

IRON ORE
IN
IRON COUNTY
UTAH

BY
G.D. MACDONALD III

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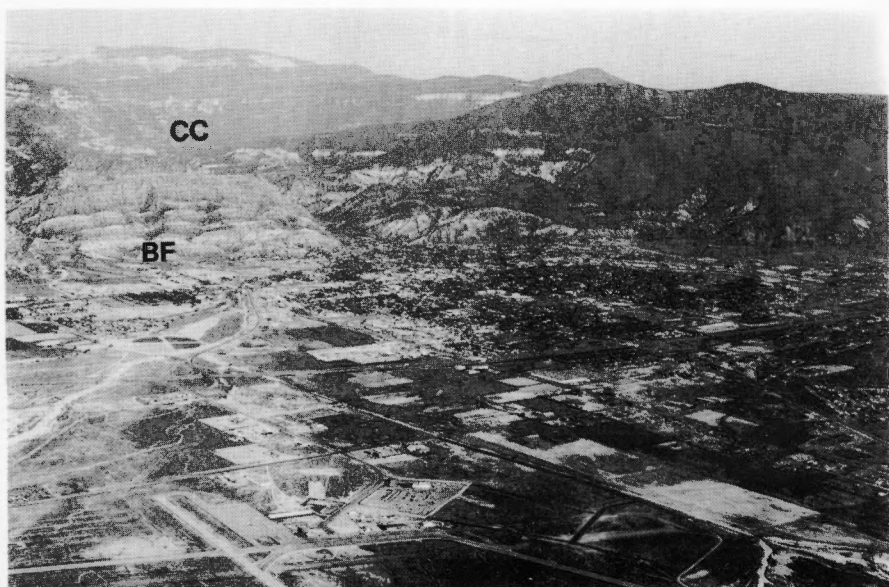
The Magnet

Iron Ore In Iron County, Utah

**CONTRIBUTIONS THE IRON ORE DEPOSITS
IN SOUTHERN UTAH HAVE MADE TOWARD THE
HISTORIC AND ECONOMIC DEVELOPMENT
IN THE WESTERN UNITED STATES.**

**BY
G.D. MACDONALD III**

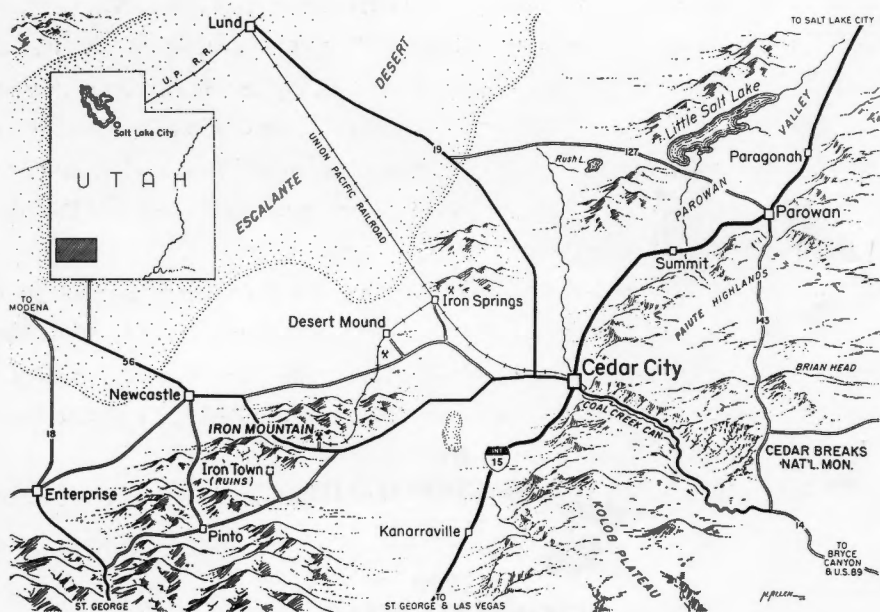
**© 1990
CEDAR CITY, UTAH**



CEDAR CITY, IRON COUNTY, UTAH
"HOME BASE FOR THE IRON MINES"

BF - SITE OF 1852 BLAST FURNACE

**CC - CEDAR CANYON, SOURCE OF COAL,
 LIMESTONE AND TIMBER FOR LUMBER AND FIREWOOD**



THE MAGNET

About The Author

Graham Duncan MacDonald III was born in Kanab, Kane County, Utah, March 25, 1915. After graduation from the Kanab High School he decided to try for a college education. This was during the depression years and he had no bank account. He would work a while and go to school until the cash was gone. It took seven years to earn a degree in Civil Engineering at the University of Utah, graduating with honors in 1939.

He began his mining career October 1, 1940 when he was hired as an engineer for the Columbia Iron Mining Company a U.S. Steel subsidiary. He was the twenty-first man on the payroll at the Iron Mountain mine which at that time was hidden in the cedar trees twenty-four miles west from Cedar City, Utah before zip codes.

He was promoted to Mine Engineer in 1944 and to Ore Mine Superintendent in 1945. At the time the Columbia Geneva Steel Division of U.S. Steel was formed December 1, 1952, he became General Superintendent-Iron Mines. He was very proudly suprised to receive an award from the University of Utah in June of 1958. The statement from President A. Ray Olpin reads as follows: "Mr. Graham D. MacDonald, as an alumnus of the class of 1939 of the University of Utah, and in recognition of your distinguished service as a mining engineer in all phases of open pit iron ore mining in southwestern Utah, and of outstanding attainments in management of the iron ore mining operations, The University of Utah is proud to confer upon you the Professional Degree of Mining Engineer." This was the fifth time this degree had been awarded.

As a result of an overall corporation reorganization and internal changes in the west he was named to the new position of General Superintendent-Western Ore operations, with headquarters at the Atlantic City Ore Mine in Wyoming, effective January 1, 1965. He held this position until retirement in 1971 at which time he returned to Cedar City to make his home.

While in Wyoming he was appointed to the Western Governor's Mining

Advisory Council in 1965 by Wyoming Governor Clifford P. Hansen and re-appointed in 1971 by Governor Stan Hathaway.

In Cedar City he was elected President of the Chamber of Commerce for two years 1957-58; was a District Chairman and Vice Chairman, Boy Scouts of America 1955-1956; was awarded Life Membership No. 14 in the Sons of the Utah Pioneers Association in 1950; elected to the office of City Councilman for Cedar City, Utah 1963; elected to the office of Iron County Commissioner in 1974; is a has been member of the B.P.O. Elks Lodge No. 1556, Cedar City Lions Club and Cedar City Rotary Club. He was awarded the Southern Utah State College Distinguished Service Award.

He is a Registered Professional Engineer in Utah, License Number 3718.

At the present time he is very retiring with his wife Mary at their home, 281 South 800 West, Cedar City, Utah.

THE MAGNET

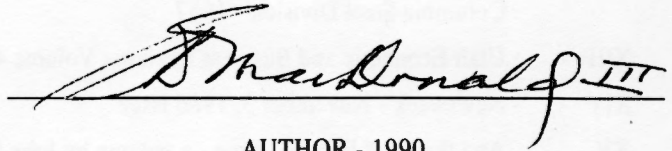
Preface

Much has been written about the iron ore deposits in Iron County, Utah, particularly glamorizing the early attempts to make commercial use of the iron ore. As a supplement the writer will attempt herein to summarize to date all situations and activities concerning this ore, working within the time frames covering various phases of history. Technical details of the many mining and processing procedures will be reduced to generalities.

Very few personal names will be used. It is not necessary nor hardly possible to recognize the hundreds of individuals involved in the discovery, development, mining and the use of the iron ore over a period of one hundred and thirty-eight years. Too often in history the wrong persons have been eulogized.

The writer has made use of countless written sources for material as well as personal experience gained while working for over thirty years for the United States Steel Corporation in iron ore mining and processing activities. During that time he associated with many leaders in the mining and steel producing industries throughout the United States and in other countries.

Summation opinions expressed in this work will be his own unless noted otherwise.

A handwritten signature in cursive script, reading "J. MacDonald III", is written over a horizontal line. The signature is fluid and stylized, with the "J" and "M" being particularly prominent.

AUTHOR - 1990

THE MAGNET

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THE MAGNET

Contents

I BEFORE 1883

Speculations on early historical development to when THE MAGNET started to attract some attention.

II QUIESCENCE 1883 -to- 1922

A dormant period after the pioneering attempts at manufacturing pig iron to the more permanent plans for a blast furnace in Utah.

III REVIVAL 1923 -to- 1942

The United States Steel Corporation becoming interested in the growing western steel market and planning an expanded steel manufacturing operation even through the 'Great Depression' of the 1930's.

IV EXPANSION 1943 -to- 1961

The hectic period occasioned by the Second World War; including the construction and use of the Government sponsored Geneva Steel Plant near Orem, Utah; the entrance of Utah Construction Company into the iron mining activities; and the Colorado Fuel and Iron Company shipping ore to their steel plant near Pueblo, Colorado.

V EXPIRATION 1962 -to- 1986

Mining activities winding down in Utah due to the demise of the National steel industry. It seemed THE MAGNET was losing its attraction.

VI RESURRECTION 1986 -to-

The surprise purchase and activation of the old Geneva Steel Plant by a group called Basic Manufacturing and Technology of Utah.

THE MAGNET

Chronology

DATES	SIGNIFICANT EVENTS
October 1776	The first record of Non-Indian travelers in the Iron County area.... The Spanish Explorers.
October 1849	The iron ore was first noticed and reported by Jefferson Hunt. Two months later it was also reported by Parley P. Pratt.
January 1851	The first white settlers in Iron County located on the Parowan site, a Mormon Mission from Salt Lake City, Utah. The following November part of the group moved on to where East Cedar City is now along the banks of Coal Creek.
1852	The first small blast furnace was erected along coal creek a short distance downstream from the mouth of Cedar Canyon. The first pig iron was smelted September 30, 1852. The entire operation was washed away by a flood after one year of trial, error and disappointment.
1855	A second, supposedly better furnace was built, and was declared a failure at the end of three years of frustration.
1868	The third attempt to make pig iron was on Pinto Creek, 25 miles to the west near the iron ore. The site was named Iron City, later changed to Old Iron Town. The operation struggled along for about five years, but declared themselves a failure in 1883.
1868	The Pinto Iron Mining District was formed encompassing all of Iron Mountain.
May 10, 1869	The Central Pacific and the Union Pacific railroads complete the transcontinental line at Promontory Point, on the north edge of the Great Salt Lake, in the now Boxelder County, Utah.
May 10, 1872	Date of the first Federal Law regulating mining property, particularly mining claims.

