

NICK CASTLETON
Narrative of Mining History Tours

Statewide Oral History Project, Abandoned Mines Reclamation Program
Utah Division of Oil, Gas and Mining

June 10 and 11, 2014

Nick Castleton lead two tours pertaining to mining history in and near the town of Eureka, Utah, once the supply center for the Tintic Mining District.¹ This transcript contains the body of Nick's narrative during the tours. Interviewers are Lee Bennett and Jim Mattingly. Jim also video recorded the tours and Lee added explanatory notes to help the reader follow along.

Tour No. 1 - Historic Eureka, Utah, on the afternoon of June 10, 2014

Nick has taken us to the Tintic Mining Museum on the main street of Eureka. He has selected a series of historic photographs that are hanging on the museum wall. The museum is housed in the relocated Eureka railroad station.

JM: Tell me your name, please.

NC: Nick Castleton

JM: And your title is?

NC: Mayor of Eureka.

JM: Tell me what we have here [referring to the photos]

NC: This is a double loop; this was built by Rio Grande Railroad, which became the Denver and Rio Grande Railroad, in Pinyon Canyon.² This was to get the train up the elevation. The old steam trains were really heavy and hard to pull a very steep grade so they had to come around. Then they'd loop around, come back around this way, come back up and around, to finally get

¹ The first claims were staked in 1869 and by 1899 the Tintic Mining District was the leading Utah producer, with ore valued at five million dollars. The chief producing mines included Mammoth, Bullion Beck, Centennial Eureka, Grand Central, Gemini, Eureka Hill, Godiva, Humbug, Uncle Sam, May Day, and Lower Mammoth (W. Lingren and G.F. Loughlin, Geology and Ore Deposits of the Tintic Mining District, Utah, US Geological Survey Professional Paper-107, 1919, pg 106). In 1940 Eureka had a population of 2,290 and was the "focal point in the Tintic District." It was surrounded by active mines, necessitating "armed guards to protect the fabulously rich ore" (Writers' Program of the Works Progress Administration, Utah: A Guide to the State, Utah State Institute of Fine Arts, 1941, pg 411).

² The "Double Circle Loop" was featured in travel brochures published by the Rio Grande Western Railroad, who built the loop as part of its rail line from Springville to Eureka, Mammoth, and Silver City. This route originated in 1891, after the RGW was reorganized as an independent operation from the Denver & Rio Grande Western (www.utahrails.net/articles/tintic.php).

enough elevation to get to where they could make it on up to Eureka. They were only able to haul four ore cars at a time across this trestle. Later on when the diesel [engines] came on they were a little less weighty and they had a little more power so they were able to by-pass this and come straight on up through here. They still had both [tracks] there for quite a while, but this [the loop in the photo] was their first entrance into the Tintic area. It came in from the east.

NC: [At another photograph] This is the Mammoth Mine in the next canyon over. They called this the Glory Hole up here, but actually there was a tunnel back in here and they had their hoist set up back here and then they'd come on up to the top. So these are just waterlines and air lines going up so it could drop down in the shaft to the rest of the mine. The mining operation was actually back in here. This is were where they brought the ore out, out of the drift, which came out of the shaft. They were hauling it down to the railroad here in wagons. Now on around the hill they had the Grand Central and they had an aerial tram that came off of the hill over there. We'll eventually get around to Mammoth when we're doing our road trip, and kind of see where they were; there's nothing left of them anymore. But the Mammoth Mine is still there, it is still operational. They do have some things going on over there. They're looking at having some development. One historical note, the Mammoth Mine owners donated all of the gold in the Gold Room at the state capital. I would imagine, looking at it now, I would imagine several million dollars worth of gold in that Gold Room. Very, very beautiful room. They donated it because the State of Utah didn't have enough money to pay to have it decorated quite the way they thought it should be decorated.

NC: [Another picture] This is a sinking bucket. When you were sinking a shaft you couldn't use the regular hoist bucket, so they would drop down into the bottom of the shaft and use shovels and fill it [the bucket] up and pull it back out. So this was a shaft-sinking crew here.

LB: Where your ancestors miners here?

NC: My grandfather was an assayer. [Pointing to another photo] I don't know whether you can get close enough to see what he [a miner] is doing there. This is the old type of drilling, before they were using compressed air. He's using the old jackhammer and a chisel. They're pounding down in there. He's putting on a demonstration as to how that's done. A lot of work. When miners got into fights, somebody got hurt because they were strong.

NC: [Moving to another photo] This is the Centennial Eureka, it was originally [called] the Blue Rock. They changed the name [of the mine] to the Centennial Eureka. This is on the south end, so this is looking north. This is Packard Peak over on this side. It was one of the Big Five of the mines in Eureka, one of the richest of the bunch.

