“The future belongs to everyone… to no one… to you… to the fellow down the street… to everyone… to no one… to destiny. Fare you well… this day has ended… what the future holds is known only by that power that brought the mountain down.” (Sumison, 151)

**Introduction**

In the spring of 1983, the small railroad town of Thistle, Utah was the subject of the costliest landslide ever recorded in U.S. history. At the time, the total cost of the slide amounted to over 200 million dollars. To put this into perspective, this cost, impressive on its own, would amount to over 425 million dollars in 2009 due to inflation.

While it only took a few days for the slide to work its way from start to finish, the effects were everlasting. The slide essentially brought the mining economies of the surrounding Carbon and Emery counties to a grinding halt. This was largely due to the fact that the Rio Grande Railroad and U.S. highway six, both of which ran directly through Thistle, had to be rerouted and rebuilt. (figure 1) This was by no means a quick process. Despite the large scale of these deficits, it is possible the biggest loss belonged to those residents who lost their homes, their memories, and the very ground in which they lived their lives upon.

**Thistle’s History**

The first train arrived at Thistle in 1875 and slowly, but surely, “Camp Thistle” became an important station for the Rio Grande Western Railroad on the route from Denver, Colorado to Ogden, Utah. While some of Thistle’s residents were ranchers, the majority lived in Thistle for the railroad and the many job opportunities it provided.
Unlike railroad tracks that hardly vary in slope, the town’s economy sharply rose and fell with the successes and failures of the Rio Grande. At the peak of Thistle’s productivity in 1917, the town had 600 occupants and there were over thirty homes in east Thistle, alone. The town boasted a post office, hotel, and even had its very own newspaper, The Thistle Midget.

While Thistle sometimes acted only as a temporary home for many passerby’s, there was a strong sense of tradition and family pride in which the permanent residents all shared. Five generations of the Pace family lived at the U-Pace-O Ranch located just east of Thistle. The Pace family was the first to permanently settle in Thistle, and one of the last to leave during the town’s final days. In 1852, at the age of ten, John A. L. Pace was on timber hunting expedition near Spanish Fork with his brother when he first stood on Billies Mountain and looked down into the valley which he christened “Little Paradise Valley”. In 1872, John Pace, twenty years older and a little wiser, was one of the first to build his home is Thistle, the land in which he had dreamed about for so long (Sumsion 98).

Unfortunately, time took an unyielding toll on the town. The residents of Thistle fought back against many hardships, but by the time the diesel locomotive replaced the steam engine and many of the jobs that went with it, the residents had little fight left. When the landslide hit in 1983, only fifty residents remained.

**Geologic Setting**

Thistle rests near the majorly eroded Charleston Nebo thrust plate. The plate was at one time buried beneath softer unstable formations. When these formations eroded and the plate became partially unearthed, detritus material accumulated and formed the Thistle earth flow.

A disaster of this magnitude cannot be attributed to one single factor or event. The Thistle Landslide was caused by a complex and timely chain of events which began with record breaking precipitation in the fall of 1982 (Figure1), followed by a heavy snow pack in the winter and warm spring
temperatures which inevitably lead to rapid melting (Milligan). The water soaked through a layer of heterogeneous mixture of clay stone, silt stone, and unconsolidated materials down to an impermeable slip plane. The water, which could no longer soak into the ground or evaporate fast enough, started to flow down the mountain carrying all of the unconsolidated material on top. The toe of the flow ran into Billies Mountain on the opposite side of the canyon, completely covering the Spanish Fork River which ran through the valley (Figure 2).

The Landslide

On Wednesday, April 13, 1983 the first signs of the slide began to show. Residents began to notice that the railroad track had moved a few inches off course. At the time, the only concern was to realign it in time for the next train. The following day, a highway patrolman driving by Thistle at 55 miles per hour struck a bump in the road and was thrown against the roof of his car. Caution signs were placed around the upheaval and the patrolman began to investigate. It was apparent by nightfall that the slide was only just beginning and U.S. Highway 6 was closed. April 14th, 1983 marks the day in which
the Utah County Commission declared disaster on what would be the most expensive landslide in U.S. history to date.

By Saturday, April 16th, just two days after the last train ran across the Thistle rails, the tracks were forever buried underneath the slide. The top speed of the slide was 3.5 miles per hour and it took just a few days for the earth flow to collide with Billie’s Mountain on the opposite side of the canyon. As a result, the Spanish Fork River, which ran through the canyon, was dammed forming a rapidly growing lake (Figure 3).