THE MAGNET

Chronology

<u>DATES</u>	<u>SIGNIFICANT EVENTS</u>
1874	The "Magnetic Mining District of Utah Territory" was formed encompassing the Granite Mountain and Three Peaks areas. This later became the Iron Springs Mining District.
January 4, 1896	Utah was admitted to the Union as the 45th State.
1922	The decision was made to construct a blast furnace in Utah by the Columbia Steel Company.
1923	The Union Pacific Railroad built a branch line from Lund, Utah to Cedar City, Utah through the Iron Springs Gap near the iron ore. A spur line was run to the first mine site on the Pioche Mining Claim.
1924	First iron ore shipped to the Columbia Steel's blast furnace at Ironton, Utah, just south of Provo.
1930	The Columbia Iron Mining Company was incorporated by the United States Steel Corporation in order to provide for its own mining company.
1935	Iron mining and processing facilities were built at Iron Mountain by the Columbia Iron Mining Company. The first ore was loaded and shipped to the Ironton blast furnace in April 1936 from the Blackhawk Ore Body.
January 1, 1941	On this date the following are names of the twenty-one man crew at the Iron Mountain Mine. They formed the nucleus of over 200 employees occasioned by World War II in 1942-3.
	Royce K. Night Mine Foreman
	O.D. Hole Chief Clerk-Accounting
	Clifford Knight Chief Chemist & Safety
	Carrol Brown Chemist-Watchman

THE MAGNET

Chronology

DATES

SIGNIFICANT EVENTS

Robert E. Loer	Surveyor
Albert E. Cane	Shovel Operator
Samuel W. Heyborne	Shovel Helper
Charles W. Heyborne	Truck Driver
Alex U. Hunter	Truck Driver
Lester N. Gower	Crushing Plant Operator
Edward Young	Pan Feeder Operator
Murray Harrison	Sampler
Melvin U. Hunter	Car Loader
Max W. Heyborne	Churn Driller
Karl Heyborne	Powderman
Kenneth Reese	Air Driller
Horace Miller	Air Driller
Roy Clothier	Blacksmith
Sherman Frazer	Welder-Mechanic
Lee H. Forsyth	Welder
G. D. MacDonald III.	Junion Engineer

All of these men lived in Cedar City except one from New Castle. The roads were narrow trails carved through the trees. There were no graders nor snow plows. At times one wished for a horse.

- 1942 The United States Government Defense Plant Corporation hired the United States Steel Corporation to build an integrated steel plant called Geneva, on the east shore of Utah Lake some eight miles north of Provo, Utah.
- 1943 The Utah Construction Company arrived at Iron Mountain under Contract with the Colorado Fuel and Iron Company to open up ore bodies for C.F.& I.
- 1944 Utah Construction built an iron ore processing and loading plant on the railroad in the Iron Springs Gap from which they shipped ore until 1981.

THE MAGNET

Chronology

DATES	SIGNIFICANT EVENTS
Sept. 3, 1945	V.J. Day... World War II ended abruptly and Geneva shut down. The plant remained idle until purchased by U.S. Steel June 16, 1946. From this time on the plant was operated until July 1, 1986 by U.S. Steel.
1951	Columbia Iron Mining Company built a crushing and loading plant called the Desert Mound Operation, on the southwest corner of Granite Mountain and began shipping 50% of their ore requirement from there until it closed in 1984.
1960	Authorization was given by the U.S. Steel Corp. to construct the taconite concentration plant in Wyoming. This plant began producing in 1962 and from then until it closed in 1984 it furnished about 50% of Geneva's ore requirement.
1963	Columbia Iron Mining Company was dissolved as a U.S. Steel subsidiary.
1981	The Colorado Fuel and Iron Company ceased shipping iron ore from their Utah property to their Colorado furnaces.
1983	U.S. Steel shut down their entire iron mining operations in Iron County, Utah thus ending a sixty year life about four miles from where it started in 1923.
1984	Utah International, formerly Utah Construction Company, closed down its mining operations in 1984 after a 41 year active life.
1984	U.S. Steel shut down and abandoned the taconite plant in Wyoming after 22 years operation.
1986	U.S. Steel shut down the Geneva Steel Plant in 1986 with no plans for re-opening.
1987	The Geneva Steel Plant was purchased and put back into operation by a group of local investors.

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The Magnet Before 1883

Where, when and how did the story of the iron ore in the now Southern Utah all start. Generally speaking the ore zone is located about 250 miles southwesterly from Salt Lake City, in the south central part of Iron County. The area could also be placed at the southern end of the Great Basin which would also be on the south shore line of the ancient Lake Bonneville. Iron ore deposits of a size and quality to be considered commercially attractive were, and still are, located in a belt some three miles wide and twenty three miles long. This zone starts at the north end of the Three Peaks area ten miles northwest from Cedar City, Utah, and extends southwesterly to the southwest side of Iron Mountain twenty-two miles or so from Cedar City. Other traces of iron deposits can be found northeast of the town of Paragonah toward the head of Little Creek Canyon and southwest to the Bull Valley-Cove Mountain district, ten miles south of Enterprise in Washington, County, Utah.

At one time, aeons ago, the ground surface in this area would be relatively level. If you were to put on a Geologist's hat, you might surmise that five to six hundred million years ago, sediments from all over the world were being washed into a lake or shallow sea, to form layers of different colored silt. The water dried up and the silt cemented itself into the variegated kinds of rock, remnants of which one can see today. Nature was not to be satisfied with this tranquil setting, so there occurred a massive disturbance in the depths of the earth, which in turn radically changed the earth's crust. The flat lands were warped, faulted, turned over and left in disarray. Mountains, valleys and river systems were formed. This change was being made by igneous masses of melted rock pushing from below somewhere toward the earth's surface. This intrusive material has been named a quartz monzonite. As this fluid material cooled it formed in bulges, domes and depressions which in the iron zone is called a lacolith. The country rock which was pushed upward and fractured would roughly conform to the shape of the top of the lacolith but surely left many cracks and voids. It was not until after exploration and actual mining of many ore bodies that the amazing picture was to be made available in this phenomenon which has been termed 'A mighty convulsion of nature originating in the molten center of the earth'.

Reliable opinions from the many who have studied the geology in and around the ore bodies seem to conclude that the iron ore exists largely where the intrusive

monzonite contacted a soft sedimentary limestone bed, say 250 feet thick. The iron rich emanations, either in the form of a liquid or gas, followed the perimeter of the monzonite upward into the limestone. In some places the limestone was dissolved and all or part of the limestone bed was replaced volume for volume with the iron bearing material. This process formed the ore bodies of various shapes and sizes over a wide area. It seems reasonable to assume that the iron deposit took place after the intrusive monzonite had cooled to a solid state, because after the ore bodies are opened up the picture reveals iron ore in cracks and fissures in the monzonite. This is also very evident in places where erosion has uncovered the top or sides of the lacolith. It is characteristic that the replacement ore is primarily a composition of hematite and magnetite iron, whereas the ore in the fissure deposits is usually a high grade magnetite. Occasionally the magnetized ore, lodestone, is encountered.

After this activity calmed down it is presumed the iron deposits were covered by a layer of rock formations, varying possibly from two to eight thousand feet in thickness. Some will say that this was only twenty thousand years ago. If so it would take most of that time for the erosion process to uncover the ore bodies and leave them as they were found in the 1850's. Three prominent parts of the monzonite lacolith were uncovered. They were later named Iron Mountain, Granite Mountain and Three Peaks. Take your pick of at least five peaks in that northern area. Iron ore was exposed on the tops and around the flanks of these three lacolith humps down to the floors of the surrounding valleys. Some of the ore bodies had been exposed, totally or partially eroded away, and then buried again with sediments. Fine iron particles can be found in the alluvium fifty miles to the northwest.

Again, it would be pure speculation to say how far back in time all this happened, or when the first two legged animal called human roamed this county. Put on your geologist's hat and join the group at Lehman Caves in Nevada. You will be told that the padding of moccasined feet in Nevada began as early as twenty thousand years ago. The sound of footsteps harmonized with the chirps of cricket and katydid. More likely, the bipeds were limping around barefooted with grass burs between their toes chasing the insects for something to eat.

The first record of human exploration in the general locale of Utah's iron ore appears in the journal of one Father Silvestre Velez de Escalante who was a member of a small group of Spanish Explorers trying to find their way from Santa Fe, New Mexico to Monterey, California. Thanks to the illuminating diary kept by Father

Escalante, and a historic map prepared for the King of Spain by one Capitan Don Bernardo Miera, there is detailed knowledge of the travels of this party of two Priests, three other Spaniards and five Spanish speaking Indians. Picking up a native guide and following the trails of early trappers, they crossed the Colorado River near Moab, worked northwest to where they could wade the Green River, turned west along the south side of the Uintah Mountains across a divide and reached Utah Lake. They became the first Europeans to enter the Great Basin. They apparently visited quite awhile with the good looking and friendly Indians before turning south from Utah Lake following a trail that was later the railroad route to California. Early winter caught them in the country that is now Milford Valley and after some discussion they reluctantly gave up their quest for a trail to California.

Rather than return home the same way they had come, they elected to look for a short cut back to Santa Fe. The trail followed took them over part of what was named the Escalante Desert, southeast into the North end of Cedar Valley stopping at an oasis that very likely was named by later visitors as Rush Lake. The following is taken from Escalante's writings dated October 12, 1776, and gives the first Iron County tourist's impression of Cedar Valley: "We named the valley and river after Senor San Jose... From north to south it is about twelve leagues... It is very rich in pasturage; it has large valleys and medium sized marshes and enough very good soil for a town of seasonal planting... Very near its course there is a great deal of timber, pinenut wood, and royal pine and several good sites for cattle and sheep ranches."

It is very interesting to note they must not have been near the iron ore outcrops or they surely would have been mentioned in their detailed records. Their route likely was along the toe of the mountain heading south through the later locations of Cedar City, Kanarra, Pintura, La Verkin and Hurricane before turning east. They eventually found after considerable wandering, a crossing of the Colorado River the Indians used and from there they easily wound their way back home which was probably neither a short cut in distance or time. This crossing was named the Ute-Navajo ford and later changed to the Crossing of the Fathers. The time spent by the Escalante party certainly was not wasted. They didn't find the entire road to Monterey but they blazed the most difficult part which was widely used from 1776 on.