NC: [Another picture] This is right across the street from where we are. We're right here right now [pointing] and this is the building that's just across the street from us, the old Miners' Union Hall. You can see the train used to come into the middle of the downtown area to deliver their goods to take off the new stuff. They actually had passenger trains that were coming from here that would go to Salt Lake every day. They'd go every morning from here to Salt Lake; every

evening they'd come from Salt Lake back into Eureka. They'd leave the trains parked here overnight.

Here Nick moves into another room at the museum and talks about two three-dimensional models of underground mining.

NC: This would be the bottom workings of a mine. This is just a real good cut-away of how mining actually worked underground. So this would be the drift going back in, you can see the ore cars, the mucking machine would be here. So this would be the area where they would be working. They'd come back up and you can see the little railroad tracks coming off of each of the levels. They did what they called square-set timbers, which was designed to hold the ground so it didn't cave in on them. Plus it was giving them an area for ore chutes, for getting back and forth, the tracks to come in. Normally you wouldn't have seen this right around the shaft, but this just [shows] as you moved away from the shaft these little trains would come on out. Right here where it would come in, it would go over to the shaft and load it on a hoist and come up. This is what we would call a head frame, and as it came up it went through some scrolls so it would tip the bucket over and dump it into this chute. Now depending on where you were, if you were near a railroad or whether you'd truck it out, or even use the old wagon, then you can see this little chute here; you'd either back your truck up here, sometimes there was a railroad that came across, or a wagon, whatever your mode of transportation was, you'd back it up here, crank that [chute] door open. It would load up the vehicle you were going to use. You shut it again and then go off. Meanwhile, they're constantly hoisting the ore out of the mine and dumping it in there with the bucket that comes up from the shaft. This shows you how it all works going all the way down. This was where you're working, this is how it gets up to the top. Air and water would be coming down this shaft also, so they could work their machinery down underground.

LB: And this was pneumatic machinery?

NC: Pneumatic machinery, except for the motors [small tractor-like engines that pulled ore cars] where they would transport the ore from the working area toward the shaft. They [motors] were electric but they were big battery electric. There were no electric lines going back into there.

LB: Was it forced air ventilation?

NC: Forced air ventilation. There'd be a great big fan up here and big tubes of air that could come down and go out to each of the working areas, and blow against the face of the working area. The miner was working where the air was blowing back into his face.

LB: The Tintic mining area produced what kind of minerals?

NC: It produced gold, silver, copper, lead and zinc. It depended on where you were. The most valuable of the ores was silver, galena, with lead and a lot of silver. There were some areas in the mine, the Tintic Standard, where they were going \$15,000 per ton of silver, which is almost unheard of. A lot of the ore in the area when they were first starting, 1869 and 1915-1920, when they started giving out of the really good stuff that was really easy to handle, most of [the mines]

were averaging about \$1500 a ton for the ore they were shipping. At a dollar an ounce, back when a dollar was a dollar, then that was 15,000 ounces of silver in a ton.

LB: How many people did the Eureka Hill Mine employ?

NC: The Eureka Hill Mine itself was employing three shifts of between 60-80 people most of the time, depending. There were ups and downs, 1903 was a depression, they'd go through ups and downs. But that was generally the average. Most of the bigger mines, that was about what they had, from 60 to 100 people per shift. Most of them were running three shifts a day. Most of them running seven days a week, 12 hours a day. Except for Jesse Knight, he wouldn't work on Sundays; [his mines] were considered "Sunday School" mines.

NC: [Picking up a model of a chute] This is another example showing a little bigger and a little better, more view, of what a square-set mining timber was like. These were called posts and then you have a cap across here, and a stringer going back. Each of the posts has just one square piece left in the top so you can stack one on top of another. You can see here where the square-set post, the top of the post is exposed here which leaves room to come out this way with a stringer or across this way with a cap. So each one these had their own special ways to go, but as you went up you had all the openings ready to go straight up. You go this way, you could go that way, you could come back this way, or you could to that way. Because it was hard rock and you followed the vein, the higher grade, you had to be ready to go whatever direction the ore took you. As they would work up they'd go over, out, around. Then as you were mining, you were mining up, dropping it down the chute which came out, this is a double chute, so you'd have a track coming across here that you would load with the ore. You'd just lift up the little chute here and it would drop the ore into the ore cart, close that [chute door], run that off to the shaft, hoist it to the surface, keep going. There'd be a crew doing nothing but tramping the ore, while the other people were mining it up here and dropping it down one of these two chutes. They were going in any direction the ore happened to be going, following it.

LB: Where did the timber come from?

NC: Most of this came from California. They'd load it on the rails in California, cut it to this specification in California, and ship it to Utah. Most places in Utah, we didn't have trees big enough to make that kind of timbers.

Nick now brings out some mining equipment from the museum collection.

