly out of the ordinary when the dynamism of the river, over the course of its history, is understood a little better. Until relatively recently, geologically speaking, the river probably did not even enter this valley. It may have been captured by the Sevier Basin in the late Tertiary. Prior to this event, rather than making the sudden bend around the Canyon Mountains through Leamington Canyon, the river may have flowed through Juab Valley, into Utah Valley, and finally into the Great Salt Lake Basin.¹¹⁰

When Lake Bonneville retreated from the Pahvant Valley, another paleo-lake, Lake Gunnison, remained here for a while. The Old Riverbed, which drained Lake Gunnison through what is now Juab and Tooele Counties, may eventually capture the Sevier River, if that river's threshold lowers faster than the rate of subsidence of the Sevier Lake Graben. Then the Sevier River will flow into the Great Salt Lake once again, this time into its south-western arm. This is most likely to happen in some future period of higher moisture and larger lakes in the basin.¹¹¹

Even within the relatively limited area of the Pahvant Valley, the river has shifted across it dramatically. The basin is etched with the paths of rivers. These paleochannels are indistinct, often invisible from the ground, but are clearly visible from aerial photographs because of the greasewoods that grow on them in higher densities than on the land that was never riverbed. Some of these channels may be pre-Bonneville,¹¹² showing that the basin has had repeated periods of wet and dry. The river meandered across the

¹¹⁰ ———, "Quaternary Geology of Part of the Sevier Desert, Millard County, Utah." P 30

¹¹¹ Ibid. P 30

¹¹² Ibid. P 17

valley floor when the region was relatively dry, and dumped its load of sediment closer to the mountains when the valley was filled by major lakes during wet periods.

When the river runs high, it backs into the nearby, usually dry oxbows, so that it is more like a handful of rivers all braided together, rather than just one. When this happens, big carp struggle in the verges of the water, dragging themselves into willows and tamarisks, wishing the slow water would come back and they could live leisurely in warm blue green water. When the water drops, bleached bodies of crayfish litter the shore, tangled in the half-drowned grass.

On the night that I flee the archaeological site, I will drive until I cannot anymore. The road will have washed out after a winter of unusually high snowpack, and a spring of heavy rains. Where the road is washed out, two avocets will stand in the gloaming, catching carp fingerlings as they cluster in the shallows. The carp will try to leap like salmon over the rise of the roadbed.

There will be a strong brine smell coming in on the wind from the southwest, off the lake. I will sleep here and wake in the darkness. The moon, the color of amber, will be sinking behind a sand dune that is being undercut by the flooding river. The jaundiced light of the moon will reflect on the dark floodwaters. On the other side of the washout, at dawn, a flock of black necked stilts will be catching more carp fingerlings. The stilts will take flight, clumping together in a tight flock that flies bobbing across the oxbows, singing all the while. The shoals of carp will be so thick, roiling in the shallows, that they will flop onto the rocky shore and their tarnished silver bodies will be plucked, wriggling, by the stilts before they can get back to the water. The fish will smother themselves, congregating in such numbers. If they are unable to get back up the river, they will be flushed into the salt lake, to die.

This highwater will be insignificant compared to that which came down the river when I was a child. In March of 1983, water flow down the Sevier River was sufficient to flood portions of highway 6-50, and fill Sevier Lake. As warmer weather increased the flow of water, even greater flows necessitated cuts be made in riverbanks around the bridges in Deseret and Sutherland, allowing the river to pass around the bridges without washing them out. The situation continued to deteriorate. Too much water was coming down the river for the spillway at the Delta Melville Abraham Deseret (DMAD) dam. Unsuccessful efforts were made to bolster it.¹¹³

Expecting a flood, my grandparents prepared their home. My father helped build a platform in the garage on which to put everything from the house. It was head height, and filled the back quarter of the garage. The wood they used to build the platform came from the granary that Jim and my Dad had torn down years before. They emptied the house of its contents. Then, they waited.

On 23 June, 1983, the DMAD dam's spillway washed out, releasing 16,000 acre feet of water. 90 percent of the houses in Deseret were flooded. Thirteen were destroyed.¹¹⁴ Pioneer era adobe houses collapsed, the bases of the walls turned to mud that was unable to bare up the rest of the building. The church, near the riverbank, was irreparably damaged, so that it was torn down later. The lower walls of my grandparent's house were stained light brown by the silt laden flood waters. After washing the walls and replacing the carpets, they moved their furnishings back into the house.

South of Black Rock, after the flood, the valley floor was covered by water for a couple of years. Sparse, drowned, desert growth stood above the water here and there. It

¹¹³ Lyman, *A History of Millard County*. p 403

¹¹⁴ *Ibid.* p 403-404

was exciting, as a child, to drive south on 257 at this time, like driving on a two lane bridge across a quiet lake. It was also thrilling to see the desert turned into an immense pool, briefly showing what this place has been like in other times.

South of the road, Sevier Lake is an enormous flat whiteness between the Cricket Mountains and the southern end of the House Range. It extends thirty miles tip to tip, ten miles across at its widest. Mirages often make it look wet, and sometimes it is. Historic high stands of the Sevier Lake have given it a surface area of about 250 square miles.¹¹⁵

Historically, much like its river, Sevier Lake has had a variety of names. The Paiute called it Uhvuh' Paw, translated to mean bad water.¹¹⁶ The first map of the region was produced by the cartographer for the Dominguez-Escalante Expedition, Don Bernardo de Miera y Pacheco. He named the lake Laguna de Miera, after himself.¹¹⁷ In 1869 George M. Wheeler, while completing a government survey, visited the south end of the lake. He was the first to survey the lake and determine its true position, "unaware of its identity, however, and, following an error prevalent at that time, called it Preuss Lake."¹¹⁸

In 1872 Lieutenant R.L. Hoxie, in charge of one of the Wheeler Survey field parties, was the first to map the lake and its tributary relations. At the time, the lake was 28 miles long, with a surface area of 188 square miles. Its maximum depth, at the north end of the lake, was 15 feet. This was a scientific expedition, as well as a mapping trip, so he measured the chemical composition of the lake's water. He found that the brine was 8.64 percent saline, comprised primarily of sodium chloride and sodium sulphate. In winter of

¹¹⁵ Oviatt, "Late Pleistocene and Holocene Lake Fluctuations in the Sevier Lake Basin, Utah." P 9

¹¹⁶ Lyman, *A History of Millard County*. p 52-53

¹¹⁷ Bernardo de Miera y Pacheco, "Escalante Route Map P. 1," (Salt Lake City: Utah Historical Society, 1777).

¹¹⁸ Gilbert, *Lake Bonneville*. P 224

1880, the lake was nearly dry. In places it contained a thin sheet of bitter water, but at least one person crossed the lake on foot. Local people said that the lake had shrunk to this extent over the course of one or two seasons, and that in the fall of 1879 the lake had been entirely dry.¹¹⁹

After the floods of 1983, Sevier Lake was the second largest lake in Utah, by surface area, after the Great Salt Lake. In the place of the white playa, a 35 foot deep lake lay.¹²⁰ The floods washed thousands of fish into the lake, where they died from the salt. Their bodies lay thick along the wrack line. My grandfather drove me out to the lake then. It was like an arm of the Pacific Ocean. I could smell the brine and algae scent. Maybe because they had soaked in salt, the fish did not stink. The water was steel grey, and cold, on that day. The wind blew from the south, pushing waves against the shore, washing the gravel of the beach clean of its sticky mud.