Following Escalante's mule tracks, trade rapidly developed with the Indians far to the north and the northwest. By the 1780's there could be found a well traveled trail from the New Mexico colonies north to the Moab river crossing, west across the Green River and the San Rafael desert country, down Salina canyon to the

Sevier River. Sounds like an early day highway 70. The main trail followed the Sevier River southward almost to Panguitch then west over the mountains through any one of several passes into the Little Salt Lake Valley near Paragonah. From here the route would be from water hole to water hole such as, Enoch, Rush Lake, Iron Springs a favorite site, on southwest to Veyo, over the Beaver Dam Mountains to the Virgin River Mesquite area, on west to the Moapa River and Las Vegas and so on into California marking a way for much of the later Highway 15.

This route became known as 'The Old Spanish Trail' over which the first trade would be the movement of hundreds of horses, mules and Indian children stolen for sale as slaves. All or part of such merchandise would be for sale at either end of the trail. The story goes that a fat Indian boy might sell for one hundred dollars but a fat girl would bring three hundred.

The Fur Trappers made use of the trail in the 1820's and 1830's. Jedediah W. Smith would be among the earliest. In 1844 the "Pathfinder", John C. Fremont, guided by Kit Carson came into the Iron County area from California along the Old Spanish Trail. He systematically recorded the geography along his course all the way to Salt Lake.

The foregoing rambling accounts are mentioned to point out that during the first half of the nineteenth century there must have been hundreds and even thousands of people who traveled back and forth on this trail, camped at Iron Springs, but made no note of the shiny, black float pieces and outcrops of iron ore. There is evidence, shafts and tunnels, to indicate that prospectors had been on the lookout for minerals the full length of the trail. They located and mined gold, silver, copper, lead and so on, but the iron ore would be left dormant for a while yet.

Up to this point in time the Indian natives had wandered over the country always in the search of food. The trapper's time in the area was spent in exploiting both the native and what physical resources he was interested in. The trader was interested only in getting his goods to market. The reconnaissance man was content to explore but he did leave descriptive logs and charts of his travels. Among those who studied the explorer's charts were the Mormons who were looking for a home. The great basin appealed to them and the first wagon train of emigrants reached the Salt Lake Valley in July 1847.

In 1846 United States Military forces were hurried westward along what became the border line between Mexico and the United States. Their errand was to challenge Mexico for the ownership of the California territory. In this group was an

enlisted number of Mormons called the Mormon Battalion. They were present when Fremont and others completed tying California to the United States. With the job completed for the army The Battalion returned to Utah by way of the Spanish Trail, meeting Brigham Young and his colony when they reached Salt Lake Valley in 1847.

One of the battalion members, Captain Jefferson Hunt, reported his experiences to Brigham Young and was immediately dispatched back to San Bernadino, California to purchase property. Hunt returned to Utah in the spring of 1848 with a herd of cattle, followed by other members of the Battalion driving the first wagon ever over the Spanish Trail. From then on the trail became a highway. In the fall of 1849 this same Hunt was hired by a group of late coming gold seekers to lead them on to California. They reached Cedar Valley in late October where the following was recorded in Hunt's journal: "October 31, we traveled thirteen miles and camped on a stream called Little Muddy... Near this spring are immense quantities of rich iron ore." At last the iron had been discovered and THE MAGNET took effect.

The Mormons had a scheme for industrial development which involved sending out groups, or so called missions, in all directions. Each group was to implement a prescribed plan and to follow implicit instructions. As part of this program, in December of 1849, Parley P. Pratt led a group of fifty horsemen on an exploring expedition into parts of the southern Utah territory. He was looking for townsites and lands that would support colonies. From Salt Lake the group proceeded southeast along the Sevier River drainage, intersected the Spanish Trail at Salina, followed this route south and west into Little Salt Lake Valley on December 21, 1849. Pratt judged this spot, Paragonah to be suitable for fifty to one hundred families to settle. Part of the group continued on south, noting particularly the agriculture prospects in the Parowan area, thence on to a campsite in the large cottonwood trees on the banks of the Muddy (Coal Creek) in the center of Cedar Valley. Pratt made this comment after examining the valley. "On the southwestern borders of this valley are thousands of acres of cedar, consisting of an almost inexhaustible supply of fuel which makes excellent charcoal. In the center of these forests rises a hill of the richest iron ore." This was likely the same spot Hunt had noted two months earlier. Pratt went on to judge that "Water, soil, fuel, timber, and mineral wealth of this and Little Salt Lake Valley were capable of sustaining and employing 50,000 to 100,000 inhabitants, all of which would have these resources more conveniently situated

than any other settlements the company has seen west of the states.” This evaluation seems more than a little politically motivated, but does agree in part with comments made by Father Escalante 73 years previously.

After Pratt’s report on the iron ore to the church leaders, President Brigham Young declared, “Iron we must have, we cannot do without it!” He immediately initiated an “IRON MISSION” and a call went out for volunteers as was printed in the Deseret News, July 27, 1850. Among other things the ad specified; “That 50 or more good, effective men, with teams and wagons, provisions and clothing, are wanted for *one year*.” At the same time Parley P. Pratt sponsored the creation of Iron County in the legislature. Finally, and with posthaste, the iron ore had assumed some value to someone and “THE MAGNET” began working.

The mission of “Citizens of Iron County” was assembled and left Salt Lake about December 15, 1850 arriving on Center Creek, later Parowan on January 13, 1851. Until spring they were building a town they named Louisa, which was designed to be the Iron County Headquarters and a supply depot for California emigrants. After the 1851 harvest of the first farm crops planted, they began to make preparations to move on into Cedar Valley and actually start the Iron Mission. A special group of English, Welsh, Scotch and Irish emigrants who had some experience in mining and metal work in England were selected to begin this venture. They arrived at a site on Coal Creek called Cedar Fort, November 11, 1851, and were joined by another group, mainly farmers, a short time later. Here again in the middle of winter, their first interest was to build some protection against the weather and the semi-hostile Indians whose homeland was being invaded. During this winter they explored the country in detail, locating farm sites, coal, iron ore and wood for fuel. As a trial they smelted a small amount of iron ore with a blacksmith forge and bellows. The pig iron was used by a blacksmith from Parowan named Burr Frost to make enough nails to shoe one horse and to fashion a small pair of andirons for a fireplace. This experiment showed the ore could be melted, but of more import it revealed the local coal was not well suited for the fuel and the coke made from the coal was no better. This dictated that the smelting process would have to depend on charcoal made from the local timber. When the weather permitted the farmers began farming and the iron workers turned to building the facilities and collecting the material required to run the smelter or blast furnace.

They located the furnace site in the west side of Coal Creek close to water which is one of the most important needs in a furnace operation. The water-turned

water wheels which were geared to drive the shop machinery and the air bellows. Coal and limestone would come from the east in Cedar Canyon and iron ore from at least ten miles to the west near Iron Springs. The ore would need to be broken up at the source in order to load it manually in a wagon. One cubic foot, 12" x 12" x 12" chunk of the hard, dense, high grade magnetite ore would weigh over two hundred pounds. Building stone, homemade fire brick and fire clay were needed in the furnace construction. Considerable lumber had to be handsawed for buildings, and tons of wood and coal accumulated at the furnace site. This all would take hours, days and months of hard, brutal, manual labor. Finally, on September 29, 1852, the furnace was charged with ore, flux and fuel, fired and the air blast or draft was turned on.

The next morning September 30, 1852, the furnace was tapped and a small amount of molten metal ran out. This was loudly called success, and claimed to be the first pig iron production west of the Mississippi River. As soon as the metal had cooled a committee of five headed for Salt Lake on fast horses carrying pig iron samples to Brigham Young.

While this was going on, Mormon agents were sent to England to raise capital for the Iron Mission. They succeeded in raising four thousand pounds and organized the 'Deseret Iron Company' in Liverpool, April 28, 1852. The Iron Mission desperately needed help, so when an offer was made to buy them out, they agreed immediately and were absorbed by the Deseret Iron Company in November 1852. In so doing they pledged their souls to the company from then on. This was likely another first where foreign capital owned or controlled a mining operation in this country. In 1990 English, Canadians, Australians, and Japanese own several mines and connected facilities in the Western United States.

On September 30, 1853, a year to the day after the furnace was put in operation, a flood came down Coal Creek of sufficient size to wipe out the entire infant industry. During that year the furnace may have produced twenty tons of pig iron which could not have used fifty tons of ore.

The parts of the furnace installation that could be were salvaged, repaired, moved and erected at another location by 1855. Operations were very erratic, disappointing and definitely unsuccessful despite the many subsidies from outside as well as from the church. Some of the situations that contributed to the failure of this project might be:

1. The furnace was of a satisfactory design but the materials used in its con-

struction were not. The homemade fire brick could not stand up under the intense heat.

2. The water supply was entirely inadequate. Coal Creek would and did flood, freeze solid and dry up. There were too many of these complete and untimely interruptions.
3. The poor fuel supply was unbearably expensive.
4. The unknown chemical makeup of the raw materials, furnished an unsolvable puzzle for the furnace operators.
5. There appeared to be a combination of weak management and poorly trained workers, who had little chance nor time for improvement.
6. And always, real or imaginary, there was an ever present Indian hazard.

The Iron Pioneers were demoralized and discouraged. So when it appeared the so-called Johnston's Army of Federal Troops was going to invade Utah, it must have seemed a very opportune time to vacate the iron operation permanently. So ended a million dollar trial and failure in 1858. The population of Cedar Fort was reduced almost overnight from 928 to 376.

Paradoxically, there was no war with Johnston's Army, nor was there any great inconvenience. Instead the Army furnished a large amount of scrap iron at a cheap price which had the effect of removing that metal from the critical list.

The next attempt to use the iron ore reserves was made at Little Pinto Creek about three miles southwest of Iron Mountain and twenty-three miles west from Cedar City. This effort was made by the Great Western Iron Manufacturing Corporation formed by Ebenezer Hanks and others in 1868. In 1883, this group was absorbed by the Iron Manufacturing Company of Utah, and one year later in 1884 was reorganized into the Great Western Iron Mining and Manufacturing Company. These name changes involved efforts to get new and more money into the business.