NC: This is one of the old carbide lights used down in the mine. This one was equipped with a hanger so you could hang it up, see what you were doing. There was a little flame on this one. The carbide would be in here, then it would light. They were ok, but they weren't very bright. Nowadays a miner will use an electric battery with an electric light, hook it onto your helmet; where you looked it's light. So it makes it a lot easier to do your work underground.

From the Tintic Mining Museum we moved down the block to the old City Office and Fire Station, currently undergoing renovation. Upstairs were some mining items in temporary storage.

NC: [Demonstrating a hand-cranked hoist] Hard rock mining, I guess you could compare to looking for a needle in a haystack because you'd look all over these mountains to find one little piece of rock that looked a little different than anything else; something that indicated to you that there might be some metal in the area. Usually you were up in the mountains somewhere, where there was no electricity, no other way to get there except you'd hiked up. So they built a little frame like this to sink just a preliminary shaft out in the ground a little ways to see if you could come up with something. This would only be good for, maybe, 50 or 60 feet down, but you'd drop down there. Sometimes you'd have a couple of friends, you could have one on each side to crank up the dirt. Sometimes they'd work by themselves. They'd lower that [bucket] down, climb down a ladder and go down with a pick and shovel, fill this bucket up, come back up on the ladder, and crank this up, pull it over and dump it out over the side, lower the bucket back down, climb back down the ladder and do it again. You'd do that over and over and over. You can imagine it would take several months to dig even 30 or 40 feet down. What they were doing was looking at the rock, trying to figure out, "Is it here? Which way is it coming? Which way is the grain of the earth going?" They could follow that down and, hopefully, they could find something. A lot of the little mining holes that you see all over the mountain, this was all it was. They never found anything, so it's just a little hole up there where somebody was looking. But they didn't find that needle.

LB: Wasn't your grandfather an assayer? Where did he learn that?

NC: He went to the University of Utah and learned it. He didn't graduate, just learned enough to do assays. He came out here, had a job at one of the mines here.³ One day the boss came to him and said, "I need this to read just a little bit higher because they take an average between what we find and what the smelter finds, and we're always coming in just under what they are. So we need to have you read these just a little bit higher." And he [grandfather] says, "Well, if you're only going to guess about how much metal there is in the ore, you don't need me." So he turned around and walked off and set up his own business. What you essentially did when you were assaying, this is a [crucible] cup and you'd put some ore in here, put some chemicals in with it, then you'd put it in a furnace and heat it up to about 1750 degrees, to melt everything. There had to be so much silica in there, that would be glass when it got melted, then they'd dump it out into a little egg carton shaped thing [cast iron mold]. When it cooled the glass with all the impurities would come to the top. When it got cooled off, they could just tip it out of there and smack it with a hammer and all the glass shattered all over, and left just the metal. Then you would break that down by the different types of metal, whether it was copper, lead, zinc, gold, or silver. They would weigh those out and you knew how much ore you'd put in there, so then simple

³ He worked for Uncle Sam Consolidated Mining Company from 1904-1907 and 1909-1913, and for Knight Investment Co. from 1907-1909 ("Members," American Institute of Mining and Metallurgical Engineers, Monthly Bulletin No. 153, Sept 1919). In 1913 he and partners opened a cyanide mill at the May Day Mine near Knightsville ("Cyanide Plant is Now Ready," *Eureka Reporter*, 7/25/1913).

multiplication you could figure out how much ore there was per ton, or how much metal there was per ton.

From the City Office we drove down the highway (US-6) a short distance to the west end of town and a head frame that was once part of the Bullion Beck Mine.

NC: John Beck, they called him the crazy Dutchman, but he was actually a Deutschman. He was a convert to the LDS Church in Germany and he came over here and originally started the Eureka Hill Mine up here.⁴ Then he went on a [church] mission back in Germany and when he came back the mine was in litigation. So he went over here and started the Gemini on the other side.⁵ He went on another mission to Germany and came back and had all kinds of legal [trouble] again. The third time he came here and everybody told him, "You can't find ore in the bottom of the doggone draw. It's all up on the mountains." He proved them wrong. He hit another pretty good strike right here [Bullion Beck Mine].⁶ So they call him the crazy Dutchman because they didn't know the difference between Deutschland and Dutch. This area right in there was a Mormon community, more or less, and it was called Dutchtown back then.