The lake rapidly dried out again. Average water evaporation for the area is 43 inches per year. In May, the windiest month of the year in the valley, air moves 100 miles per day, so moisture simply blows away.¹²¹

Though the lake is dry now, this is a place that has been under water for much of the last 20,000 years. Lake Bonneville transgressed into the Sevier Basin between 21,000 and 20,000 years ago.¹²² Until about 16,000 years ago, Lake Bonneville covered almost 20,000 square miles, mostly within Utah, etching a shoreline high on mountainsides. About 15,000 years ago, the lake breached the natural dam at Red Rock Pass in southern

¹¹⁹ Ibid. P 225

¹²⁰ R.W. Paulson et al., "National Water Summary 1988-89--Hydrologic Events and Floods and Droughts: U.S. Geological Survey Water-Supply Paper 2375," ed. U.S. Geologic Survey (Reston1991). p 591

¹²¹ "Utah State Water Plan Sevier River Basin." P 3-9

¹²² Oviatt, "Late Pleistocene and Holocene Lake Fluctuations in the Sevier Lake Basin, Utah." P 11-12

Idaho. The resulting flood dropped the level of the lake 325 feet to the Provo level, where it stayed for about 2,500 years. Sevier Lake, with all of the Pahvant Valley, was subsumed by Lake Bonneville during this entire time. 11,000 years ago, Lake Bonneville dropped to levels comparable to the present Great Salt Lake, because of climate change. The Great Salt Lake has not risen more than forty feet at any point since then.

After the retreat of Lake Bonneville, Sevier Lake continued, for almost 2,000 years, to be a major geologic feature in the form of a shallow prehistoric lake, now known as Lake Gunnison. At its greatest size, Lake Gunnison was never more than fifty feet deep, but it covered over 1,200 square miles. Much of the Sevier Desert was lake or deltaic marsh system.¹²³ The lake continually overflowed, draining north into the Great Salt Lake until 8,800 years ago.¹²⁴ After this, the lake fluctuated, but trended toward a lessening in size until, between 1400 and 1850, the Sevier Lake expanded before drying out entirely after white settlement.¹²⁵

Lake Bonneville and Lake Gunnison are only the two most recent prehistoric lakes to have existed in this basin. Pre-Bonneville marls and other sedimentary deposits are common in the Sevier Desert,¹²⁶ and have accumulated to enormous depths. The Sevier Lake Graben has accumulated 4,600 feet of unconsolidated sediment and dissolved solids deposited by the Sevier River and other erosion through geologic time.¹²⁷

¹²³ Ibid. P 15

¹²⁴ Charles G. Oviatt, David B. Madsen, and Dave N. Scmitt, "Late Pleistocene and Early Holocene Rivers and Wetlands in the Bonneville Basin of Western North America," *Quaternary Research* 60(2003). P 200-206

¹²⁵ Oviatt, "Late Pleistocene and Holocene Lake Fluctuations in the Sevier Lake Basin, Utah."p 17-18

¹²⁶ ———, "Quaternary Geology of Part of the Sevier Desert, Millard County, Utah." P 8

¹²⁷ "Environmental Assessment Sevier Lake Competitive Potash Leasing Proposal," ed. United States Department of the Interior Bureau of Land Management (Fillmore: U.S. Department of the Interior Bureau of Land Management, 2010). P 51

During recent prehistoric and historic periods, native inhabitants heavily utilized the margins of the lake in the biologically rich marshes. Archaeological and microbotanical evidence of exploitation of the lakes' marshy delta habitats by prehistoric peoples is found along the north shore of the lake. The Dominguez and Escalante Expedition also recorded a village sited at the delta of the river where it entered the lake.¹²⁸ This marsh environment has shifted over the last 2,000 years though, transitioning from dominantly wetland to a shrubby salt desert.¹²⁹

Some evidence of the people who inhabited this area, and the resources they exploited, has been researched. The skeleton of a Late Archaic era man, whose remains were excavated from the north shore of Sevier Lake after a gully exposed his grave, shows evidence that the individual was in good health all of his life, but had extreme dental wear. This sort of tooth wear is indicative of grindstone processing of the plants and seeds of cattail, bulrush, pickleweed, saltbush and perhaps maize. The amount of cattail pollen found in soil samples around the grave, as well as dental cavities in some of the man's teeth, indicate that he was probably eating large amounts of cattail pollen and flour made from cattail roots, which would have been a dominant plant in this area at the time the man lived. There is also evidence of heavy exploitation of fish and muskrats for food in the area, showing that native people were able to depend on a wide variety of wild foods for their subsistence.¹³⁰ Though there has not been any evidence of maize culture in this particular area, some level of corn farming was occurring in the present area of Elsinore at

¹²⁸ Pacheco, "Escalante Route Map P. 1."

¹²⁹ Nancy Shearin et al., "A Late Archaic Burial from the Thursday Site, Utah," *Journal of California and Great Basin Anthropology* 18, no. 1 (1996). p 155

¹³⁰ Ibid. P 155-165

or before the time this man lived, on the other side of the Pahvant Mountains.¹³¹¹³² Though their habitat would have typically supplied plenty of food, people living here would have experienced some danger in their ability to procure foods, dependant on naturally fluctuating water levels in the valley. Shifting weather patterns would have alternately desiccated or flooded habitats the people depended on.¹³³

In twenty years, a skiff of water will lie on the muddy lakebed at the end of winter when I visit the area. If I stand still for a second on the clay and silt bed I will start to sink. The higher points of mud will be salty white where water wicks and dries, accumulating crystals. There will be small flat stones and pieces of salt wrecked wood scattered in the sand and mud of the lake's beach. East and south, the water will reflect the snow covered Crickets and Wah-Wahs. The west wind will redden my daughter's cheeks with cold.

Fresh coyote tracks will lead out of the lake, and I will wonder what it was doing out there? Maybe craving salt? Scavenging carp that have washed down the river into the salt lake and died?

We will scrape the mud from our shoes, but it will glue itself on. We will tromp in snow, but still the brown grey mud will not come off. A week later, the soles of our shoes will still be clumped with mud, now dry and white.

In the following summer, the lake will have more water in it. About half of the playa will be submerged. Some portions of the lake will be robin-egg blue from the chemicals in the saline. Others will be pink or light magenta from the growth of algae.

¹³¹ James D. Wilde and Guy L. Tasa, "A Woman at the Edge of Agriculture: Skeletal Remains from the Elsinore Burial Site, Sevier Valley, Utah," *Journal of California and Great Basin Anthropology* 13, no. 1 (1991). P 60-73

¹³² James D. Wilde and Deborah E. Newman, "Late Archaic Corn in the Eastern Great Basin," *American Anthropologist* 91(1989). P 712-718

¹³³ *Handbook of North American Indians: Great Basin*. P 150

Brown orange smudges, the color of medical iodine, will swirl across the water, colored by countless brine shrimp. From the still dry margins of the lake, dust devils will lift columns of salt into the air. When the convection falters and the wind stalls, the white pillars will dissolve into a smear, drifting and sinking across the land.

The Sevier Lake reminds me of Stephen Trimble, writing about the Great Basin. He said, "What few river valleys exist here always lead to a closed basin with a central sump, a dead heart."¹³⁴ I would like to change his metaphor. Hearts expand and contract, and so do the lakes of the Great Basin. Currently, these playas are contracted hearts, but they will eventually expand again. This is what has been happening since the Great Basin began developing, millions of years ago. They will go on expanding and contracting until the basin rips open and fills with the Pacific Ocean, millions of years from now.

We come to 6-50. We can turn left, follow the highway west toward Long Ridge where my family used to run their cattle, skirt the north shore of Sevier Lake to Skull Pass over the House Range, cross the Tule Valley to Cowboy Canyon through the Confusions... on and on, across the Great Basin.

Sawtooth is standing due west, like a stone god. Its peak is 9,655 feet above sea level, so it is not the tallest peak in the House Range, but it is the most dramatic. The north face of the mountain is the second highest cliff in the United States, with over 2,000 feet of uninterrupted cliff face. The peak is almost 4,500 feet above the valley floor, with a series of smaller cliffs below the main cliff, stepping down into the canyon at its foot.