During this interim, along Pinto Creek, there was established a fair sized settlement named Iron City, complete with shops, two story homes, a school, a post office and farms. The smelting furnace, at least three beehive coke ovens, and all other buildings required in the process were located down stream, to the north of townsite. Five years were required to build the facilities and assemble enough raw material to start the furnace. At one point a railroad was brought to the site from Pioche, Nevada, to be installed for hauling coal. But the coal was found to be not of coking quality and was very high in sulphur, a most undesirable element, which stopped construction of the railroad before it was ever started. Consequently the

SLB & M



three coke ovens needed to be operated continuously as charcoal ovens to provide all the fuel required. The wood for charcoal, the iron ore and the limestone had to be hauled from miles away by horse or ox drawn wagons, a slow, slow process. Never-the-less the furnace was fired in 1873 and proved capable of producing 2,400 pounds of pig iron daily. As fate would have it, the ore they selected from the west side of Iron Mountain would likely be quite high in sulphur and phosphorous, two elements they could well do without particularly in thin iron castings. Nonetheless there is reliable evidence to show they succeeded in making tons of cast iron products such as: stoves, grates for stoves and fireplaces, andirons, molasses rolls, pots and pans and even some parts for machinery used in the Nevada mines and the Silver Reef Mine south in Washington, County.

During the ten years of operation it was estimated some four hundred tons of pig iron was produced which would consume not more than a thousand tons of iron ore. Possibly due to the crudeness of the equipment, the excessively expensive raw material, an unreliable labor supply and the adverse elements, the venture failed financially and was permanently abandoned in 1883.

Far too much blame for the failure of the "Iron Mission" has so-far been attributed to an unreliable labor force. What should be expected from a group of poor, hungry immigrants from Europe who were exiled to the Iron Mission. They were paid no wages, and they experienced cold, hunger and harassment. The ones that could leave did. The ones that didn't leave, couldn't, because they had no place to go.

Probably the final deterrent to further efforts to make iron, was that by 1883, the transcontinental railroad was bringing in from the east all the iron and steel products needed in the territory, at a low price that could not possibly be matched by the local industry.

As it was, the iron mining and processing industry ceased to exist at this point, not to be resumed for over forty years.

The MAGNET had lost its pull, but the early, hardy, hard working pioneers had demonstrated that there was a potential for some future consideration.

Quiescence 1833 - to - 1922

Even though there was no mining activity during this period, several events took place that would affect mining property:

1. Much of Southern Utah was being surveyed by the United States Land Surveyors. These surveys were referenced to the Salt Lake Base and Meridian.
2. In 1868 the Pinto Iron Mining District was formed which encompassed ore bodies on and around Iron Mountain.
3. On May 10, 1872, the Congress of the United States approved an act designed to promote the development of the mineral resources of the United States.
4. In 1874 a district was formed called the "Magnetic Mining District of Utah Territory" at what is known as Iron Springs, Iron County, Utah Territory. This was later renamed the Iron Springs Mining District covering ore zones located on and around both Granite Mountain and the Three Peaks area.
5. It was intended that all claim locations should be referred to the appropriate mining district and tied to the applicable Section, Township and Range of the Federal Land Survey.

The new mining law of 1872 stipulated the proper steps to follow for claim locations, annual assessment work and patenting procedures. In this area the most common claim location was and still is called a lode claim, intended to cover one lot a maximum of 600 feet wide by 1,500 feet long. The lode claim was designed to cover vein type deposits, but on iron ore it was allowable to locate claims end to end and side by side in order to cover the entire orebody. Another type claim is the Placer Claim to be filed on alluvial deposits that may contain commercial amounts of a mineral. One person can file on a twenty acre lot or eight persons can file on one hundred sixty acres, intended to be a quarter section. A company can file claims and is treated as an individual. A most important feature of a claim location is a name. The law requires that annual assessment work be performed, typically one hundred dollars worth of work per claim per year. In the iron zones the earlier assessment work usually consisted of a vertical shaft dug toward the mineral or a drift dug into the ore. This type work indicated a responsible effort to prove there

may exist a commercially acceptable ore body. After the development of the cable drills and the core drills, they proved to be valuable tools for doing the required assessment work. When the Federal Mineral Inspector was satisfied the claim met the legal requirements, the claimant could file for a patent to the ground. The claim would be officially surveyed and in due time the claimant would receive title. Similar procedures were required to patent a placer claim. Patents to early homesteads included mineral as well as surface rights to the ground without filing mineral claims. Years later mineral rights were deleted from homestead patents.

Of a certainty all claims were not located properly. They might overlap, leave gaps or fractions not covered, be erroneously described, and be improperly staked on the ground. Fights, feuds and murders have resulted from disputes over valuable claims. Many of these problems had to be settled in the courts since the property could not legally be mined until a clear title was established. Often the original claimant would lose all or part of his rights through these legal maneuvers.

There must have been hundreds of prospectors who covered the mineral belt, which was about 23 miles wide by 70 miles long, usually on foot. They located claims of all kinds all over the country, very often without the help of any kind of surveying instrument. By 1880 there were only 23 claims on record in both the Pinto and Iron Springs mining Districts. By 1900 there was probably a hundred, and by 1922, fifty years after the mining law was enacted, there would be over one thousand patented and unpatented mining claims all over the mineral belt, most of which would be useless. The last flurry of activity would be the result of rumors of impending mining operations.

Last names of some of the early and seemingly more dedicated developers would be: Duncan, Milner, Cullen, Page, Campbell and Younger. Later some of the locals on the record were Smith, Jones, Murie, McGarry, Webster, Hunter and Nelson.

Of particular interest during this period, the Colorado Fuel and Iron Company had built an integral steel plant near Pueblo, Colorado. The company had good sources for all raw material needed except iron ore. In 1899 agents for the Colorado Fuel and Iron Company came into Southern Utah looking to supplement their iron ore reserves. They purchased, located and patented a large number of claims on the south and east sides of Iron Mountain and on the southwest and northeast sides of Granite Mountain. They even prospected iron ore showings northeast of Paragonah. This activity particularly from an iron and steel producer, sparked the new interest

in the Southern Utah ore deposits. This again illustrates that iron ore is just another rock until someone uses it to make pig iron or steel. It seems now THE MAGNET was beginning to work again.

In 1915, anticipating World War I needs, the Utah Iron Ore and Steel Corporation, later the Utah Steel Corporation, was formed to build a small steel plant in Midvale, Utah, a short distance south of Salt Lake City. By this time the Los Angeles Branch of the Union Pacific Railroad had been completed which made the iron ore in Iron County easily accessible if needed. The steel plant survived solely on Government contracts, so when the war ended, the contracts ended as did the steel plant.

During the 1870's and 1880's the National Steel Industry was practically all located east of Chicago near the massive coal deposits. The cast iron producers gradually added steel finishing processes to the blast furnaces which appeared to be the trend in future expansion. The bulk of the iron ore for the industry came from huge, high grade deposits around Lake Superior in Michigan and Minnesota. The owners of the ore property rapidly became wealthy from royalties on ore sales. Some of these people sent their agents to southern Utah to invest in iron ore reserves. They located and patented some claims, bought others and also purchased a number of old homesteads. Their purchases involved a large acreage in both the Pinto and Iron Springs Mining Districts. Last names of some of these investors are: McCahill, Savage, Sundean, Chute and Thompson which still appear on current maps and in claim records of the region. They haven't realized much from their investments to date, but some of their property contains fair sized ore bodies at depth with no sign of their existence on the ground surface.

While this was going on in Utah and in the steel industry expansion in the east, population was rapidly increasing on the west coast beginning with the influx of gold seekers in 1849. As always in a case like this there was a dire need for steel and iron tools and equipment. One source indicates the Californians began to build forges, foundries and small iron plants by reprocessing scrap iron into usable shapes and forms.

In 1868 they were manufacturing pig iron with iron ore from Clipper Gap near Auburn, California. Total production was reported as 14,635 tons.

A blast furnace built by the Oregon Iron Company at Oswego, Oregon made cast iron off and on, from August 1867 until 1894 with a total production of 93,404 tons.

The Puget Sound Iron Company operated a blast furnace at Irondale, Washington, spasmodically on a small scale until 1919, producing some 66,000 tons of pig iron.

During the latter part of this pig iron phase in California, steel production began in open hearth furnaces built near San Francisco in 1910, 1915, and 1917; at Pittsburg, California in 1910; and at Torrence, California in 1916.

It was however very evident that these developments could not keep pace with the unprecedented growth in demand for steel, and more steel. So these Westerners kept dreaming of and planning for a Western Steel Industry.

Revival 1922 - to - 1942

One of the leaders in this industrial growth in California was the Columbia Steel Company. Even though there were sources of iron ore from the Mexican border to Canada along the west coast, and considerable ore was available in Nevada, it appeared that the Columbia Steel Company was specifically interested in the Utah deposits of both iron ore and coal.

A comprehensive feasibility study was completed, called the "REPORT OF THE UTAH PROJECT OF THE COLUMBIA STEEL COMPANY" and delivered to the company Officers March 20, 1922. A quote from the report is as follows: "Investigation of this subject has shown the following: that there exists a body of coal and iron ore in Utah with the other raw materials necessary for the production of pig iron and that are available at a comparatively low cost and can be assembled at some point near Salt Lake at as low a figure as any other similar materials are assembled in other parts of the United States."

A free plant site would be provided three miles south of Provo, Utah where there was a lot of room, limestone located nearby, about equidistant from the coal and iron ore, and above all with an abundance of water. The feasibility report emphasized in the conclusions: "The whole operation seems to hinge on the facts that the Sunnyside District in Carbon County is the *only* district west of the Rocky Mountains that contains coking coal that can be mined at costs comparative to eastern coasts and with the possession of this body of coal we have optioned, I do not believe that we can have any serious local competition unless somebody buys the Utah Coal Company's properties or there is another body of coking coal discovered that can be produced at lower costs which does not seem very probable."

While the California interests were examining the Utah potential for a blast furnace, at least one Utah person was working toward the same end. In 1921 a Mr. L. F. Rains, President of the Carbon Fuel Company who owned coal property in the Price area, appeared in Iron County. He purchased and or located a group of claims on the north side of Granite mountain.

It now seems it was no coincidence that Mr. Rains and other Utah men went to California to meet with officers of the Columbia Steel Company. Apparently all readily agreed that Utah was indeed THE PLACE for the furnace which was the

reasonable thing to do since it would be wiser to ship one ton of pig iron to the coast rather than ship some four tons of raw material per ton of pig iron to a furnace in California.