NC: [Pointing across the highway] There was a house there. The guy lived over here later, but right here there was a house. The guy, I knew him really well. He had a daughter a year older than me and a daughter a year younger than me, and I talked to him about it. He says, "My weak bladder saved our lives." I said, "What do you mean?" and he says, "Well, every morning about 2 o'clock in the morning I'd get up and have to go outside to use the bathroom." He says, "I never turned on a light." They had an outhouse so, he says, "I wouldn't go clear to the outhouse because I was just going to pee, so I just walked right out there [to] stand by the backdoor and pee." He says, "I went to step into the kitchen and there was a step down. Just as I went to step into the kitchen, a cool breeze hit me in the face." He says this was May or June. "The windows aren't open, I don't know." He said he walked back and turned the light on in the dining room and said, "I looked and the kitchen wasn't there." He got the family out and they moved over next door and eventually the whole house fell into the 700 level of the Beck mine here. It kind of caved across this way, caved in right into here. They just had the fence around there for years [before the EPA reclaimed it and covered it with rock].⁷

⁴ Beck came to America in 1864 and to Eureka in 1871. He went on an LDS mission in 1887 and returned two years later. He died bankrupt (Pearl D. Wilson, *A History of Juab County*, Utah State Historical Society and the Juab County Commission, 1999, pg 107; "Luckiest Westerner Dies He Won and Lost Millions," *Salt Lake Tribune*, 4/3/1913). The Eureka Hill Mine had a shaft that was about 1,520 ft deep and accessed 15 levels running N-S. The lowest level in 1919 was 1,100 ft below the shaft collar and the mine had about 11 miles of development work (W. Lingren and G.F. Loughlin, *Geology and Ore Deposits of the Tintic Mining District, Utah*, US Geological Survey Professional Paper-107, 1919, pg 193).

⁵ The Gemini Mine had a shaft 1,650 ft deep and in 1919 accessed 16 levels. Level 14 connected with the Chief Mine; the Bullion Beck Mine was about 700 ft to the south of the shaft (W. Lingren and G.F. Loughlin, *Geology and Ore Deposits of the Tintic Mining District, Utah*, US Geological Survey Professional Paper-107, 1919, pg 186).

⁶ The Bullion Beck Mine is situated between the Gemini and Eureka Hill mines. The head frame by which Nick was standing was about 1,300 ft deep in 1919, with a winze at its bottom that reached another 200 ft into the mine. Underground workings that year were about 10 miles in length and some levels connected with the two adjoining mines (W. Lingren and G.F. Loughlin, *Geology and Ore Deposits of the Tintic Mining District, Utah*, US Geological Survey Professional Paper-107, 1919, pg 191).

⁷ A similar story was reported in 1922 in the Dutchtown section of Eureka, when Bert Carter was awakened by a noise and found part of his rented house hanging over a hole created by the collapse of underground workings of the Bullion Beck Mine ("Lives Endangered When Mine Workings Cave In," *Eureka Reporter* 7/21/1922).

LB: Does the town itself have tunnels, diggings underneath it?

NC: Yes, but they're so far down that it's not a problem. They're from 800 to 4,000 feet down. Everybody always says Eureka's going to fall into that mine shaft. No.

LB: Did Mr. Beck get bullion out of his mine?

NC: He did, a lot of bullion!⁸

LB: What was the high point of production here, what years?

NC: The highpoint of production would have been 1900-1920, [but] 1903 was a real slow time [a depression]. It hit the mining industry really hard because nobody was manufacturing anything. Without the manufacturing you didn't have call for the [metal].

NC: This was the Blue Rock originally, then they called it the Centennial Eureka.⁹ [Turning around and pointing to the hillsides] There were one, two, three, four, five [mines].

LB: The building that I see on the hill, is that the powder house?

NC: Powder magazine, yes. And then you can see this was a double hoist [pointing to the head frame].

Leaving the Bullion Beck on the west side of Eureka, we drove east on the highway (US-6) to Dividend Road and followed that loop back to town, making some stops along the way.

NC: This is the Tintic Standard Mine right here and the town was set up around in here. They were a little later coming in on this far, east side of Eureka. They hit pretty good ore.¹⁰ They were shipping some really good ore, making some money. The town got big enough that they decided they needed a post office.¹¹ When they applied to get a post office the Postal Service said no, they couldn't have the name Tintic Standard because it might get confused with Standard

⁸ Although actual values were not made public, geologists estimated that by 1919 the Bullion Beck had produced between \$13 and \$14 million dollars in ore (W. Lingren and G.F. Loughlin, Geology and Ore Deposits of the Tintic Mining District, Utah, US Geological Survey Professional Paper-107, 1919, pg 191).

⁹ In 1919 the mine shaft was 2,281 ft deep and accessed 20 levels. At 525 ft deep the Centennial Eureka shaft was intersected by a tunnel from Eureka Gulch (W. Lingren and G.F. Loughlin, Geology and Ore Deposits of the Tintic Mining District, Utah, US Geological Survey Professional Paper-107, 1919, pg 197).