¹³⁴ Stephen Trimble, *The Sagebrush Ocean: A Natural History of the Great Basin* (Reno: University of Nevada, 1989). p 6-7

In autumn, raptors fly down the ridgelines of the basin ranges, catching thermals and updrafts to speed them south. Along the top of the House Range, one after another, they come; red-tailed hawks, sharp-shinned, rough-legged...sometimes even an eagle.

In winter, wind whips tendrils and streamers of light powder snow off the ridges. Low-angled rays of sun light them golden. The mountains look to be on fire, thousand foot flames rising from their cliffs.

My grandfather climbed the south slope of Sawtooth, following the dry wash through the gorge that ends at a great pine trunk, weathered silver but still unrotted. Then he scrambled up the slope to reach the top of the mountain. I will follow his footsteps in the future.

Hiking through the grove of bristlecones that grow on the western side of the mountain, I will come suddenly to the edge of the cirque. Still well below the peak, the look into that abyss and the north face of Sawtooth will give me intense vertigo. Just looking over the edge will make me feel as though I am falling. From the peak, looking down into the Pahvant Valley, north of Sevier Lake, I will see countless lines, shorelines etched on the desert basin around the dry whiteness of the playa, showing the regression of Lake Gunnison. Even with an enormous brush and forest fire burning out of control to the southeast, filling all the air with smoke, I will see far into the distance in all directions. To the west, beyond the Confusion Mountains and the Disappointment Hills, I will see Mt. Moriah and Wheeler Peak. North, just below the horizon, the Bonneville Salt Flats will show. To the east, Mt. Nebo will be distantly, and faintly, visible through the smoke.

Sawtooth is comprised of layer upon layer of Cambrian limestone and shale, as the entire House Range is, with the exception of a Middle Jurassic intrusion, a pink monzonite

pluton, beneath Sawtooth and its nearby peaks.¹³⁵ The limestone and shale that the mountains are comprised of was laid down in a shallow sea, the rapidly sloping continental shelf on the coast of equatorial Laurentia, the proto-continent that eventually formed Greenland and North America. These mountains, that stand nearly 10,000 feet at their summits, were once beneath the waters of the proto-Pacific. At that time, the environment was one of microbial reefs and carbonate sand shoals. A wide variety of early multi-celled organisms left fossils in this stone. Trilobites are the most famous of these. Specimens from the House Range are in museum collections worldwide. Their fossils, and those of other organisms, are found through over 8,000 feet of Cambrian strata along this mountain chain, allowing paleontologists to trace the evolution of these creatures through the Middle and Upper Cambrian, a period of 25 million years.¹³⁶

The limestone and shale seem to have been laid down by currents of turbid water, which quickly buried the Cambrian organisms inhabiting the sea. Storms also seem likely to have been important agents in the burial of these creatures.¹³⁷

Trilobites, with the other common fossil organism found here, conodonts, act as guides to paleontologists studying the other creatures whose remains are fossilized in these stones. They were both common, and evolved relatively rapidly. Fossils of other organisms provide information about the ecosystems in the shallow seas where this limestone formed. After trilobites and conodonts, the next most common fossil in these stones is that of brachiopods, showing as small inky spots. Sponges are also common, but

¹³⁵ Lehi F. Hintze, *Geology of Millard County, Utah*, ed. F. D. Davis and Survey Utah Geological (Salt Lake City, Utah]: Salt Lake City, Utah : Utah Geological Survey, 2003). P 121

¹³⁶ *The Early Evolution of Metazoa and the Significance of Problematic Taxa*, ed. Alberto M. Simonetta and S. Conway Morris (Cambridge ; New York: Cambridge ; New York : Cambridge University Press, 1991). P 77

¹³⁷ *Ibid.* p 78-90

deteriorate rapidly when exposed to the elements. Their disarticulated and fossilized remains appear like tiny cuneiform writing on the stone. Traces of other organisms found here are cyanobacteria, algae, radiolarians, cnidarians, mollusks, arthropods, echinoderms and other animals which are difficult to assign to any known group of organisms. One fossil arthropod found here has a head with three pairs of long slender uniramous limbs. Modern insects, centipedes and millipedes, have uniramous limbs. Each limb is made of segments attached end to end. Crustaceans have biramous limbs, limbs whose segments branch. This creature also had many long slender limbs on its trunk. It may be the ancestor of today's insects, centipedes and millipedes. Another creature, which has not been categorized into any known class of organisms, had enormous spines, which were longer than the length of the animal's body. It is unknown why this animal evolved such massive spines, whether they were defensive, or served some other purpose. There is other interesting fossil evidence of extinct creatures, giving insight into their behaviours to be found in these stones, as well. Many trilobite fossils show injuries with evidence of healing. These scars have been interpreted as marks of unsuccessful predation. The majority of them appear on the right sides of the trilobites. This fact likely indicates that the creatures preying on trilobites tended to attack their prey on the right side. This pattern of attack is common in modern predator prey relationships, and has been attributed to brain asymmetry, an outgrowth of the division of the brain into right and left hemispheres. Because of this, the scars on the trilobites may indicate that brain laterality may have developed 500 million years before other evidence would suggest.¹³⁸

Before modern geologists and paleontologists became aware of these fossils, the Pahvant Utes knew of and gathered them. According to Frank Beckwith, the Pahvants

¹³⁸ Hintze, *Geology of Millard County, Utah*. P 41-47

collected trilobite fossils as amulets, calling them *timpe khanitza pachavee*, which, translated, means little water bug in a stone house. These amulets were believed to protect the wearers from disease and bullets.¹³⁹

The limestone that holds these fossils is also, like all limestone, prone to the erosion that creates caves. Various caves and crevices are scattered throughout this general area. The best known is Lehman's Cave, in Nevada, but there are lesser known caves such as Crystal Ball, and Antelope Springs near here. Many of the caves contain beautiful rock formations, paleontological and archaeological remains. Crystal Ball Cave in Snake Valley, named for its glittering stalactites, contains bones from the Pleistocene Epoch, ranging in age between 23,000 and 19,000 years ago. Some of the animals whose bones have been found here, such as mule deer and pronghorn, are still found in the area. The cave also reveals that musk-oxen, camels, llamas, saber-toothed cats and large and small horses inhabited the region during the ice-age.¹⁴⁰

On the other side of the Confusions, near Gandy, a cave was discovered that contained a hearth that had accumulated at least three feet of charcoal deposits, showing long and repeated use. Mountain sheep horns were arranged around this,¹⁴¹ perhaps indicating ritual use of the cave for weathermaking ceremonies, much as rock art has been argued to have been done. Other caves in the area contain Native burials. Indian Burial Cave, near Lehman's cave, is one obvious example of this, but there are others. In 1872, Dr. H.C. Yarrow, researching native burial customs in North America for the Smithsonian

¹³⁹ Michael E. Taylor and Richard A. Robison, "Trilobites in Utah Folklore," *Geology Studies* 23, no. 2 (1976). p 1-5

¹⁴⁰ Timothy H. Heaton, "Quaternary Paleontology and Paleoecology of Crystal Ball Cave, Millard County, Utah: With Emphasis on Mammals and Description of a New Species of Fossil Skunk," *The Great Basin Naturalist* 45, no. 3 (1985). p 337-390

¹⁴¹ Judd, *Archeological Observations North of the Rio Colorado*. P 60

Institution, visited two caves near the House Range. The first, which he entered, was filled with bodies and grave articles. The second cave, which his expedition was led to after liberally bribing their Goshute guide, seems to have been the vent of a volcano. The guide assured Yarrow that it was an immense cave, filled with dead bodies. However, it had been blocked with boulders and sagebrush to prevent animals getting into the cave. The expedition tried for several hours to open the cave, but eventually gave up.¹⁴²

Not all of the holes in the ground are caves. Almost due west of where our dirt road meets 6-50, at the mouth of the Amasa Valley, is a ninety foot deep sinkhole with a dried underground river at its bottom. There are many folktales told around here of lost Spanish mines, leather bags of gold dust, and stacks of gold ingots. This sinkhole is the focus of some of them, but no convincing evidence gives credence to the stories.