THE MAGNET in Iron County was exerting some pull. But it is also evident the presence of coking coal in Utah was the overriding factor in selecting the furnace site.

As a result of this meeting the Columbia Steel Company became the Columbia Steel Corporation that would merge the existing California facilities with the Utah properties proposed to be constructed and purchased which would include the Rains



*Columbia Steel Corporation
Pioche-Vermillion Ore Body 1924-1926*

raw materials. While the blast furnace was being built at a site named Ironton, south of Provo; while the coal mines were being made ready in Carbon County; and while an iron mine was being opened in Iron County; another event of much import was taking place. The Union Pacific Railroad had decided to build a branch line from their main line at Lund, Utah, southeast through the Iron Springs Gap into Cedar City during the year 1923. One million and forty-nine thousand dollars brought the railroad tracks to Cedar City in less than three months. A large crowd gathered to witness the arrival of the first train on June 27, 1923 carrying President Warren G. Harding and the First Lady of the United States in the Parlor Car. Riding the cow catcher was Dave Bulloch, who as boy of seven had ridden into Cedar Valley on the running gears of a wagon in November 1851.

A mine site had been selected and a small mining town was being constructed near the Pioche Mining Claim about a mile south of the railroad track in the Iron Springs Gap. A branch line was constructed to this mine site in 1923, and under the name of the Milner Spur was extended to some large ore outcrops four miles to the south. There, high grade flux ore was available which was in demand in the non-ferrous smelters all over the west.

By April 1924 the coal and iron mines were shipping material into the Ironton Plant. The blast furnace and coke ovens were ready to operate, so on April 30, 1924 the furnace was charged, blown in and three days later, 150 tons of pig iron was on its way to the Pacific Coast. This completed a cycle that made possible the resumption of iron mining in Iron County that had been idle for some forty years.

The Columbia Steel Corporation mined its own ore from 1924 to 1926 on the Pioche and Vermillion ore bodies. Ore bodies were usually named after the claims they were located on. The mining system was composed of a drift, or tunnel, driven under the ore body; then a series of raises, or shafts, were dug to the surface. At the top of these shafts a heavy grid or screen was installed, covering the shaft opening. The ore was broken up by blasting and then conveyed over the grids by means of heavy draft horse teams pulling some kind of scraper. It would not be hard to imagine what damage the hard, sharp ore fragments would do to a horse's feet and legs. The ore passing the screen would fall down through the raises into small mine cars on a narrow gauge rail system. These cars were moved to the outside of the mine to the crushing and screening plant where the sized ore was loaded into U.P.R.R. cars and shipped to Ironton. This system was slow, inefficient, expensive and anything else that made it completely unsatisfactory in handling the heavy

abrasive ore. It also happened the chemistry of the ore was not what they wanted or needed at the blast furnace. The Pioche mine was shut down in July 1926, and the plant completely dismantled.

Knowing they needed a change in the iron ore supply, in May 1925 the Columbia Steel Corporation entered into a contract with the Utah Iron Ore Corporation for the mining, crushing and screening of iron ore from the Desert Mound area. The Utah Iron Ore Corporation was formed by one Archibald Milner and Brothers of Salt Lake City for the purpose of mining this ore from their own property, shipments to commence in July 1926.

The mining contract with the Columbia Steel Corporation required 1,500,000 tons of ore to be furnished the Ironton Plant at a minimum rate of 500 tons per day, which equates to a little over an eight-year supply for the Ironton furnace.

They also mined some ore for the Colorado Fuel and Iron Corporation from two claims C.F.&I. owned in the area, the Desert Mound and the Tarantula.



UTAH IRON ORE CORPORATION
"DESERT MOUND MINE 1926 - 1936"

Mining was carried out by open pit methods. Churn drills or wagon drills were used to drill blast holes to the appropriate depth, loaded with an explosive and blasted. Small ore cars on a narrow guage rail system were loaded by a small steam shovel, and transported to the processing plant, crushed, screened and shipped to Ironton. As mining progressed deeper, the grade became too steep for the rail haul.

Dump trucks replaced the rail haul and purportedly became the first ever truck-shovel operation in an Iron Mine. These were International Trucks purchased from the Clarence Miller Agency in Cedar City.

By 1933, mining was restricted to a small area and the waste material to move per ton of ore was becoming excessively expensive, which hastened the day when the mine would be out of production.

In the interim the following property transactions were implemented. In 1930 the United States Steel Corporation acquired the Columbia Steel Corporation properties in California and Utah and formed the Columbia Steel Company to operate the steel producing components.

The Columbia Steel Corporation had in turn conveyed iron ore properties to a Theodore B. Morgan who conveyed them to the United States Products Company on January 31, 1930. The United States Products Company conveyed mining claims, properties and options to the Columbia Iron Mining Company when it was incorporated in June 1930. Obviously this move was made by the U.S. Steel Corporation to set up its own mining operations. So in 1935 the Columbia Iron Mining Company went into the mining business and continued operating under that name for the ensuing thirty plus years.

Mining claims were acquired around the circumference of Iron Mountain in the most favorable available locations. Detailed exploration and development programs were initiated comprised of drill holes to get good representative samples and magnetic surveys to outline possible ore bodies. A magnetic survey is conducted with an instrument that measures the magnetic attraction of the material immediately beneath the instrument. Iron ore would usually give a much higher reading than the country rock. A considerable group of high readings almost always indicated there was an ore body down there somewhere.

The most refined versions of these instruments were called magnetometers. The earlier application was called the Dip Needle which was used by some of the early prospectors when locating their iron claims. It is interesting to note how very few good ore prospects they missed.

Continuing the exploration program, the areas of high magnetic intensity were drilled to verify the size and shape of an ore body if it was there. All types of drills were used in this work and the most effective proved to be the core drill which cuts a solid cylindrical section of the material drilled. Such a drill core provides a very reliable sample for both visual and chemical analysis. This type program is basic in

preparing both current and long range operating plans, to know where the ore is, how much there is, what kind there is, how accessible it is and is it worth going after.

During 1935 and early 1936 the railroad extension was completed to the south side of Iron Mountain about in the center of some of the largest ore deposits in the district. The U.S. Steel plant site was located just south of the North Quarter Corner of Section 2, T-37-S, R-14-W, S.L.B.&M. near a good ore deposit outcropping on the Black Hawk Mine claim, at an elevation of near 6,500 feet. As the crow flies this would be about twenty-three miles southwest of Cedar City and only three miles from where the earlier miners had built Old Irontown, also known to some as Iron City in the 1870's.

The following is a quote from a talk given before the Provo Rotary Club by Mr. C. T. Keigley, General Manager of the Columbia Steel Company and the Columbia Iron Mining Company: "...This coming week the Company will start mining its own ore for the first time since its inception." Mr. Keigley said, referring to the Iron Mountain development. "Columbia Steel has been willing to take this big step even though we are not yet out of the depression." Other developments included the enlargement of the coke plant at Ironton and doubling the activity at the coal mines. "Utah has one of the largest undeveloped coal reserves in the world," said Mr. Keigley, "But only a small portion of the supply now in sight is good coking coal."

So when the Blackhawk ore body was opened for mining in April 1936, the tired, exploited ore body at Desert Mound was ready to shut down. It had completed the contract with the Ironton Furnace between 1925 and 1936 and the operation was left in a completely abandoned state. This marked the end of the Utah Iron Ore Corporation as such, but the Milner Family who had formed the corporation regrouped as the Milner Corporation, managing their large ore reserves for many years, deriving considerable income from ore leases.

There is a very close relationship existing between the iron mine and the blast furnace operations. The owners of the industry decide how much pig iron should be produced by a given furnace. For instance the Ironton Furnace was to make 300 tons of hot metal per day which would require about 600 tons of iron ore per day if the ore contained at least 50% iron. If the furnace could produce and sell all the pig with the required chemical make-up the company would likely be a profitable business. The quality of the raw materials, both ore and coal is the big 'IF'. Elements other than iron ore have an effect in the furnace such as silica and alumina,

acidic portions; lime and magnesia, basic parts; and other non-ferrous elements such as sulphur and phosphorus.

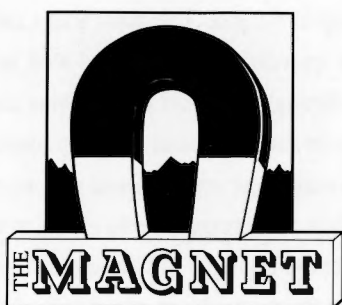
As a general practice the furnaces were operated with a chemically neutral or slightly basic slag to help minimize wear and corrosion on the furnace lining. Thus if the percentage total of the silica and alumina is greater than the total of the lime and magnesia in the ore, more limestone is added as a flux to the charge to achieve the desired balance. Accordingly, as more flux is added to the mix the effect is to reduce the percent iron in the total burden which in turn results in less iron produced per day and at a higher cost. Excessive amounts of sulphur and phosphorus present special problems that also adversely affect production.

Simply put, the function of the blast furnace is merely to separate the iron from the rock, called gangue. This is accomplished by loading, or charging, the furnace cavity with alternating layers of iron ore, coke and flux. The coke is fired and a heavy wind draft is applied which will melt the entire mass, sometimes called mess. The molten iron being the heaviest will settle to the bottom where it is drawn off through prepared openings. The remaining molten material is drawn off as dross or slag. If efficiently operated the cycles are continuous. If high cost conditions persist due to unsatisfactory iron ore the blast furnace will get a new miner, a new mine or go out of business..

The new mine at Iron Mountain was equipped with the first in the area electrically powered shovel, an electric powered churn drill equipped to drill 9" blast holes, and two special built Mack trucks rated for a 24 ton load. The trucks were easily and continually overloaded. There was a rash of broken frames and hoists. These were reinforced until the trucks were hauling thirty or more tons per load. This was a big load in 1936.

The shovel was the first piece of equipment to reach the mine by railroad. It served in road building, site preparation and as a crane in the erection of all the mine buildings. When the shovel started loading the iron ore the dipper teeth wore out in about a third the time expected; the dipper sticks kept breaking into two pieces; the electric motors and generators on the shovel were continually overloaded, overheated and shorted out; and the power cable, a large extension cord was often pulled apart or cut by a tractor running over it. Both the operators and the manufacturers soon found a much more rugged piece of equipment was needed in an iron ore mine than was used in a gravel pit.