¹⁰ The Tintic Standard Mining Company was organized in October 1907 and achieved worldwide prominence for the high volumes of rich silver ore produced between 1918-1949. Underground workings included 5,679 ft of shafts, about 30,000 ft of raises, and over 230,000 ft of lateral workings, making it the most extensively developed mine in the East Tintic District. By the time the company merged in 1973 with the Amax Copper Mines, Inc., it had acquired 162 patented claims, 68 unpatented claims, and controlling interest in several other mining companies in the Tintic mining area (H.T. Morris and T.S. Lovering, General Geology and Mines of the East Tintic Mining District, Utah and Juab Counties, Utah, US Geological Survey Professional Paper-1024, 1979, pg 171-172).

¹¹ Dividend was described as having 204 people in 1940, "a model mining town" with "modern stores, an ice plant, and community recreational facilities" (Writers' Program of the Works Progress Administration, Utah: A Guide to the State, Utah State Institute of Fine Arts, 1941, pg 411).

in Carbon County out of Price. So they made them take a vote of people in town here, what are they going to call their town? Dividend, because the mine was paying good dividends, so they named the town here Dividend and then they had the post office.¹² The two tanks up on the hill are water tanks. You needed water and air in order to drill so they pumped the water out of the mine, up into those tanks, so they had [gravity] pressure in their drills to drill the holes and set the dynamite off the blast. This was one of the very, very productive mines in the area, probably the most productive on the east side until Kennecott came in and started mining the Burgin, and they had a mine at the Trixie. Burgin was really, really high lead with silver, pretty good zinc, but no gold there. On up the hill there was some gold. This one [Tintic Standard] had gold and silver and lead and zinc, all four of those. It was a very, very productive mine. There were about 500 or 600 people that lived on these little hills around here. You can still see some of the foundations, some of the buildings and that. That was probably the post office, I think, right there. The mine bosses lived out in there. Cheaper houses are the ones we can just see the wood falling all over. The minimum [population] was 400 when it was operational and it got as high as 600 people. When I was telling you about helping my dad assay, we rented the assay office here at the Tintic Standard. I'd come over a couple of times a week after school and start on it; he was just doing it part-time then. He'd come over after he got off work and finish running everything. I never did get into it enough to be able to run the whole sample, but that's where we'd run the samples.

NC: [At a different mine] That would be the ore track. That's where you'd back the truck, dump truck, up under there. And there's an ore cart, a rail line came right underneath that, you'd back up and dump it right into the ore car.

Tour No. 2 -- Mines in the Eureka mining area, on the morning of June 11, 2014.

NC: This is the remains of the Jesse Knight School. Jesse Knight came into the area in the late 1800s, early 1900s. He was the first of the Mormon miners who came out this way. He didn't want to have the drinking and carousing going on in the mining camps, so as far as anybody knows this is the only mining camp in the United States that did not have a saloon.¹³ The miners were told that they couldn't drink; if they came to work drunk he'd fire them because he was tired of seeing the miners spend all their money down at the saloons in town, in Eureka, and neglecting their families. He said, "Your family comes first, go take care of your family, then if you want to go drink, fine. But if you come to work drunk, you're fired." These were called the Sunday school mines because of his relationship with the Mormon Church. The other mines in the area didn't really like him very much. [His] miners [didn't] work on Sunday and he was paying them more money than the others, so he was kind of stealing some of the best miners from the other mines. So they kind of formed a union against him; he couldn't get electricity, he

¹² The post office at Dividend was established on August 14, 1918. It closed on August 31, 1920 and mail was redirected to Eureka (John S. Gallagher, The Post Offices of Utah, The Depot, Burtonsville, MD, 1977, pg 59).

¹³ The mining community established in 1897 by Jesse Knight was known as Knightsville (John W. Van Cott, Utah Place Names, University of Utah Press, 1990, pg 215). Knight had arrived in the Tintic mining area in 1896 (Pearl D. Wilson, A History of Juab County, Utah State Historical Society and the Juab County Commission, 1999, pg 114).

couldn't get the railroad to come in, they [children of his miners] weren't allowed to go to school. So he built his own school up here, he ran his own railroad line across the top, he ran his own power and water system up here.

When he ran the school, he hired the first schoolmaster and they went for one year, and the second year [Knight] wanted to see if the county would hire the school teacher. They took a survey and there weren't enough kids here, it was close but not quite enough kids to make it where the county would pay for the schoolteacher. So [Knight] went over the hill to Dividend and hired the miner that had the most kids, he had eight kids, moved him up here, put him to work. The eight kids put them over the limit, and the county school decided they would hire the teacher. So from then on they hired the teacher. This was a very modern school, as far as schools went at the time. Most schools were just a one-room, clapboard room for the school teacher. This one was very modern, very up-to-date. It had steam heat with a coal furnace, very up-to-date. They used it [school building] for a city meeting hall, they had dances here, they had church meetings and all that kind of stuff.¹⁴