With the help of workers, the residents tried relentlessly to hold the water back until the home insurance packages they purchased the day the slide began came into effect. Other residents, who possessed the means, tried to find house movers to relocate their homes out of Thistle (131). Unfortunately, both parties were unsuccessful. The home insurance policies required a thirty day start-up period before the policy would go into effect and despite all efforts, no home movers were available.
Originally, construction crews tried to prevent water from building up behind the dam by cutting a channel through it. The slide, which was flowing downhill in an overriding movement, was also causing an upheaval movement onto Billie’s Mountain. The upward thrust became so strong that the equipment placed on the side of the river, while attempting to keep the river running, was actually being lifted up to the point that it could no longer reach the river to keep the water flowing (Breinholt). Despite multiple attempts to keep the channel open, the water was rising behind the dam at six inches per hour. Residents who did not leave in time were forced to sit on top of their houses, clinging to their possessions and waiting for rescue by boat (Figure 4). As one resident was being rescued, he pointed out his own boat, buried beneath the lake, to the rescuers. By April 17th, it was evident that a new plan to drain the lake must be made.

By the time the slide had reached its completion, it had a depth of over two hundred feet and had created a one-hundred fifty foot long lake that fully engulfed the town of Thistle (Milligan). On April 30, 1983 President Ronald Reagan declared the landslide at Thistle a major disaster and gave the go ahead for funding (Figure 5).

**Dealing with the Damage**

The mass movement led to massive expenses. While both the highway and railroad had to be relocated as quickly as possible, the most pressing issue was building an outlet for the dam. If the rising lake were to spill over the dam, the city of Spanish Fork would be flooded. (Breinholt) Work began almost immediately. The construction companies Morrison-Knudsen and Lowdermilk were hired to build the diversion tunnel which would lead water through Billie’s Mountain and back into the river on the other side of the dam. To do this the workers started digging through the other side of the mountain in which the water would run through and worked their way towards the lake (Figure 9). This was a complicated process because the workers were unable to simply build a straight tunnel through the solid
mountain without being flooded out. Before they reached the lake, they had to stop digging their current tunnel and start digging downward through the top of the mountain. They then began blowing away part of the mountain to the point in which water would flow into the tunnel on its own. To drain the lake before this process was completed, a temporary, make-shift tunnel by the name of “Halls Falls” was created at the top of the dam. (Figures 5 & 6) The tunnel, which was named after Lowdermilk’s general superintendent Coombs Hall, worked by tunneling out the water before it reached the crest of the dam. This could have been a possible permanent fix, but it was feared that the dam, which was made out of the same unconsolidated material as the slide, was not strong enough to support the lake (Figure 9).

![Figure 5: Govener Scott Matheson (L) with Coombs Hall (R). In the back, a camera man from CNN.](image1.jpg)

![Figure 6: "Hall's Falls", in all it's glory.](image2.jpg)

Morison-Knudsen and Lowdermilk were also in charge of making the new route for the railroad that went through Billie’s Mountain. While it may have seemed that simply taking the tracks over or around the mountain would have been the easiest fix, it was crucial that the railroad remain as level and straight as possible. The two railroad portals that were to run through the mountain had to be complete by July 15th. Although this deadline only allowed a little over two months, it was the only date the
railroad would accept. While Rio Grande claimed they were in fine shape financially, they lost an average of 1.5 million dollars every day that a train was unable to run from Denver to Ogden (Appendix B). Drilling for the railroad tunnels began on the morning of April 27th. To meet the impending deadline, drilling began on both sides of the mountain and construction ran around the clock (Figures 7 & 8). By July 3rd, the drills from each side broke through and the tunnels were holed through.

Figure 7: The opening of one of the railroad tunnels built through Billies Mountain.  
Figure 8: A Lowedermilk foreman deep inside Billies Mountain.

As if digging through a mountain to create 3 separate tunnels was not enough work, highway 6 was in desperate need of a new route. The slide hit the highway at the north side of the canyon and had essentially made the entire canyon highway useless. This was devastating to the economies of southern and eastern Utah who relied heavily on the highway to transport goods in and out of the area. The plans for the placement of the new, four-lane highway consisted of making a new 6.5 mile route that also had
to go through Billie’s mountain. Instead of making yet another tunnel, a large section at the top of
Billie’s mountain had to be removed (Figures 10).