As soon as the first ore was processed through the crushing plant it was evident



OPEN PIT MINE AT IRON MOUNTAIN, SHOWING SHOVEL AND BLAST HOLE DRILL

the equipment was not up to the job. The plant was a carbon copy of the plants used in the eastern limestone quarries where they did well in the soft stone. But the iron ore chunks soon wore through the steel chutes, bins and crusher wear plates. The rubber conveyor belts were cut to ribbons by sharp pieces of ore. The belts were too narrow and too slow to match the crushers and as a result spilled more ore over the sides than went up the belt. The screens were much, much too light. Broken frames and drive shafts were commonplace. All in all the operators learned the 'HARD IRON' way but eventually worked out good specifications for equipment most adaptable to iron ore handling, often at a cost.

The Black Hawk ore was a hard dense magnetite, higher in iron content than other available ore and was selected purposely to give the best possible material to the struggling blast furnace. As a result furnace performance improved and business increased. Most of the pig iron was shipped to the Columbia Steel Company's steel producing plants on the west coast. However, there was a small local market developing such as the Pacific States Cast Iron Pipe Company which was built next door to the Ironton Blast furnace in 1926, and which plant has been making cast iron pipe from that day to this.

From 1936 to 1942 mining was concentrated in the Black Hawk Ore Body while the annual requirement at the furnace was gradually increasing from 175,000 tons per year to near 300,000 tons. By 1941 the mine was showing the effects of high grading. The pit was too narrow; the required stripping had not been done; and the ore available was not high grade. There were barren rock contacts on the two outsides of the pit where there is a strata of low grade ore. The mining face might be 150 feet long, and the ore might vary from 60% iron to less than 40% in that length. Under such a condition the mine attempts to mix highs and lows in order to effect a fairly uniform mix. This mix is seldom attained which adversely affects furnace production and approaches a near impossible situation until other sources of ore are made available. In these types of ore bodies the mine should have two or more shovels operating in different ore bodies in order to more efficiently blend the different types of iron ore. If one takes only the best, or high grades, before long the best will be low grade and unacceptable.

The mining face in front of the shovel was from 50 to 60 feet in height, which was much too high to get good fragmentation in blasting. This resulted in large boulders the shovel couldn't handle and which had to be drilled and blasted again.

This slowed down the operation as well as creating safety hazards to both men

and equipment. The height of the mining face was gradually reduced to 35 feet and much better results were attained. More time was needed in stripping activities to remove the surface and side stripping material in the Black Hawk Ore, but more especially it seemed prudent to open up another mining area. It was obvious more shovel and truck capacity was needed which the parent company claimed could not be afforded at this time. It appeared this was to be the situation all during the life of the Columbia Iron Mining Company, which possibly was the smallest, most remote and the least significant subsidiary of the United States Steel Corporation with the corresponding priority. Seemingly the blast furnace had to get in difficulty from lack of good ore which was there in the ground but could not be reached due to lack of equipment. The furnace had to justify the expense before relief was forthcoming. Consequently advance development work was usually a day late and two dollars short.

Revival 1943 - to - 1962

It is almost ironic that the occurrence of the Pearl Harbor fiasco December 7, 1941 and the Second World War should have such a sudden and profound effect on a few iron miners at a small mine in Southern Utah. The world conflict initiated a sudden boom in the ship building industry on the west coast with a frantic demand for steel. Fears that the Panama Canal could be closed cutting off steel supplies from the eastern mills, prompted the decision to build a completely integrated steel plant in the west. Again the availability of raw materials and labor led to the location of this modern facility in Utah County on the edge of Utah Lake some eight miles north of Provo. It is evident that the Federal Government knew trouble was imminent because the Reconstruction Finance Corporation announced in November 1941, before Pearl Harbor, that the plant would be built and operated by the Columbia Steel Company as agent for the Defense Plant Corporation. The plant was complete by 1944 at a cost of over \$200,000,000.00.

This event of course, created a crisis at the iron mine. The Defense Plant Corporation funded the necessary expansion in equipment and facilities required to



IRON MOUNTAIN AREA 1945

meet a 700% increase in iron ore needed by the time the new plant was ready to operate. Existing mining equipment and all new shovels, trucks and drills as they were received were put to work on a multiple shift basis to perform required road building, stripping, development drilling and all other work required to open two new mining areas named the Pinto and Burke ore bodies. The mines were quite ready by the end of 1943 and the number of employees had increased from twenty-one in 1940 to over two hundred in 1944. While this was going on, a second blast furnace was relocated from Joliet, Illinois to Utah and installed next to the Ironton Furnace where it operated off and on until October 20, 1960. At one time after Geneva was operating in 1944, there would be five blast furnaces and ten open hearths, making pig iron, steel, smoke and pollution as well as paying high wages to several thousand people.

Another first occurred at the Iron Mines in 1943. The United Steelworkers of America, the labor union representing the National Steel Industry, sent their representatives down from the Ironton Plant to induct the small group of wage employees into the Union. This event was characterized as an unnecessary blood transfusion.

Early in 1943 the Utah Construction Company appeared on the scene directly south across the railroad tracks from the Columbia Iron Mining Company operations at Iron Mountain. The Colorado Fuel and Iron Corporation had contracted the

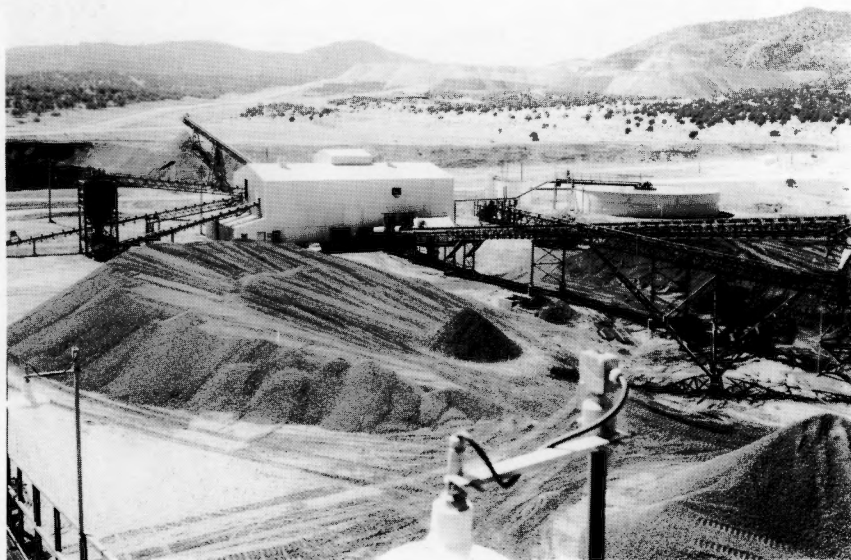


UTAH CONSTRUCTION OPERATION - BLOWOUT PIT, C.F. & I PROPERTY OPERATED 1944-1968

construction of a loading plant, haulage road, and initial work required to open a mine on the C.F.&I. Duncan Claim about a mile to the southwest. This was a six month contract which started Utah Construction Company into about a 40 year mining business in Southern Utah. C.F.&I. urgently needed more iron ore for their steel plant located a long rail haul away at Minnequa, near Pueblo, Colorado. The Utah Construction Company was retained on the spot to start and continue mining iron from the Duncan Mine, the deep, spectacular Blowout Mine and the large Comstock ore body located further to the northeast around Iron Mountain.

Further on into 1944 Utah Construction Company purchased and leased property on and around Granite Mountain and Three Peaks on both sides of the railroad. A crushing and loading facility was constructed on the south side of the tracks in the Iron Springs Gap, which installation was designed to sell ore on the open market. The first and largest customer was the Kaiser Steel Company who had a steel plant in the peach orchards at Fontana, California. Kaiser blast furnaces depended on Utah ore in varying amounts until 1958. High grade open hearth ore was shipped to several plants in the United States and some even went to Japan.

It was apparent that Utah Construction intended to stay in the mining business. They initiated an extensive prospecting, claim locating and development program that continued for many years.



*UTAH CONSTRUCTION PLANT IRON SPRINGS GAP
LOOKING SOUTH 1944 - 1984*



UTAH CONSTRUCTION PLANT ON C.F. & I. COMSTOCK ORE BODY
1948 - 1981

Continuing the Columbia Iron Mining Company story, ore production increased at a gradually expanding rate to accommodate the second blast furnace at Ironton and to be prepared for the three larger furnaces at Geneva. The first Geneva steel was poured January 17, 1944. Iron ore shipments from Columbia Iron Mining Company in 1942 were 358,718 net tons; in 1943, 630,361 net tons; in 1944, 1,235,552 net tons; 1945, 1,248,200 net tons and back to two furnaces at Ironton in 1946. Geneva stopped production after only twenty-one months of operation on V-Day, September 3, 1945 which signaled the end of the war. Everyone was relieved that the war was over but some four thousand employees connected with the United States Steel Corporation's operations in Utah wondered what would be their fate.

Meanwhile the neophytes at Columbia Iron Mining Company, particularly the management, were learning a lot about unions, sometimes the hard way, during this expansion period. One of the first things accomplished after being unionized was to write job descriptions for all the jobs at the mine, evaluate them and establish a pay structure following guidelines established in the Steel Industry which was a plus. It soon became very evident the day to day squabbles, gripe sessions, meetings and the application of a cumberson grievance procedure were little more than costs. This

was a considerable expense where the end did not justify the means. It was abundantly clear the main theme of the Union instructions from the East was, "Practice getting a lot of all you can for nothing!", or other expletives to that effect.