In the late summer or autumn, when I was young, we used to go to the House Range to cut firewood. I remember little of these trips, mostly just basic senses. My mother, father and myself were packed into the cab with my grandfather in his light blue pickup that he drove into the canyons. My father and grandfather wore Levis and long sleeved shirts, with sheepskin vests. The leather was weathered and patinated. I remember the scent in the cab, the smell of juniper and pine resin from the cut trees, two-stroke engine exhaust from the Husqvarna chainsaw, sweat from all of the labor.

My grandfather told many stories while we drove and worked, much as he has done today. One was about a band of wild horses who lived out here. They were incredibly beautiful animals, not too lean and weather bitten like wild horses so often are, but big full chested, muscular beasts. The local men coveted the herd.

¹⁴² H.C. Yarrow, "Introduction to the Study of Mortuary Customs among the North American Indians," ed. Smithsonian Institution Bureau of Ethnology (Washington, D.C.: Government Printing Office, 1880). p 29-30

It was common then to catch wild horses, to break and train, to turn them into saddle horses. My grandfather often did this. This herd, though, was untouched.

The most beautiful and coveted of the herd was the stallion who led it. He was like a war horse, bay, tall as a man at the shoulder and perfectly proportioned. He was the reason none of the horses from the herd was ever captured. He reacted to what the would-be captors were going to do before they acted. Most of the times the men organized themselves for a roundup, they found other bands of horses, but not this one. Or, they saw this band but it was too far away, and moving quickly away. Of course, if a man was in the area by himself, he would have no difficulty finding and getting relatively close to them, but that did no good.

Sometimes, men saw the herd near the mouth of a box canyon. If the animals could be driven into the canyon, and the men could throw a gate across it, the whole herd could be captured. So, the men planted posts there, and secreted poles behind some junipers that stood in the canyon mouth. Then they waited, so that the horses would become used to the nascent fence.

On the day of the planned capture, a man hid in the trees, ready to bar the exit once the horses were driven in. Everyone else was mounted, to cast a wide and strong net to sweep the herd up, to drive every last animal up the canyon.

It worked perfectly. The herd was found, and driven to the canyon. They bunched together, without stragglers, and made their way before their mounted pursuers. The stallion led, as if he was complicit in the capture of his harem, his own foals and himself. Then he suddenly stopped. He stood just a few paces from the mouth of the canyon, looked at the trees and cocked his ears forward. Then he whinnied and reeled

about. The herd scattered, moving between the men who were too dumbfounded by the shifting course of events to try lassoing a single colt.

The stallion heard the heartbeat of the man hiding behind the trees, my grandfather said. The thud of it was so loud it rang out over the clatter of all the horses' hooves across the stones at the canyon's mouth.

My grandfather will never tell my mother the end of the story. Maybe it still hurts him to remember. He doesn't want to make it happen again by recounting it. Or, the joy in my mother's eyes, before the end of the story, shouldn't be ruined.

In seven years, my father will be dying of cancer. The radiation that settled on him as a child will give him bladder cancer. Twice, the doctors will think they have cut it all out.

The cancer will metastasize. The cells will spread through his body, floating and settling like the radiation that made them. Tumors, like welts, will bulge beneath his skin, dissolve and shatter his bones.

My mother and father will be making dinner, my father slicing up chili peppers for fajitas while my mother cooks the chicken. "Your dad told the best stories," she will say. "The one about the horses, how they could hear the heartbeat of the man hiding in the trees...that was my favorite."

My father will be in pain, cancer throbbing in his muscles and bones. A cocktail of poisons will be coursing through his veins, chemotherapy vainly trying to save his life. His eyes will be tired, from the struggle against the disease, and the deadening effect of the opiates he will be prescribed.

There are things that only he will know at this point, like the end of that story. When he dies, no one else will know them.

I will be sitting across the table from him, doing homework.

He will pause, take a deep breath as though he is unsure of whether to speak. “He never told you the end of the story though.” He will pause again. It could be that he will be tired, in pain, or unsure of whether to share the secret. “The man in the trees, he had a gun. He ran out and started shooting the horses.”

There used to be camels out here, my grandfather says. They were feral military animals. Bored shepherders shot them, though.

My grandfather tells another story about the House Range. In December 1932, he and his friend George went to Miller Canyon, just north of Sawtooth, to cut and haul firewood. Each man brought two wagons, one hitched behind the other. My grandfather brought five horses. George brought four. The two men stayed in the canyon nine days, and it snowed every day. The night they left the canyon, the temperature dropped to -25 degrees Fahrenheit. One of my grandfather’s horses got loose and ran off in the night. The next day, the axle on one of his wagons broke, so that he had to leave the wagon behind. That night, they camped at Swasey Wash, where they had left hay for the horses on the way out. They huddled together, wrapped in all of their blankets, trying not to freeze to death. The temperature was -32 degrees this night. My grandfather’s friend Jack, who eventually married his sister, brought back the runaway horse in the morning. Later in the day, George, Jack and my grandfather were met by my great-grandfather. He brought a wagon with him, to carry the body of his son home, believing that my grandfather must surely have frozen to death. The four men arrived home at nine that evening. The temperature had once again dropped to -25 degrees. The next morning, my grandfather left home again, for three more days, to round up a neighbor’s cattle who had strayed in

the snowstorm. George said that he never warmed up again, and spent the rest of his life feeling cold. Perhaps that is why the heat does not bother my grandfather.

“Well, I guess we better head home,” he says. “Your grandma will be worried.”

We do not drive to the west, through the mountains and basins of the region. We turn right. To me, this is the loneliest stretch of the trip. For sixteen miles, the road does not bend, just a long two-lane highway with nearly bare soil on both sides. The greasewood looks shrunken and dead.

This land that my grandfather and I cross now, through the river’s erosion and the accretion of sediment, is salted. Only the hardiest, salt adapted plants live on it. Even though I love the bleak desolation of the place, it is easy to understand the sentiment of a nineteenth century explorer when he stated, “If the eye of a man of ancient Greece had seen this sight, he would have located the entrance to the underworld here.”¹⁴³

The land shifts and wobbles in the heat. Pot Mountain and Blackrock, because of distortions in perspective from the mirages, look stretched, buoyant, about to lift the bulk of their stone slopes from the silty valley floor, to drift somewhere else.

The wind begins to blow in earnest, pushing the heavy Chevrolet around in the strong gusts. Dust rises into the air, obscuring much of the landscape around us. There is road kill. Jack rabbits in every state of obliteration, freshly killed to little more than dirty fibrous patches on the asphalt, litter our way. There is a truck-struck steer, an angus, legs spread, belly bloated to heaven.

In fifteen years, rusted steel instruments will break up the monotony of this drive. They will be arranged on a grid across the valley, with highway 6-50 running through the

¹⁴³ J. Schiel, *The Land between; Dr. James Schiel's Account of the Gunnison-Beckwith Expedition into the West, 1853-1854* (Los Angeles: Los Angeles : Westernlore Press, 1957). P 100

center of the pattern. Each contraption will resemble a twin size bed made of steel, like Procrustes' bed from Greek myth. These instruments will help comprise an enormous cosmic ray observatory, built in the Pahvant Valley.