If we look over on this side, this is called Godiva Mountain. This is the mountain where Jesse Knight was sitting out here somewhere and he claimed to have had a spiritual moment, and he was told this area was to save the Mormon Church. So he went around the hill and started the Humbug a couple of years later, and then this is the Godiva, the Godiva drift, the Godiva shaft, and then the Uncle Sam is on the top. These were all mines owned by Jesse Knight. Jesse Knight became a millionaire many times over, and was able to donate money back to the Mormon Church because the Mormon Church was in dire need of some money. They had a meeting in 1906¹⁵ where President Wilford Woodruff called the leaders of the church together and needed some money because the loans [with] the banks in Boston were being called in. He didn't have enough money to make the payments. Jesse Knight's bishop went to him and said, "Can you help us out?" and [Knight] said, "How much to you need?" "We need \$10,000 relatively soon," and Jesse Knight wrote him out a check for \$10,000 and handed it to him. This really is where the Mormons were able to make some money. Because Brigham Young had established an agrarian society down here, everything was barter; there was no cash. But he had borrowed a lot of money, so to pay it back there was no cash. Other than the little bit of money they could get selling goods to the military that was in Fort Douglas and Camp Williams and out in Cedar Valley, there wasn't any other money coming in. This gave them the money they needed, so they could actually start paying off their debts. Jesse Knight made a contribution to Karl G. Maeser, who was a schoolteacher in Provo, and that allowed them to start Brigham Young University. So this is where the money came from to start Brigham Young University for what it is today.

LB: Over on the hillside is a wooden structure. What was that?

¹⁴ Eventually Knightsville boasted at least 65 homes, 2 boarding houses, post office, general and dry goods stores, livery stable, a church that was also used a school, and a brick schoolhouse. Residents paid taxes to Juab County until 1898 when a survey of the county line pinned Knightsville to Utah County instead. By 1907 the population was about 1,000 and by 1940 most residents had moved away and the mines were shut down (Pearl D. Wilson, A History of Juab County, Utah State Historical Society and the Juab County Commission, 1999, pg 114-115).

¹⁵ This meeting may have occurred in October 1896, and the check issued by Knight may have been a loan rather than an outright gift (Diane Mangum, "Jesse Knight and the Riches of Life," *Ensign*, October 1993).

NC: That was the chutes, like we saw in the museum. The shaft there, then it came up there were chutes that were coming down. The boxes [ore bins] to store it in, then it would shoot out so they could empty into the trucks, and then they could haul it on up. The railroad was up here. They could drop it into the trucks from there. It was on the surface of what we were seeing yesterday in the museum [referring to the models]. That was exactly the same type of structure as what we saw down there. That was the Godiva shaft. The one up on the right was the Godiva tunnel, and then over here was the Uncle Sam.

JM: [Referring to the school house] Where did the cement come from?

NC: I don't know. It had to have been expensive because nobody else was using that much cement on something like this. Especially, like I say, a schoolhouse. Schoolhouses were built out of clapboard.

LB: Most miners used concrete to mount their machinery.

NC: Yes. He [Jesse Knight] did too. There was a lime plant down here, but I'm not really sure [if it provided materials for the school].

LB: It looks like he had an architect to design this.

NC: Oh, it was a beautiful building. They have some pictures of it down there [in Eureka]. It wasn't two stories but it was tall, and it looked like it was made out of block or brick. I assume the Historical Society probably has that picture. It was a very nice looking structure. When they hit the ore, he brought the first wheelbarrow of the ore out, and he said, "This is the last day I will be working and taking another man's job." He did it without an extravagant lifestyle for himself. It [money] was there for the betterment of the people. That was the coal chute; there was a window and a chimney. This was where the stuff came out. This was the stairway over this way, you can see where it sloped down.

NC: [Walked to a point below the school] We're in the Knightsville area looking down into Eureka. In 1910, Eureka and Tintic District had a population of between 8,000 and 10,000, depending on who you're listening to. Right now there are 600 people living in this sleepy little community that's kind of kicking up its heels and coming to life, finally, I think. [There is] a lot of interest in history. People are coming by a lot to look at our museums and to try to understand what went on here in the late 1800s, early 1900s.

NC: [Further down the road] This is the Humbug, Jesse Knight's first operation. Originally he had a mine up on the hill that he named the Junebug. They did some operation, they found good stuff, and he sold that and went back to farming. He already had the bug for mining so he came back up here and there are three different stories, whether he brought his brother-in-law, some friends, or when he registered the claim, all of the stories say he showed them where it was and everybody replied, "Humbug! There's nothing there, it's on the wrong side of the mountain." So when he registered the claim and was asked "What's the name of the mine?" "Well, I guess we'll call it the Humbug." So whichever story you believe, which one actually said humbug, doesn't