    Much to the chagrin of the Rio Grande, the construction of the railroad tunnel was finished on
December 22, 1983. Five months after their goal. The new highway, which opened December, 30 1983,
drew a long line of fervent drivers who, after months of traveling an alternate five hour route around the
canyon, were ready to re-adopt the shorter, two hour drive (Fackrell,8B).

![Figure 9: An abandoned "Hall's Falls" (top right) sits above the current water tunnel (bottom left).](image)

![Figure 10: Billies Mountain. The line represents the portion of the mountain that was removed to create the new highway.](image)

**Thistle’s Future**

      Five generations after John Pace first looked upon “Little Paradise Valley”, Bob Pace and his
wife Shirley watched as their family’s 150 year old ranch was slowly swallowed by ‘Lake Thistle’.
While the couple had hopes of opening a museum of antiques in which they had spent their lives
collecting, their home fell to the same fate as their neighbor’s (Sumsion 99).
The residents of Thistle, although still in mourning, were eager to rebuild their lives. This was almost impossible. While FEMA provided all of Thistle’s residents with housing and some groceries for a year, many of the residents simply did not possess the means to buy or build homes. Because their homes had flooded before the thirty days had passed on their insurance policies, they received no monies. While the residents hoped for federal funding, the government took no responsibility in the flooding of the town and therefore provided no direct financial aid.

Fortunately, the Thistle Relief Fund was formed almost immediately after the slide began. The fund, which gained support from such names as FEMA, American Red Cross, LDS Welfare Services and the Utah Symphony, called for “Good Samaritans with a dollar or two to spare”. The goal was to reach $500,000 dollars. The idea was that if every citizen in Utah contributed just one dollar, the goal could be met. Donations raced in from across the state and many of them contained notes filled prayer and words of hope. While the 500,000 dollar goal was not met, the sum donated was more than appreciated by the homeless residents.

Years later, fifteen of Thistle’s residents filed a law suit again Rio Grande stating that the slide could have been prevented and that they deserved adequate compensation (Rayburn, 4B). The residents believed that Rio Grande knew what was coming and did nothing to prevent it or warn the residents. Their suit was unsuccessful.

In 1998, weather conditions at Thistle closely matched those of 1983 and another landslide occurred. While the landslide was much smaller and caused no real damage, it just proves how easily and frequently a landslide can occur (Figure 11).

**Conclusion**

While no one would fault the early settlers for the decision on the placement of the railroad and roadway during a time when convenience and ease were the main concern, and foreknowledge of a
landslide unimaginable, it cannot be afforded to happen again. The landslide at Thistle, Utah shows the importance of planning major road and railway routes. A mistake of this magnitude should not be allowed today, a time with an understanding of geological formations, scientific studies and current, ongoing information easily accessible.

The disaster itself was so large and felt by so many, that it seemed to overshadow those who were affected most. While physical impact can be measured, the emotional toll can only be speculated. The residents of Thistle, although few, shared in the task of forever carrying the considerable weight of their loss. This weight was not defined in millions of dollars, tons of debris, or hours of labor, but by a way of life, lost.

The Thistle Landslide can easily be seen on the side of highway 6 through Spanish Fork canyon. The slide, which for years was both an emotional and physical scar on the side of the road, is now covered in grass. To the untrained eye it would even be hard to recognize. But for those who know the story, Thistle will always be home.

Figure 11: The Thistle landslide as it looks today. This shot was taken in April of 2009. Towards the bottom, one of the two railroad tunnels is visible.
THE WHITE HOUSE
Washington
April 30, 1983

Dear Mr. Giuffrida:

I have determined that the damage in certain areas of the State of Utah, resulting from severe storms, landslides and flooding, beginning on or about April 12, 1983, is of sufficient severity and magnitude to warrant a major-disaster declaration under Public Law 93-288. I therefore declare that such a major disaster exists in the State of Utah.

In order to provide Federal assistance, you are hereby authorized to allocate, from funds available for these purposes, such amounts as you find necessary for Federal disaster assistance and administrative expenses. Consistent with the requirement that Federal assistance be supplemental, any Federal funds provided under PL 93-288 for Public Assistance will be limited to 75 percent of total eligible costs in the designated area.