The discovery of cosmic rays, and the quest to discover where they come from, originated in 1912, when Victor Hess ascended 17,500 feet into the atmosphere, in a balloon, to test a theory about where radiation originates. He theorized that radiation originated from the earth. Ascending into the atmosphere, he reasoned, should lessen the amount of radiation detected. During his experiment, as he gained altitude, he discovered that radiation increases instead of decreasing. Not finding the results he expected, he discovered cosmic radiation. Cosmic rays stream from space into the earth's atmosphere, and originate from various locations. These subatomic particles are sometimes alpha particles, beta particles, x-rays or rarely, gamma rays.¹⁴⁴ Earth's magnetic field and atmosphere protect us from the slower rays, such as those rays that our sun makes, which sometimes appear as the Aurora. As the energy of cosmic radiation increases, the particles penetrate deeper into earth's atmosphere. Incidentally, the more powerful the cosmic ray, the more rare it is, so that ultra-high energy particles average one particle per square kilometer per century. It is unknown where these highest-energy particles come from. Some proposed theories are that they originate from super-novae (but super-novae do not seem to be big enough to accelerate the particles to the speed of the ultra high energy particles), the ultra-dense centers of galaxies that contain black-holes, or even colliding galaxies.¹⁴⁵

¹⁴⁴ "Introduction to Cosmic Rays," University of Utah Physics Department, <http://www.cosmic-ray.org/reading/intro.html>.

¹⁴⁵ "Ultra-High Energy Cosmic Rays," University of Utah Physics Department, <http://www.cosmic-ray.org/reading/uhecr.html#SEC3>.

When ultra-high energy cosmic rays strike the atmosphere, they collide with the nucleus of an air molecule, shattering it. This creates over 50 new particles. These particles collide with other nuclei, making a cascade of secondary particles. The interactions of these particles creates a hadronic and electromagnetic shower that can be detected in the atmosphere through a couple of methods. When ultra-high energy particles strike the atmosphere, a remnant of these showers can be detected on the ground by specially made particle detectors.¹⁴⁶ Another way to detect these particles when they strike our atmosphere exists because, as the particles descend through the atmosphere, they excite the gas molecules around them, causing them to luminesce. These bursts of light occur too quickly for human eyes to detect, but fluorescence telescopes can be built to detect them. In 1976 physicists from the University of Utah were the first to detect them when they constructed three prototype detectors near Albuquerque, New Mexico.¹⁴⁷

The observatory in the Pahvant Valley will first begin to take in information in 2007, using a combination of surface detectors and fluorescence telescopes. The surface detectors, 507 of them, will be spaced every 1.2 kilometers, on a grid that will cover an area of over 700 square kilometers. Each detector will have three cubic meters of double thickness plastic scintillation detector. These will be housed inside steel beds. Each piece of equipment will be powered by a solar panel, and will transmit information back to a central data collection point. Three fluorescence observatories, placed in a triangle formation around the surface detector area, will record the luminescences of the air showers. The Drum Mountain observatory, on the northern end of the system, will be an

¹⁴⁶ "Detection of Uhe Cosmic Rays," University of Utah, Department of Physics, <http://www.cosmic-ray.org/reading/detect.html#SEC3>.

¹⁴⁷ "History of the Air Fluorescence Technique," University of Utah, Department of Physics, <http://www.cosmic-ray.org/reading/fluor.html>.

observatory transferred from the earlier HiRes experiment. The other two observatories, at Long Ridge and Blackrock, will be newly built to complete the project. Each observatory will contain twelve individual telescopes. These individual telescopes will have a reflector area of 6.8 square meters, comprised of 18 hexagonal mirrors. Fluorescences will be collected by these mirrors and reflected into a mosaic camera, essentially a sort of inverted television, where images are reflected onto cathodes, which convert the images into energy that is digitized and recorded by computers. In the center of the triangle of observatories, there will be a laser for relative calibration and timing of all of the telescopes.¹⁴⁸ With the three telescopes observations overlapping those of the ground detectors, it is hoped that more precise results can be determined for the entire experiment. However, density, temperature, pressure and humidity of the atmosphere affect how bright these air showers appear, making it difficult to gauge the strength of a particular event. To calibrate the fluorescence detectors, artificial air showers will be created, with a particle accelerator located on the south-east corner of Blackrock, that will fire a beam of electrons into the sky. This particle accelerator will be built in Japan, using recycled parts from an earlier accelerator, and will be small enough to fit inside a forty-foot shipping container. Because of the isolated nature of Blackrock, the accelerator will have its own generator and water cooling system. Magnets will be used to focus the electron beam, and bend it at a right angle, directing the electrons straight into the sky.¹⁴⁹ Knowing the exact power of this artificial electron shower, the scientists will be able to gauge the power of the cosmic ray showers, relative to this.

¹⁴⁸ T. Nonaka, T. Abu-Zayyad, and M. Allen, "The Present Status of the Telescope Array Experiment," *Nuclear Physics B* 190(2009).

¹⁴⁹ T. Shibata, A. Enomoto, and S. Fukuda, "End-to-End Absolute Energy Calibration of Atmospheric Fluorescence Telescopes by an Electron Linear Accelerator," *Nuclear Instruments and Methods in Physics Research A* 597(2008).

The highway angles slightly to the right. South of the highway, down a short dirt road, is the Gunnison Massacre site. Rabbit brush is dominant on the high points. There is a little sagebrush and some tamarisks. Otherwise, the soil is bare. In the oxbow, creeping up the cutbank to the dry lip of the land, coyote willows grow thickly. Matted saltgrass is in the riverbed.

My grandfather says there is nothing down there. We continue on. There is a story though.

The story of the place begins on the eastern side of the valley.

In early October, 1853, an emigrant party passed through Fillmore on its way to California. When they met Anson Call, the leader of the settlers in Fillmore, the party claimed they had been shot at by Indians. He assured the group that the Pahvant Utes in the area were peaceful. Thomas Hildreth, the leader of the emigrant party, told Call that he saw no difference between any Indians. Any Indian who entered his camp would be killed. As the two men conversed, Chief Kanosh arrived. One of the emigrants threatened Kanosh with a rifle. Call knocked the weapon from the man's hands, warning the emigrants that if Kanosh was killed, their entire party would be annihilated. Call instructed the emigrants to leave the Indians alone, and warned Kanosh to keep his people away from the emigrants, who continued south and camped at Meadow Creek, where a small group of Pahvants were already staying. Moshokuope, a war chief, his father Toniff and some others were camping nearby, and had not yet been warned of the bellicose nature of the emigrants, so the group visited the emigrants' camp to trade. When the emigrants tried to disarm the men, the Pahvants resisted.¹⁵⁰ Toniff thrust an arrow against the chest of one of

¹⁵⁰ Lyman, *A History of Millard County*. P 67

the emigrants, who drew his gun and shot him in the side. Two other Pahvants were wounded, one in the shoulder, the other in the arm. Toniff died the next day.¹⁵¹

Members of the tribe visited Call the next morning, requesting his help. Call visited the emigrant camp, retrieving weapons and a horse that were left behind by the Pahvants when they were attacked.¹⁵² Call donated several cattle and other food items to the tribe in an attempt to restore peace. Most members of the tribe were mollified,¹⁵³ however, Moshquoepo declared, "They have killed my father and I will fight them." He and a small group of warriors followed the emigrants to Cedar City, killing and driving off their livestock. In Cedar City, the emigrants were joined by a group of Scottish emigrants who had renounced the Mormon Church and were fleeing Utah. The addition of the Scottish members made the party too large to attack, so that Moshquoepo returned to Pahvant Valley,¹⁵⁴ and camped near Sevier Lake.