really matter. Jesse Knight called it the Humbug and this was what put him on the map. He sunk a shaft here, ran a tunnel over there. The first thing with the tunnel, he got about 60 feet into there and they found some good ore. He brought a wheelbarrow out of the ore, when it daylight and he looked at it, he said, "This is the last day I'm going to work and take another man's job." And he went into just being the mine owner, hired people to do all of his work. So this was where it started. Right over there in the little gulch there was the drift. He sunk this down and that's where he started making his millions of dollars. The shaft went 1800 feet down, now it seems like it's caved off; its about 600 feet as far as we can tell right now. We haven't got anybody that'll go down there and check it out! I guess we'll just have to guess that it's about 600 feet deep now. It went down 1800 feet and then they ran a drift in from the bottom of the canyon here so they could run the ore out that direction. Made it a lot cheaper, rather than hoisting everything to the surface. Wasn't an uncommon thing to do. This is a steep hill so it didn't take a long drift to come in and meet the ore down at the bottom. There was water in these mines and so as they'd pump the water out, pump it up into [the water tank on the hill above the shaft]. It was good, clean water so they could drink the water, but it was mostly for running their drills. You had to have water and compressed air for the drill so putting it up here, that gave it the pressure for the drill. This was the head frame [pointing to a jumble of timbers]. They pushed the head frame over a couple of years ago to mitigate liability for it. It was so accessible that people were coming up here and climbing around on it and everything, and they were afraid somebody was going to fall off the head frame and then fall down the shaft, too. In the whole area you had gold, silver, copper, lead and zinc. In different ratios in different places, but overall lead with the silver was the moneymaker here. The hoist was right there and the dry house [where miners changed clothes] was across the road. This was the railroad that Jesse Knight built [the road we drove was the railroad grade]. This was the Jesse Knight railroad and he controlled, basically, all of the mining on this side of the hill.

We drove along the old railroad grade to a hillside above a working iron mine.

NC: This is the Dragon Mine that was originally opened in the early 1900s as an iron mine. Silver City is just right here, and the railroad came in and originally called that Ironton because of the iron they were shipping out of here.¹⁶ In the late 1940s, early 1950s, Filtrol Oil Company developed a method of using the clay, the white stuff, all in here for a filtration system for oil refining.¹⁷ So they stopped mining the iron and started mining the clay. They ran that clay until the late 1960s when they developed a synthetic method of doing the same thing. So they didn't need this anymore and the mine shut down. Right now they moil it out, they call it. They use a hand-held jackhammer and they dig it out; it is very soft. That's what they were hauling out of here [in a shuttle car we saw exit the mine]. They bring it over here and then they hand sort it. They have to hand-sort the iron from the clay. Now the development that they're doing, the research that they are doing, is to use the clay as an additive to medicines to make it a time-

¹⁶ This may be the Eureka Hill Railway Company line, built in 1907 as a narrow gauge to connect various mines in the Tintic District with the smelter at Silver City (formerly called Ironton), dominated by properties owned by Jesse Knight. Shay engines were used on the railroad (B.S. Butler, G.F. Loughlin, V.C. Heikes, et.al., *The Ore Deposits of Utah*, Professional Paper 111, US Geological Survey, 1920, pg. 120; Don Stack, "Railroads and Mining at Tintic," updated 2013 and viewed at UtahRails.net).

¹⁷ Filtrol Oil of Los Angeles, California, used halloysite clay from "the environs of Eureka, Utah" as a catalyst during refining of petroleum products (US Patent No. 2744056A, filed by William C. Offutt and Arthur C. Whitaker, 1952).

release. They mix it with the medicine, make your pill; part of it is made out of this really clean clay. It takes longer for it to digest in your digestive system so that makes it so it time releases the medicine into your system. That's their production right now is leaning toward selling this as a medicine additive. This is the only mine that was mining halloysite clay anywhere in the Americas. The only other mine was in France and they were using the clay to make china.

While we're here we can take a picture out across here. This is what is considered the west Tintic valley. It was actually granted to Sam Houston for his service in the Texas Rangers, then it was purchased by the McIntyre brothers, Sam and William. They were driving a herd of Texas longhorns from Texas to Salt Lake City and they stopped out here to fatten them up a little bit, because it was a nice green valley.¹⁸ While they were here the Chisholm [family] that had started the Mammoth Mine made a deal with them and traded the mine for part of the herd of cattle. They took the cattle on in and went into the cattle business. The McIntyres maintained the ranch out here, which is basically all of what you can see out there that is green, then they added to that the Mammoth Mine.¹⁹ So they are the ones who were able to donate all of the gold in the Gold Room [State Reception Room] at the state capitol. It was from the Mammoth Mine, we'll see it in a minute, but this is what started it all. They had their cattle out here and they traded them cattle for the Mammoth Mine. The biggest dump down there is the Sioux. They produced pretty good. The mountain behind it, we refer to it as Treasure Mountain because everybody was looking for their treasure on it. On over the hill in the next canyon over was Diamond. There were about 600 people living over there, there was some mining going on but nothing got really big. They made some money over there. They called it Diamond because the quartz out in the canyon up there looked like the poor man's diamond. They called it the poor man's diamond because they [quartz crystals] were so pretty and shiny. There is a really good spring over there, even today they're using it as a sheep run. It is really good-tasting water. It is a really good spring that continues all summer long, so they're able to run some sheep over there. This road going on up goes over the Silver Divide and goes on into Utah County that direction.