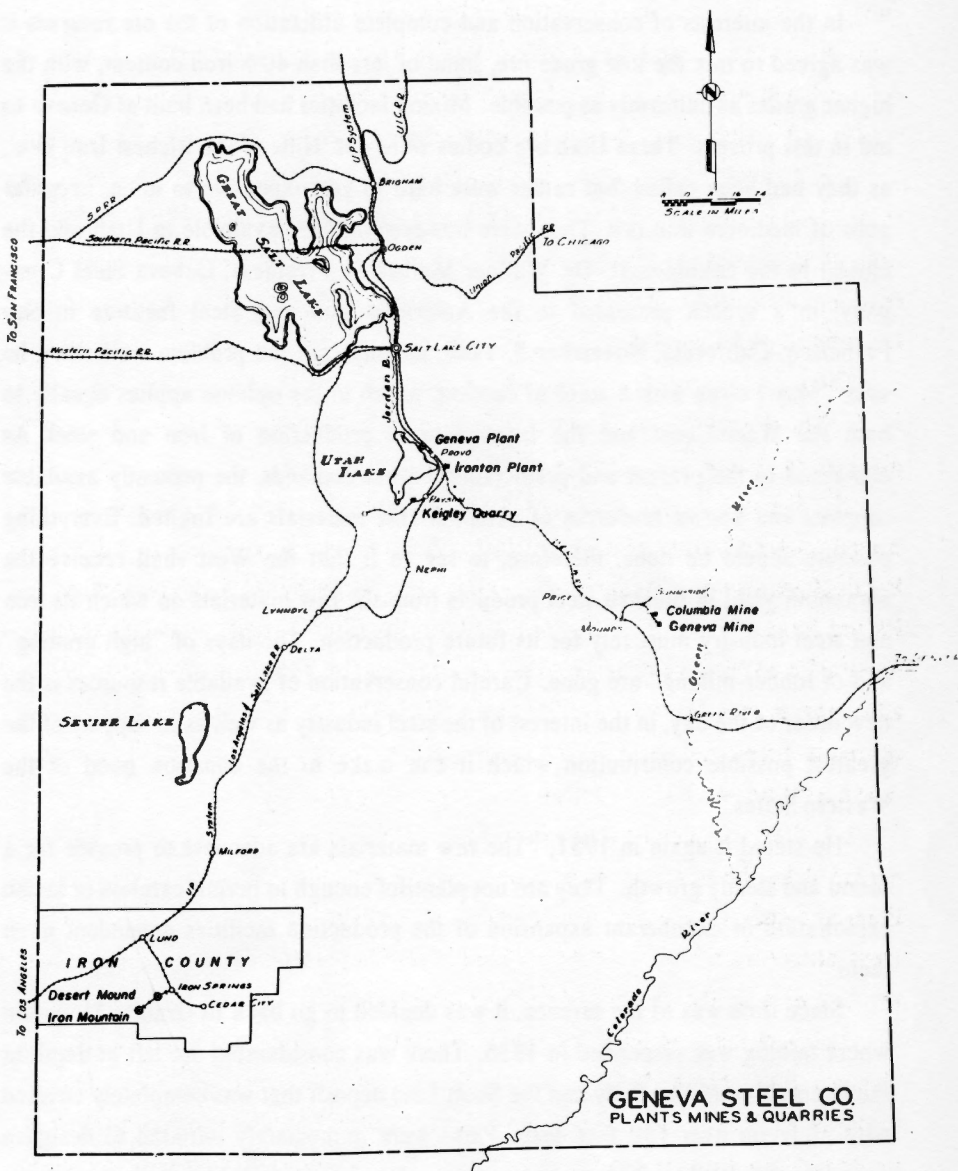
An early source of Union irritation appeared when Utah Construction Company moved in next door at Iron Mountain. The U.C.C. employees were represented by the Construction Trade Unions which in all cases paid higher for like jobs than did the Steel Industry, along with transportation to and from home to work and other benefits. U.S. Steel let it be known there would be no changes in the Basic Labor Agreement even at an obscure, small Iron Mine. The grass was greener over the fence in Utah Construction's yard and remained as such. There was some migration from north to south but there was not much room for accommodation. The difference in wages was a subject in wage negotiations and sometimes in grievances at Columbia Iron Mining for the next thirty years.

There was a year of turmoil at the mines after Geneva shut down in September 1945. Ore shipments continued to the Iron-ton furnaces but there were no solid plans for the future.

The Federal Agencies involved offered the entire Geneva plant and all connected wartime facilities for sale early in 1946 but there were no interested buyers. Political pressure was brought to bear on a lot of people by the then President of the United States, Harry S. Truman, and the entire Utah Congressional delegation. Eventually six bids were received of which that of U.S. Steel, being the most favorable, was accepted for a consideration of \$47,500,000.00. In addition U.S. Steel agreed to spend another \$18,600,000.00 in converting the plant over to a peacetime operation which involved quite a change in finished products.

U.S. Steel assumed private operation of this war-born steel plant June 19, 1946, managed by the newly formed Geneva Steel Company. The coal mines and the limestone quarry were also placed under the management of Geneva. Part of the transaction transferred all of the Defense Plant Corporation war time properties at the iron mines to the Columbia Iron Mining Company.

The decision was made to operate Geneva at capacity as soon as required changes could be made, estimated to be within two years. The three Geneva furnaces were each twice the size of either Iron-ton furnace, which would be an increase in the iron ore requirement of about 800% at peak or capacity operation. Of course such an inflated demand could not have been comprehended in previous long range plans, and the three available mining pits at Iron Mountain would last at



best, five years. Representatives from the Geneva Steel Company and the Columbia Iron Mining Company met to thoroughly discuss and assess the mine operating problems, mineable ore reserves, and the urgent need existing that dictated new mining areas be made available as soon as possible.

In the interests of conservation and complete utilization of the ore reserves it was agreed to mix the low grade ore, some of less than 40% iron content, with the higher grades as uniformly as possible. Mixing facilities had been built at Geneva to aid in this process. These Utah ore bodies were not 'Hills of the Richest Iron Ore', as they had been called, but rather were hard to get, expensive to mine, irregular gobs of mediocre iron ore. They were however the best available in Utah and the closest to the coking coal. Dr. Walther Mathesius, President, Geneva Steel Company, in a speech presented to the American Iron and Steel Institute in San Francisco, California, November 5, 1948, summarized the problem well when he said, "May I close with a word of caution, which in my opinion applies equally to both the West Coast and the Intermountain production of iron and steel. As compared to the present and predictable market demands, the presently available supplies and known resources of essential raw materials are limited. Everything possible should be done, therefore, to see to it that the West shall receive the maximum yield in finished steel products from the raw materials on which its iron and steel industry must rely for its future production. The days of "high grading" and of robber-mining" are gone. Careful conservation of available resources is the new order of the day, in the interest of the steel industry as well as in support of the greatest possible contribution which it can make to the common good of the Western States."

He stated it again in 1951, "The raw materials are adequate to provide for a sound and steady growth. They are not plentiful enough to permit careless or lavish exploitation or exuberant expansion of the production facilities dependent upon them."

Since time was of the essence, it was decided to go back to Granite Mountain where mining was suspended in 1936. There was considerable ore left at depth in the Desert Mound Ore Body and the Short Line deposit that was completely covered with alluvium over 150 feet deep. Plans were immediately initiated to design a complete new facility. The second crushing plant built at Iron Mountain for the war effort was to be moved to Desert Mound and restructured to provide for stock piling and blending different ores. This plant was to be ready in early 1951. The very first



U.S. STEEL CORPORATION SHORT LINE ORE BODY - 1951, BEGINNING TO MINE

effort was to relocate some two miles of railroad that had been built over the ore bodies. The next phase was the removal of plus three million cubic yards of overburden material from the ore bodies and to construct haulage roads into the ore before mining could be started. It seemed prudent both in the interests of time and expense to contract this work. Accordingly the Columbia Iron Mining Company issued Utah Construction Company a purchase order for this job in mid 1949, completion time to match that of the plant construction. This did nothing to improve the relations with the United Steel Workers Union, which was adamantly opposed to contract work in any shape or form. But timing was all important and the job was completed and mining started in July 1951.

During 1947 a completely unexpected and revolting problem began plaguing the iron mines. In the latter 1940's there was a dramatic increase in the pump well farming in the southern reaches of the Escalante Valley, namely the Newcastle, Beryl and Enterprise area..... The land was particularly suited for growing potatoes. The radically increasing pump load added to that of the large crushers and power shovels at the iron mines was more than the local power company could carry.

Somewhere, someone, somehow coerced the power company into notifying the



U.S. STEEL OPERATION DESERT MOUND ORE BODY 1951 - 1983 NEAR THE END OF MINING

mining companies they could not operate mining equipment during daylight hours. It was alleged the farmers needed that time and all the power to irrigate potatoes. Everyone had grown potatoes; there was a bumper crop and a glut on the market. The story was that the People on the Potomac paid the farmers for their potatoes, painted them blue so they could not be resold and fed them to the cows who would not eat potatoes that were blue in color. This appeared to be a typical farm subsidy.

Frequent power outages and poor voltage control had caused untold damage to mining equipment as well as loss in production. So this inappropriate, arbitrary rationing of power was the straw. The Columbia Iron Mining Company felt the only recourse was to build their own power plant. Three diesel generators were installed at Iron Mountain and began operating in September 1948. This project also called for Company owned power transmission lines from the power plant to the Desert Mound mining areas. It was vitally important the Geneva Steel Plant could be assured of an uninterrupted supply of iron ore.

So, in spite of many growing problems in the industry, iron ore mining during the 1940's ended on an upbeat. Over 17,400,000 net tons of ore was mined in Iron County during this ten year period which would be almost five times more than was

mined during the previous eighty-seven years.

When the Desert Mound mine again began to operate in 1951, half of Geneva and Iron Mountain furnaces requirement was scheduled to come from there. This gave the Iron Mountain operation a needed respite. As the pits were mined deeper one of the surprises was the large amount of ground water encountered. This required the water be pumped from the pits and greatly slowed the rate of ore recovery. At the end of 1951 there was only twelve to fifteen years reserve for the Geneva Steel Company operation but it was deemed advisable to always have about a twenty-five year supply. Accordingly all possible and probable iron ore reserves in the district were reexamined.

The Bull Valley and Cove Mountain deposits in Washington County were ruled out. They were located in a remote and rough terrain and were low grade iron. Back in the Pinto Iron Mining District, two deep and apparently large ore bodies were being drilled and evaluated. One was deep seated, over a thousand feet below the present ground surface, located about half way between Iron Mountain and Granite Mountain. The ore was a soft, dense magnetite, very high in iron content; also very high in sulphur; and completely saturated with water. The other prospect was on the west flank of Iron Mountain and soon proved to be the most favorable. A large open pit mine was designed which was named the Rex. There would easily be over 100,000,000 tons of mineralization, about three fourths of which would be direct shipping ore, with the balance to be upgraded before shipment to Geneva. All concerned seemed pleased with the project and plans had advanced to the point where water rights had been purchased in the New Castle valley to eventually be used in the mining and processing of the Rex Ore Body.

Then during 1958, there seemed to be a cooling off in the enthusiasm of top management, and planning on the Rex ground to a virtual stop. Another sign of the times appeared when on September 4, 1958, Geneva issued a purchase order to Utah Construction Company for the purchase of 20% of the total Geneva ore requirement. This might have had the effect of extending the C.I.M. Co. ore reserves somewhat, but it was an added cost to the furnace operation and also posed the question that there might be no further expansion of the Columbia Iron Mining Company.