As part of the federal government's plans to build a transcontinental railroad, Captain John W. Gunnison was sent to explore potential railroad routes along the 38th and 39th parallels. He had been part of Stansbury's expedition to explore the Great Salt Lake in 1849-50, so he was somewhat familiar with the region and the people of Utah. When he arrived in the Pahvant Valley, aware that there had been conflict with the local natives, Gunnison visited Call to find what information he could of the situation.¹⁵⁵ Call informed him of the danger, and warned Gunnison to be careful. Gunnison replied that he was

¹⁵¹ Gibbs, "Gunnison Massacre--1853--Millard County, Utah--Indian Mareer's Version of the Tragedy." P 70

¹⁵² Lyman, *A History of Millard County*. P. 68

¹⁵³ Gibbs, "Gunnison Massacre--1853--Millard County, Utah--Indian Mareer's Version of the Tragedy." P 70

¹⁵⁴ Lyman, *A History of Millard County*. P 68

¹⁵⁵ *Ibid.* p 68

friends with the Pahvants, having met with them on his earlier expedition. He knew Kanosh and Moshokuope, and was friends with them, so he was in little danger.¹⁵⁶

The weather became cold. Snow flurries moved across the valley. Gunnison's horses were exhausted and needed time to recuperate. In an attempt to finish the season's work more quickly, he split the expedition into two parties so that more ground could be covered. Gunnison, with the smaller party, travelled down the Sevier River so that he could map the exact position of the lake. Lieutenant Edward Beckwith was put in charge of leading the rest of the exploration up to Leamington Canyon where the Sevier flowed out of the mountains. In five days, the two groups planned to meet again at the camp where they had first separated.¹⁵⁷

On October 25th, Captain Gunnison, R.H. Kern, F. Creutzfeldt, William Potter (a Mormon guide), John Bellows, a corporal and six soldiers left the main body of the expedition so that they could explore the lower river and Sevier Lake.¹⁵⁸

According to Captain Gunnison,

I came down the river southwest nine miles, and then, bearing more west for two miles, concluded to encamp, as the water below might prove too salt. The route was through heavy artemesia for five miles, when we came upon more open plains to the nine-mile point, where we met with sloughs alive with geese, ducks, brant, pelicans, and gulls. A few hawks were careering in the high wind, and the black-eared and black-tailed rabbits were very numerous in the large artemesia.

The mountains wore all day their white night mantle of snow, and we had squalls from the north, with snow falling on the high mountains on all sides of us. Towards sunset it brightened up a little, and our hunters brought in four ducks of as many different varieties.

¹⁵⁶ Gibbs, "Gunnison Massacre--1853--Millard County, Utah--Indian Mareer's Version of the Tragedy." P 70

¹⁵⁷ Schiel, *The Land between; Dr. James Schiel's Account of the Gunnison-Beckwith Expedition into the West, 1853-1854*. P 101-102

¹⁵⁸ Edward Griffin Beckwith, *Report of Explorations for the Pacific Railroad, on the Line of the Forty-First Parallel of North Latitude* (Washington, D.C.: United States War Department, 1854). P 72

Gunnison camped in a dry gooseneck of the Sevier. It was a sheltered place, below a steep bank. There was a good growth of grass here for the horses to eat. A growth of coyote willows around the rim further protected the place from wind and supplied the men with wood for their campfires. On the southern end of the gooseneck, it opened onto the Sevier River. Gunnison, and the rest of the men, kept watch through the night. Nothing out of the ordinary happened.¹⁵⁹

On the afternoon Gunnison came down the river, two of the Pahvant men with Moshquoep were hunting ducks and rabbits on the south side of the Sevier River with bow and arrow. They were startled by the sound of gunshots to the north. Hiding in the willows that verged the river, the two men watched a small number of horsemen travelling past, firing at the flocks of ducks. The two men continued to watch the party of travelers until it made camp, then hurried down river to their camp to inform Moshquoep.¹⁶⁰

Around midnight, the warriors left their camp, travelled up river, and surrounded Gunnison's camp, hiding themselves in clumps of willow. One warrior, Carboorits, was stationed at the southern end of the depression, where Gunnison's men went to fetch water. Carboorits was assigned to fire his gun when the first rays of sunlight struck the camp, to signal the attack.¹⁶¹

Lieutenant Beckwith and the rest of the survey party, as well as Captain Morris and the majority of the expedition's military escort, traveled up the Sevier River after Gunnison's group departed. Because of the cold, they often stopped to build sagebrush fires to warm themselves. Finally, they camped. It was a cold, still night. Beckwith reports

¹⁵⁹ Ibid, p 73-74

¹⁶⁰ Gibbs, "Gunnison Massacre--1853--Millard County, Utah--Indian Mareer's Version of the Tragedy." p 72

¹⁶¹ Ibid. p 73

that “at a late hour the pure mountain snows reflected beautifully the clear light of the waning moon, while all around was quietness and repose.” When he awoke,

The morning sun was clear and cold, and Mount Nebo, seen through the Sevier river gap, with its pure mantle of snow, half enveloped in floating misty clouds, mildly reflecting the rays of the rising sun, presented one of the most beautiful mountain scenes I have ever witnessed.¹⁶²

In Gunnison’s camp, it was a few minutes before sunrise when the cook lit the campfire, over which he placed the iron tripod and kettles. Professors Kern and Creutzfeldt stood by the fire. The corporal and his men cared for the horses, a hundred yards to the northwest of the campfire, where, the previous evening, they had been picketed among clumps of willow. Captain Gunnison walked out to the river, not more than fifty feet distant. He stooped to bathe his hands and face in the river. Carboorits raised the hammer on his gun to fire at Gunnison. Gunnison was startled by the sound of the mechanism. Carboorits fired, but missed him. Kern, Creutzfeldt and the cook fell down dead from the attacker’s first volley. Gunnison emptied his revolver at Carboorits, but missed him entirely. Gunnison rushed back to the camp. Finding that all those in the camp were dead he ran to the northwest, probably trying to catch a horse. As he ran, his attackers showered him with arrows.¹⁶³

The first exploration party prepared to leave Beckwith’s camp at 11 o’clock that morning, to explore the Sevier River Canyon, north of the Canyon Mountains. The corporal from Gunnison’s escort, exhausted and barely able to speak, staggered into camp as the exploration party set out. He had ridden his horse to the camp where the two parties had separated the day before. There, he abandoned the animal because of its

¹⁶² Beckwith, *Report of Explorations for the Pacific Railroad, on the Line of the Forty-First Parallel of North Latitude*. p 73-74

¹⁶³ Gibbs, "Gunnison Massacre--1853--Millard County, Utah--Indian Mareer's Version of the Tragedy." P 72-73

exhaustion. He then ran fourteen miles to reach Beckwith's camp. He reported that everyone except himself had been massacred by a large group of Utes that morning. In the thirty minutes it took Beckwith's military escort to prepare and set off, another survivor reached the camp.¹⁶⁴

Two or three hours after the attack began, the warriors discovered Gunnison lying in blood-stained grass. Several arrows lay about him, showing that he had been pulling them from his body. Gunnison sat up, slowly and painfully, and extended his hands, palms up, appealing for mercy. One of the warriors, named Mareer (who later told the story to a reporter, decades later) recognized Gunnison but did not say so at the time. The attackers hesitated. Suddenly another of the warriors approached, shooting and killing Gunnison. Moshoquepe did not realize until eleven days later that Gunnison had been a member of the party and victim of the massacre.¹⁶⁵

Two other soldiers from Gunnison's party survived the massacre. One climbed onto his horse during the attack. The horse spooked, and threw him into the willows where he hid until the attackers departed. He lay in the bushes, afraid to move for six or seven hours, listening to the Pahvant men moving all about him during that time.¹⁶⁶ The other survivor managed to escape by climbing onto a horse whose rider had just been shot off and killed. The soldier was pursued for many miles, but escaped.¹⁶⁷

¹⁶⁴ Beckwith, *Report of Explorations for the Pacific Railroad, on the Line of the Forty-First Parallel of North Latitude*. p 73