LB: Did any of these properties go to patent?

NC: Oh, yes. All of the big mines were patented.

We drove to a reclaimed area that was once a smelter.

NC: This is Jesse Knight's smelter, as we talked about on the other side of the mountain. The other mines around here kind of cut Jesse Knight out; they didn't really like him. They didn't like the "Sunday School mines," so in order for him to compete he came down here and built a smelter. There was already a smelter around the hill there, and there was another smelter on down the road here a ways. But this was Jesse Knight's smelter so he didn't have to pay the shipping on the railroads to get the raw ore to the smelters. He built this in 1906 and was smelting his own ore here. He'd ship it out and sell it himself.

¹⁸ The McIntyre family moved from Texas to Salt Lake City in 1853. In 1870, when he was 25 years old, Samuel McIntyre drove a herd of cattle from Texas to Salt Lake. By 1909 he owned a large ranch in the Tintic vicinity and was president of the Mammoth Mining Company (Sketches of the Inter-Mountain States 1847-1909, Utah, Idaho, Nevada, compiled and published by the Salt Lake Tribune, 1909, pg 135).

¹⁹ The Mammoth Mine had been found about 1870 and the trade to the McIntyre brothers took place in 1873 (Don Stack, "Railroads and Mining at Tintic," updated 2013 and viewed at UtahRails.net).

LB: So the remnants that we see, is that coal out there?

NC: That was the slag. That was the by-product that you threw away. A lot of that was moved over to here because it still had some gold in it. This is a heap leach. We've seen some of the mines over there, where they've dug out over around Knightsville, especially. You can see where there used to be a bigger mine dump there? They crushed that and brought it over here and then did a cyanide heap leach. So they ran cyanide through that, had sprinklers on it, to take the gold out. They were shipping six bars of gold per week at first, when they first started that up. This was in the 1980s. Just from the waste from all these piles.

Drove to the mouth of the canyon below the Mammoth Mine, traveling on the former alignment of US-6.

NC: The Mammoth Mine was right up at the top here, where the green roofs are. They called it the Glory Hole. The Mammoth Mine went in on a drift and then the hoist was inside of the mountain a ways. Then you'd drop down, 4200 ft down. This is the mine where all of the gold for the Gold Room in the state capitol came from, it was donated by the McIntyres, who were owners of the mine at the time. The next one over is the Grand Central, that was another one of the bigger mines in the area. The Grand Central ran an aerial tram from there down into here to run their ore in a train. Mammoth Mine never went to a tram; they always just used wagons. A steady stream of wagons coming down right into this area here where they would load it onto the railroad. These were two of the more prominent mines in this area, on the west side here.

LB: What was the function of the building on the hill up at the Mammoth?

NC: That building up there that was just a motor type room. It was where the ventilation and water would be stored up there so they could run it on down into the mine. They could drop it down that hole there and hit the shaft, and then they could go on down the shaft.

LB: The next one is kind of over the top of the school bus over there, is which?

NC: That's Grand Central. The Grand Central and the Mammoth were running as late as 1961, 1962. All of the mines in Eureka had closed down by 1953. They closed down the operations in 1953 and the Chief was the last one. They pulled the pumps in 1954, which means there was no going back because it allowed the place to flood. Then, of course, as the water got in there it'd start caving, so there was nothing to go back to. They pulled everything out.

[Pointing to west] Jesse Knight was involved in a lot of different things. That grain elevator out there [standing along side of SR-36, northwest of Tintic Junction], they were doing some dry land farming out here. They never really got enough to utilize the grain elevator. That was his other dream, was to raise grain out here and ship it by rail, the railroad right along side of it.

LB: We drove by that yesterday and were wondering why it was out there, although there is a lot of farm ground out there. They had a lot of acres tilled.

NC: They had a lot of acres out there but it never produced enough to even fill the grain elevator. The buildings down here, that's Tintic Junction. The service station and residences and stuff, used to be right here. When they moved Highway 6 [US-6] on up here, it eliminated the junction down there with [SR-36], then in order to get the business they had to move their whole business down there.

LB: And what is the little community here called?

NC: Mammoth. "One mammoth strike!" he says, the original miners when they were in there. [Speaking of today, Mammoth residents] haul their own water. Right now they're hauling it from down by the junction, but when we [Eureka town] finish the water project, they'll have to haul it from Eureka.