Pursuant to Section 408(b) of PL 93-288, you are authorized to advance to the State its 25 percent share of the Individual and Family Grant Program, to be repaid to the United States by the State when it is able to do so.

Sincerely,

Ronald Reagan

The Honorable Louis O. Giuffrida
Director
Federal Emergency Management Agency
Washington, D.C. 20472

Appendix A
Workers drilling a 7,796-foot tunnel around the landslide that has buried a main railroad line between Denver and Salt Lake City.

Utah Slide Cuts Coal and Rail Operations

DENVER. May 4 — A landslide is a deep, new line town west of Salt Lake City that buried one of the main tracks, forcing a break in the line between Denver and Salt Lake City is causing substantial operating and financial disruption to the coal and railroad industries in Utah and Colorado.

The landslide, which began on April 15 and has not yet stopped, was caused by unusually heavy spring rains and snow. Because of the extreme damage to the railroad line, as well as to highways in the area, President Reagan at the request of Gov. John H. Matheson of Utah, declared that Utah county a federal disaster area April 20.

This slide is blocking a double-track main line between Denver and Salt Lake City and has reduced it to a single track long spur to Marysvale, Utah. Most of the track is owned by the Denver & Rio Grande Western Railroad, a subsidiary of Rio Grande Industries, a small section is owned by the Utah Railway, a unit of the Shaffer Steel Corporation.

Seven mines affected

Seven mines served by the Rio Grande and five mines served by the Utah Railway that were operating at the time of the slide are now closed. Mines owned by Easier Steel, Shears Steel and Atlantic Railroad are closed; others, including those owned by the Getty Oil Company, the California Portland Cement Company and the Quaker State Oil Company, are operating but not shipping coal.

Desmond Barker, a spokesman for the Utah Coal Operators Association, estimated that the blockage is costing the owners of the 12 mines at least $1.3 million a day in lost revenue.

"Most of the people who have Utah coal under contract have sufficient inventory to carry them over 60 days," Mr. Barker said. "If the railroad can't operate, the problem could become overwhelming.

"The bulk of Utah's coal industry is in two counties, Carbon and Emery, and they are heavily affected by the slide," Mr. Barker said. "Nearly 75% of the coal that moves out of Carbon and Emery County goes down that canyon. It is used in three areas: generating electricity in western states, making cement and exporting to the Pacific rim countries of Taiwan, Korea and Japan."

Losses are mounting for the Utah Railway and the Rio Grande as well.

that Rio Grande had laid off 1,000 workers in Utah and Colorado and that the Utah Railway had laid off 75 workers.

Peter Matthews, vice president of Shaver Steel, said the new line Denver & Rio Grande Western is sending 250,000 a day because it is unable to ship 1,000 tons of coal a day to its branch 10 miles east of the slide.

The blockage has prevented Rio Grande from moving shipments "many times that size" from nearby mines, according to Mr. Barker.

Some Rio Grande officials deny the company is facing financial hardship and say that it has insurance for damages and lost revenue.

However, other Rio Grande officials, company subcontractors and mining officials point to losses of financial losses in addition to the lost coal traffic. They include denen costs, as well as stabilization construction and trimming costs.

The lack of information provided by the Rio Grande officials makes it difficult to assess the effect of the landslide on the railroad, which produced 66 percent of the parent company's $120 million in revenues in 1983.

Coal shipments accounted for 46 percent of the railroad's 1983 revenues, but company officials refuse to discuss how much of that revenue has been lost as a result of the landslide. However, they said most of the railroad's coal is shipped eastward and it is unaffected by the slide.

Nevertheless, there are severe problems with the westbound traffic. For example, Harold Cash, Rio Grande's vice president of fuel traffic, said the company would pay to detour coal shipments from a United States Steel Corporation coal mine in western Colorado and a metallurgical coal preparation plant in eastern Utah to a U.S. Steel mill 36 miles south of Salt Lake City via Denver and Cheyenne. Mr. Cash said the Laramie detour was necessary to prevent the mine's permanent closure.

Rio Grande must also pay to deliver its "budge" traffic, that is, traffic that passes over the entire east-west mainline for destinations outside the system. This traffic accounts for more than half of Rio Grande's revenues, according to Larry Persons, chief transportation manager for Rio Grande.
Thistle Relief Fund

Box 1154, Provo, Utah 84602 — 873-3244

WANTED: Good Samaritans with a Dollar or two to Spare.