¹⁶⁵ Gibbs, "Gunnison Massacre--1853--Millard County, Utah--Indian Mareer's Version of the Tragedy." P 73-74

¹⁶⁶ Beckwith, *Report of Explorations for the Pacific Railroad, on the Line of the Forty-First Parallel of North Latitude*. P 74

¹⁶⁷ Schiel, *The Land between; Dr. James Schiel's Account of the Gunnison-Beckwith Expedition into the West, 1853-1854*. p 104

Dr. James Schiel, who was accompanying Beckwith, went with the soldiers as they raced across the valley, but his horse collapsed and died after fifteen miles. He was left behind, and told to beware of mounted Ute warriors who could be seen on the top of Black Rock. After sitting a while with his dead horse, Schiel decided to return to Beckwith's camp, making his way alone with a rifle, revolver and pockets full of ammunition. Returning to the camp at nightfall, he discovered that it had been abandoned. However, another survivor of the massacre, "a half dead Irishman" was there. Schiel helped the man back onto his horse, and the two of them rode until they caught up with the rest of Beckwith's group before dawn. The sergeant and other soldiers riding to the site of the massacre lost their horses as well, who also collapsed and died of exhaustion. Those soldiers whose horses had died arrived at the massacre site after dark.¹⁶⁸

Those members of the rescue force whose horses survived arrived at the massacre site just before dark. Unable to account for all of the missing, Captain Morris camped close to Gunnison's camp. The soldiers lit a large fire, hoping that survivors of the massacre, and soldiers whose horses had died while crossing the valley, would see the light and come to them. The unsleeping men listened to wolves howling through the night, who had come to scavenge their dead comrades. No survivors arrived, nor was the relief force attacked. In the morning, all of the missing men were found. Some had had their bellies cut open, or their arms cut off at the elbows, besides being partly eaten by the wolves. All of the bodies were left behind and unburied when the troops retreated.¹⁶⁹

Several days later, the remains were buried by an expedition of men led by Dimick Huntington, one of the best translators in the territory, assisted by Anson Call and Chief

¹⁶⁸ Ibid. P 102-104

¹⁶⁹ Beckwith, *Report of Explorations for the Pacific Railroad, on the Line of the Forty-First Parallel of North Latitude*. P 74

Kanosh. While the expedition gathered and interred the bodies of the men, they were confronted by Moshokuope and other members of his force. Kanosh demanded to know what justification there had been to attack the survey party, to which Moshokuope replied that because white men had killed his father, he had felt justified in the attack. Gunnison's body was taken back to Fillmore for burial. The remains of William Potter, the local guide for the expedition, were taken back to Manti to be buried. The rest of the men's bodies were interred at the massacre site.¹⁷⁰ Call, through Kanosh, was able to retrieve most of the papers and instruments that had been looted from the camp after the massacre. He and others from Fillmore worked hard to prevent any sort of retaliation against the Pahvant Utes, because they feared that the soldiers would attack the tribe, then leave. The Utes, if they then retaliated, would only have the Mormon settlers to attack.¹⁷¹

Many of the Pahvant men who took part in the massacre continued to live in the area, and were well known to the inhabitants of Deseret. Moshokuop died there, in 1893.¹⁷² I do not know if my great-grandparents knew him, but they certainly would have recognized him.

In the summer after a wet winter, after the flood waters have dropped a little, the oxbow will be full of quick flowing water. Because of the shifting nature of the river, the dry oxbow that Gunnison camped in will once again be the main channel of the river. Low lying areas beyond the river's shore will have turned to mosquito breeding sloughs. The dry ground that had only a sparse covering of greasewood will teem with avocets, killdeer and black-necked stilts. Scores of nighthawks will swirl through the morning air, catching

¹⁷⁰ Lyman, *A History of Millard County*. P 70

¹⁷¹ Beckwith, *Report of Explorations for the Pacific Railroad, on the Line of the Forty-First Parallel of North Latitude*. p 75-76

¹⁷² Gibbs, "Gunnison Massacre--1853--Millard County, Utah--Indian Mareer's Version of the Tragedy." p 71

mosquitoes, crying “peent.” In the tamarisks, coyote willows and Russian olives, meadowlarks will sing. Their songs will be like the music of rushing brooks over stones.

Due north of the Gunnison Massacre Site is what remains of the Topaz Internment Camp. Looking across the land, a casual observer will likely notice nothing unusual. The greasewood has grown back in as thickly as if the ground had never been bare. From the sky, however, the mark the camp has left is strong and hard. It looks like an old circuit board stamped into the landscape, or an intricate and exceptionally cruel brand on the hide of an animal. Drive into the camp, and still, little is readily apparent, small white signs with black lettering mark which block you are passing, or that a particular site contained a Buddhist temple or some other notable structure. When a person leaves their automobile and awkwardly moves through the greasewood, the strangeness of the place is finally revealed. Gravel paths lead to nonexistent doors of buildings that have been torn down or hauled away. Thin lines of gypsum drywall, like chalk lines, outline some of the places buildings used to sit. The ground is littered with rusty nails, broken ceramics and bottles. Some areas are strewn with ceramic or steel pipes, too damaged to salvage when the camp was closed. Tiny traditional Japanese gardens and ponds, built in an attempt to create some familiarity in an alien and oppressive place, lie abandoned on the ground. There is a heavy silence here, like the thick atmosphere that sometimes comes before a thunderstorm.

Topaz Internment Camp is located near the town of Abraham, and was built on a consolidation of public domain lands, land that had reverted to the county in the thirties due to non-payment of taxes, and several privately owned parcels. The site was constructed between July 1942 and January 1943 by the Daley Brothers construction firm, and cost

\$3,929,000 to build, with another one million spent on later structures. The entire project covered 19,800 acres, with the residential area covering one square mile. There were separate areas for administration, military police and internees. About 200 Caucasian administrators lived at the camp, and about 85 to 150 military police also lived there, guarding against escape. The internee section consisted of forty-two blocks. Each block contained a mess hall, recreation hall, a toilet/wash/laundry building, and twelve single-story barracks, and was expected to house 250-300 people. Each barrack building was divided into six rooms ranging in dimension from 16 x 20 feet, to 20 x 25 feet. These rooms, without internal partitions, housed a family, or four or five unrelated adults. A cemetery was prepared at the internment center, but it was never used. The 144 people who died while they were held at the center were cremated in Salt Lake City. Their ashes were interred in the San Francisco area after the war.¹⁷³

After the United States entered World War II, President Roosevelt signed Executive Order 9066, giving authority to the army to deal with enemy aliens in the United States by decreeing military areas. This order was made on 19 February, 1942.¹⁷⁴ In March, the western halves of California, Oregon and Washington were decreed to be military areas, from which all people of Japanese nationality or descent would be evacuated.¹⁷⁵ On 24 April, 1942, Civilian Exclusion Order No.19 was issued, declaring that all Japanese people from the San Francisco Bay area would be evacuated from their homes. They were first sent to the Tanforan racetrack which had been transformed into a

¹⁷³ Arrington, *The Price of Prejudice : The Japanese-American Relocation Center in Utah During World War II*. P 20-24

¹⁷⁴ Franklin D. Roosevelt, "Executive Order 9066," ed. United States Government (1942).

¹⁷⁵ J.L. DeWitt, "Public Proclamation No. 1," ed. Headquarters Western Defense Command and Fourth Army (San Francisco 1942).

holding center. While there, the people lived in horse stalls.¹⁷⁶ After living at Tanforan for several months, the internees were transported, by train, to Topaz, beginning 9 September, 1942.¹⁷⁷

When the trains arrived in Delta after a three day journey, internees were loaded onto buses and driven the rest of the way to the camp. They passed small farms with clumps of trees and cultivated fields. After half an hour, the farms came to an end. Greasewood, looking dry and dead, was the dominant plant the last few miles to the camp.¹⁷⁸

When the camp was occupied, it became the fifth largest city in Utah.¹⁷⁹ However, it was incomplete when internees arrived. Sheetrocking of barracks still needed to be completed. Stove pipes had not been put in, so there were gaping holes in the barracks' roofs. Later arrivals didn't even have barracks when they arrived, so slept on army cots in mess halls, laundries and hospital corridors.¹⁸⁰ Ill-health was common. Colds and stomach ailments were prevalent.¹⁸¹

For the people interned at Topaz, who were used to the maritime climate of the San Francisco Bay area, the desert of the Pahvant Valley seemed especially bleak. "The world was covered only with gray color, and we felt that we were dumped en masse into a desert where only scorpions and coyote were living,"¹⁸² said Chiura Obata, an art professor

¹⁷⁶ Mine Okubo, *Citizen 13660* (Seattle: University of Washington Press, 1983).p 16-35

¹⁷⁷ *Ibid.* p 112

¹⁷⁸ Yoshiko Uchida, *Desert Exile : The Uprooting of a Japanese American Family* (Seattle: Seattle : University of Washington Press, 1982). p 106

¹⁷⁹ *Ibid.* p 106-109

¹⁸⁰ *Ibid.* p 111

¹⁸¹ *Ibid.* p 114

¹⁸² Kimi Kodani Hill, *Topaz Moon: Chiura Obata's Art of the Internment* (Berkeley: Heyday Books, 2000). p 61

from Berkeley. However, he eventually came to see the “beauty that exists in that enormous bleakness.”¹⁸³

The weather was also overwhelming to the internees. “The dust storms in Topaz were terrible and made an awful noise. Even indoors we wore scarves and masks because the dust was like a fog in the room,”¹⁸⁴ remembered an internee. Others spoke of dust storms that obscured buildings only ten feet away, in swirling masses of sand.¹⁸⁵ During one particular wind storm, an internee remembered that,

Pebbles and rocks rained against the walls, and the newspapers we stuffed into the cracks in the siding came flying back into the room. The air was so thick with the smoke-like dust, my mouth was gritty with it and my lungs seemed penetrated by it. For hours the wind shrieked around our shuddering barrack.... I learned later that many of the camp’s chicken coops had been blown out into the desert.¹⁸⁶

Internees were allowed to leave the camp only if they had officially sanctioned work outside of it, usually agricultural. Eventually though, restrictions were lessened, and many people went outside the project area to gather vegetation and stones for their gardens, or to collect arrowheads,¹⁸⁷ topaz, trilobites or twisted greasewood that resembled bonsai.¹⁸⁸ On one of these expeditions, two of the internees, Akio Ujihara and Yoshio Nishimoto,¹⁸⁹ discovered an iron meteorite weighing 1,164 pounds, the eighth heaviest meteorite to have been found in the United States.¹⁹⁰

¹⁸³ Ibid. p 83

¹⁸⁴ Ibid. p 62

¹⁸⁵ Uchida, *Desert Exile : The Uprooting of a Japanese American Family*. p 112

¹⁸⁶ Ibid. p 119

¹⁸⁷ Okubo, *Citizen 13660*. p 203

¹⁸⁸ Hill, *Topaz Moon: Chiura Obata's Art of the Internment*. p 81

¹⁸⁹ Frank Beckwith, *Trips to Points of Interest in Millard and Nearby, Written and Compiled for the Boy Scouts of Millard County, Utah* (Springville, Utah: Springville, Utah : Print. by Art City Pub. Co., 1947). p 109

¹⁹⁰ Case, "Have Meteorites or Meteorite Craters Been Found in Utah?."

On 17 December, 1944 the Western Defense Command lifted the exclusion order against Japanese on the west coast of the United States, effective 2 January, 1945. The next day, the War Relocation Authority announced that all relocation centers would be closed within six months. Relocation center schools were ordered to shut down at the end of spring semester, and farming was terminated. Fearing that there would be insufficient transportation for the internees if they were allowed to postpone their departures from the camp, weekly quotas for relocation were implemented. As far as possible, the quotas were to be filled by volunteers, but if there were not enough volunteers, the quotas were filled by assignment. The camp was closed on October 31. The buildings, tools and land were sold.¹⁹¹ The barracks were hauled away to be used as farm outbuildings, or even, in a few instances, homes or additions to homes in Delta.

We pass through Hinckley, which was originally part of Deseret, but was turned into its own town in 1891, and named after one of my ancestors, Ira Hinckley. We turn right, onto 257, almost back to my grandparents' home again.

Asparagus grows along the ditches, thick green fronds and fernlike leaves in dense green bursts.

We pass the alfalfa cube mill on the left.

Further down the road is the lumber mill, almost entirely fallen to the ground. The big blade is gone. Only the log runners remain.

In a moment, we will cross the slow Sevier River that is pale blue-green, almost stagnant. Swallows swoop back and forth above the bridge, singing twittering songs. Shoals of carp cruise the water, raising their big-eyed faces to the surface of the water so their

¹⁹¹ Arrington, *The Price of Prejudice : The Japanese-American Relocation Center in Utah During World War II*. p 39-45

gulping mouths slurp air. When my father was a child, a local veteran returned from Korea with a case of grenades, and entertained himself and the neighborhood boys by throwing them into the schools of carp. Children used to skate and play hockey on the river, in the winter, and built bonfires along the shore to warm themselves when they rested.

Before we cross the river, though, we pass the cemetery, ringed with Siberian elms. I have more family there than in the rest of the town.

My great-grandparents, James and Martha, are buried there. James died in 1957, after his second heart attack. My grandfather nursed him through the end of his life, spending days at his bedside. Martha died two years later, after three strokes. My grandparents moved into her home to care for her after the second stroke. My great-uncle Harold lies next to his parents. He was born prematurely, and only lived a few months. Finally, my uncle Jim is also buried there. He died in 1970. He was 21 when his platoon was ambushed in the A Shau Valley, Vietnam, leaving every man in his platoon dead or wounded. Every time my grandfather speaks of my uncle Jim, his eyes fill with tears. His voice cracks. If he speaks long enough, he weeps. He is as likely to speak of Jim as anything.

In less than three years, my grandfather will join his parents, brother and son. It will be early March when I last see him alive, lying in a hospital bed. Unable to open his eyes, or speak, he will know that we are there, my mother and father, brothers and myself. He will struggle when he hears our voices, like he is smothering, gagged, beneath a heavy weight.

He will look so much smaller then, as if he has dried out, shrunken. The veins in his hands will not stand out the way they always did before. They are thick like cables,

vital, spread across the backs of his hands like river channels in a delta, but they will not be when he is in the hospital, dying. The stroke will dam an artery in his brain, and kill him.

The Pahvant Valley, at the end of winter, looks bleak, but it will look so much more so the year he dies. Dead grass will stand through a thin skiff of snow. Elms, cottonwoods and willows will still be leafless, buds barely swelling. Textureless grey clouds will fill the sky. I will see it through swollen, teary eyes.

My grandmother will live almost another ten years after her husband dies. For a few years she will be healthy and independent. In the end, she too will die of a stroke, but it won't kill her outright, immediately. She will linger and suffer dementia that frightens me. Rather than the strong woman who I always knew, she will be confused and scared. My aunt will quit her job so that she can take care of her mother rather than leave her in a nursing home. She will help my grandmother sit up, so that she keeps her lungs healthy and does not catch pneumonia, and my grandmother will beg her to let her lay back down again. When I go to tell my grandmother that I am going to get married, she will tell me that she is going to have a baby. When she dies, I will feel like it already happened long ago. I will be angry that she suffered, and angry that I was so afraid to see her during all the time she was dying.

Now though, they are both still alive.

We are only a few hundred feet from my grandparent's home now. I turn left at the cross-street and drive, slowly, that short last length.

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