If the victims of the Thistle Disaster who lost their homes are ever going to recover some portion of what they lost, then you and I must come to their rescue as Good Samaritans. Just $1.00 from each family would raise the $500,000 needed to help alleviate the heart-breaking catastrophe that destroyed their homes, according to Vee Hull, public relations coordinator for the State-authorized Thistle Relief Fund. This fund will be used totally to help provide some of the Thistle victims with a home.

On Saturday, May 14, 1983 these victims of Utah’s declared National Disaster met at the Federal Disaster Field Office in Provo with an official of the State Commissioner of Public Safety and representatives of the American Red Cross, FEMA, and the Thistle Relief Fund. Many Citizens have felt that the Government would step in with similar aid as it had provided in Idaho’s Teton Dam Disaster. But that is not true. The difference was explained Saturday. The government has acknowledged responsibility for faulty construction of the Teton Dam. At Thistle, there was no government fault determined.

Lake Thistle, which desecrated their homes and their land, was caused by Mother Nature, who slid one of her mountains underneath a river bed and highway to raise a mighty dam across Spanish Fork Canyon and kill the tiny town of Thistle. She paid off Thistle’s former residents with only mud, water, and an almost hopeless trauma by destroying, for many of the residents, the only homes they ever knew. Considerable of these people are elderly on fixed retirement income, but they maintain an energetic pride, for some of them were born in Thistle and have lived there all of their lives. Thistle has indeed been home to them, and now Thistle is no more—swallowed up by an inland sea of terrible water. Like tiny match boxes their houses now float, water logged and swollen with the death of the town of Thistle.

Many generous friends, including their neighbors, the sheriff’s force, a blind man operating a radio for communication, heavy equipment operators, local government agencies, the American Red Cross, the Mormon Welfare system, and even Federal Government have provided TEMPORARY assistance. But for the first time last Saturday, the Thistle Disaster victims learned that all but possibly one family could not even qualify for the low-interest loans to rebuild.

Now, all the relief for which they can hope is a month-to-month rent for roofs over their heads for a total of one year. Through the Red Cross and The Church of Jesus Christ of Latter-day Saints, they will be supplied food and bare essentials. That is not enough recompense for losing one’s lifetime home. They have pride and have been hard workers all their lives. But they have nothing and don’t know where to turn. It’s now up to us to help them.

If you had been there to see these valiant men, women, and children help each other before helping themselves — packing dishes, and a lifetime of memorabilia of their downstream neighbors, then hurrying the few pets and chickens and livestock to high ground safety — there would be no question that you would want to emulate their remarkable valiance and love of neighbors.

The Thistle Relief Fund is strictly organized and operated on a voluntary basis without monetary compensation or even expenses by your friends and
neighbors. In these days of uncertainty, the plight of Thistle could well be one that could happen to you and me. Nothing can ever fully compensate for their loss — but you can help them with replacement houses.

Bob Pace is typically just one of the Thistle people who lost their homes. His 150-year old family ranch that survived the Wild West has been drowned by Thistle Lake. After moving to an old log cabin on higher ground on the side of the mountain above his devastated ranch, he set his 70-year-old jaw and said, "I'd rather live in this little old cabin here in America, where I have true freedom — than in any castle or estate elsewhere on the earth."

We must depend on you, neighbor, to help in time of need. These people are depending on you to send $1.00 if that is all you can spare, or maybe $2.00 or $5.00. Those of you who are able to send more will be blessed accordingly.

Some of the letters coming in now read like this, "Here is $10.00. I wish it was more, but I'm a widow on Social Security, but my sacrifice is less than theirs."

Please send your dollar bill or your check to:
THISTLE RELIEF FUND
Box 1154
Provo, Utah 84603

May the good Lord bless you for your help.

Sincerely,

Paul Hull

Paul Hull, Chairman, Thistle Relief Fund
Works Cited


Fackrell, Jerrie S. “Eager Travelers Line Up to Cruise Newly Reopened Road to Thistle.” The Deseret News 1 Jan. 1984: 8B


Sumsion, Oneita B. Thistle… Focus on Disaster. Utah: Art City Publishing Company. 1983