The 1950's proved to be the largest production decade in history. The combined shipments of the Utah Construction and Mining Company and the Columbia Iron Mining Company exceeded 41,850,000 net tons. Over four million net tons

were shipped per year for 1951, 1952, 1953, 1955, 1956 and 1957. The total would represent something like 600,000 rail car loads. Over 600 people would be engaged in the mining operations. The decade was also a glorious time for the Iron County taxers.

During the 1950's other events transpired that affected the Columbia Iron Mining Company, largely adversely it appeared. The Corporation continued to modify or change the structure of their western operation and organizations. On January 1, 1952 the Geneva Steel Company and the Columbia Iron Mining Company were merged into a Columbia-Geneva Steel Division of a newly organized U.S. Steel Company. This lasted for one year. On January first 1953 the name became the Columbia-Geneva Steel Division of the United States Steel Corporation. The Columbia Iron Mining Company was designated as an Associated Subsidiary of the U.S. Steel Corporation. There must have been some interal reason for all this, company politics not excluded, but on the surface it appeared as an exercise for the legal department and a reason for hiring a few more unneeded, high paid, top officials, and a lot more unneeded not-so-high-paid staff people in the Columbia Geneva Steel Division. It also became abundantly clear where the "Pecking Order" began and ended for those who had aspirations for top level jobs. Also, where the best spots would be for participation in stock option programs and to receive advance notice of a stock split so one could stock up on U.S. Steel stock in order to get in with the few on a windfall profit.

One of the rituals established in the Columbia-Geneva Steel Division was a monthly gathering at the San Francisco Headquarters of a whole bunch of people from the home office plus four or five General Superintendents from the outlying operations. The surroundings were beautiful and the participants were genial, but any important business should be taken care of in the forenoon. Because, after partaking leisurely of a long, standard corporation liquidized lunch, not much was accomplished before a long, standard liquidized dinner.

Somewhere along the line during all the mergers, reorganizations and invasions by advisers from the East, the operating Management of the Columbia-Geneva Steel Division dropped the ball if they ever had it. Their operating and management functions were gradually lost or left to Staff people who should have been relegated to third or fourth in command. A top-heavy Industrial Relations Department was built up to handle all phases of labor relations, aided and abetted by their counterparts in the East, the home office in Pittsburgh, Pennsylvania. Too often there was an

overreaction to minor problems, particularly to safety, where needless procedures were implemented that not only consumed too much of the working time in the name of safety, but also imposed numerous punitive, often juvenile, unenforceable regulations. Too many people were required to make inspections, hold voluminous meetings, manufacture minutes and fill out pages of reports that were of little or no use to anyone. For instance, almost all injuries were the result of a careless employee's own actions, thus he should be blamed for the statistic. But after the requisite number of investigations, reports and analyses, the appeasing, over-indulgent statisticians managed to show that the Company was to blame for the incident, a completely misleading picture.

A little more on safety. There should be a safety program in any operation, whether working alone or with someone else. A simple, understandable enforceable set of rules for safety and proper human behavior would be effective if jointly developed and supported by both labor and management. But current conditions in industry do not permit such a thing.

There is so much outside, governmental interference the operation owners or managers have little or no control over a program that is dictated to run something like a kindergarten child day care center. A recalcitrant employee can report to work drunk, doped or hung over and escape being disciplined for fear of injuring some civil right. A supervisor would not dare incur the wrath of the ACLU or some pro-labor judge and jury. In an extreme case if a fatality is involved due to employee carelessness, the employee causing the incident will not be blamed but an officer or officers of the company might be prosecuted for murder.

Regulations and restrictions imposed by the Bureaucratic Enforcers cause nothing but ill will, unnecessary expense and in some cases plant closures.

Probably the most important functions of this department were to put together all the paper required to hire a person, keep accurate records for seniority purposes and then issue the final termination records.

Another periodic pain in the pain recording area, was the continual, rapidly escalating cost of doing business with the United Steel Workers of America. During the fourteen years immediately after World War II, there were five Steel Worker's strikes, one in each of these years, 1946, 1949, 1952, 1956 and 1959. The one in 1959 lasted for 116 days and caused effects from which the steel industry never did recover. This was a nation-wide strike in the National Industry, but a small Iron Mine in Southern Utah eventually received the unfortunate effects in the end.

John L. Lewis and his coal miners struck or threatened to do so on alternate years with the Steel Workers, a pincer movement. A coal strike soon shut down the blast furnaces which immediately shut down the Iron Mines. Between the strikes, the threats of strikes were almost as bad as the real thing. Employees were worried, families were apprehensive, upset and in a turmoil, and the public always felt the brunt of it all. Neither side of what was not usually an argument, ever seemed to learn that strikes settled nothing.

The Unions were after monetary considerations which were usually exorbitant and unearned. After or during the strike, the Steel Industry tried to get a price increase on steel sales to offset the increase in costs. At this point entered the Federal Government which was primarily pro-labor. So, the Unions got what they wanted and the Industries were told how much they could raise prices. In nearly all cases the price increase was not enough to offset the increased labor costs. The net effect of the entire exercise seemed to be perpetual inflation, decreased profits and dividends which gradually killed the Steel Industry. And yet there were high paid so-called Economic Advisors telling the wizards on the Potomac that inflation was good for the country. Very often during these strike showdowns personal animosities developed that were never overcome nor forgotten. It didn't seem worth it in most cases.

One of the most discouraging developments as the Union power increased was the complete failure of the grievance process. Employees had the right to file a grievance on any subject they wished to, at any time they wanted to and some of them usually did. Most valid grievances could be settled with a little honest discussion before starting the paper trail, Step 1, Step 2, Step 3, Step 4, and then Arbitration. It reached a point where it appeared there was a planned attack with a goal of "X" number of grievances per week. The grievances were designed to be punitive, of little merit but of high nuisance value. Each complaint had to be handled separately in three meetings at the plant site where nothing was settled unless the Union demands were met. It was easy for a professional grievance filer, along with his Grievance Committee, to leisurely spend many hours in grievance meetings rather than doing the work they were hired for. Most Grievances were appealed to Step 4 where a General Office Staff person conducted a plea bargain type session where the Company usually lost again. Time spent by these many people in meetings, numerous long, long telephone calls to their sources of advice, reams of typed minutes, letters, memos of understanding, etc. all added up to quite

an expensive exercise, for what?

In both strikes and the grievance procedure the Union attitude was to get something for nothing and they would boast that they had nothing to lose. It would be almost impossible to find one instance where the Union employees produced more per person, per hour, after winning such benefits as a 20% wage increase, paid coffee breaks, paid lunch periods, paid travel time, etc. Instead the opposite was the case. More relief or spell work was required and the operating rates always suffered. Union Leaders actually sponsored slow downs by posting notices and verbally passing the word; "Slow down — The Job You Save May BE Your Own!!!"

The most glaring of thoughtless and dishonest acts was the intentional abuse and damage to expensive mining equipment, particularly key production units such as power shovels and large haulage trucks. This stupidity continually cost thousands of dollars for repairs, lost production and unscheduled rest periods for someone. Dedicated, honest workers, which most of the Iron Miners wanted to be, would not participate in such acts. But too often they were threatened and coerced into conforming to a slow pace and low output as dictated by the Union.

During such times it was very disheartening and difficult for the front line supervisors and staff people to stay on an even keel. The feeling was always there; why fight it, give the farm away to avoid the hassle, and sometimes they did. This condition existed throughout the industry, more unwieldy and confusing in the larger plants. Much too often a labor dispute was resolved, not on what was fair and just for the parties, but on what appeared to be the most favorable cost and/or profit effect at the instant moment. It was most discouraging to be forced to accept a completely unreasonable solution to a local problem based on a bad precedent set at some place thousands of miles away.

One began to wonder who was, and where was, the boss. The operation of an Industrial Relations Department became an expensive, frustrating exercise in futility.

The rhetoric being used herein may seem redundant but it is considered necessary to illustrate the built-in handicaps and cost excesses, self-imposed by what is considered as a too large old fashioned corporation, with an assemblage at the top of complacent, non-thinkers.

One of the more overblown departments from the top down was that of Public Relations. Their primary functions seemed to be arranging fun and games for dignitaries from anywhere they could find a dignitary, and project the Corporation

image as they saw it, loud and long, orally or with four or five page news releases. The person on the job couldn't give a visitor the time of day. The inquisitive must get their answer from Public Relations, who seemed to have a propensity for skirting the truth and obscuring the obvious. This Department felt they could superimpose their activities on any operation. No way could the expenses generated by this department be measured by production performance.

Then there was another amalgamation of a large group of two kinds of staff people, Industrial Engineers and Accountants. To start out on the positive note, this group performed two very important functions. The Industrial Engineers wrote and analyzed job descriptions in order to establish rates of pay and the Accountants prepared the payroll. Other than that they seemed to be perpetually occupied in trying to apply and make work an antique, cumbersome and completely unsuitable accounting procedure called the standard cost system. Bales of paper explanations were prepared and distributed each month to the ones that should be enlightened as to what standard costs could do. In the monthly operating meetings, more paper, slides and verbage were distributed to illustrate the variance between budget and actual expense.

Since budgets were rarely very reasonable, the statistics were meaningless. After a presentation, 80% of those in attendance would look at each other, and shake their heads wondering what for and why. They did not and could not understand the system. No where in all the paper or discussion could one find what it cost to mine a ton of ore or make a ton of steel. This system had been tried and discarded by many large businesses. Undoubtedly there were reconciliations made in the home office for the benefit of top Company Officers but not much of the light trickled down to the lowly Iron Miner. Undoubtedly it was too simple to subtract what was spent from what was earned to show whether you won or lost.

Columbia Iron Mining Company employed at the mines a closely knit, competent Engineering Department that took care of all engineering and geological functions required. But after the latest reorganization shuffle, Columbia Iron Mining Company was instructed to hire some geologists and set up a separate Geology Department. When Mine Management tried to tell top Management of the Geneva Steel Division that a department was not needed the answer was; "Yes, you don't need geologists, the Division doesn't need geologists, but Pittsburgh wants them in the West!" All concerned were about to find out that the Corporation Raw Materials Section was creating in the west a new Geologic Era, or was it Aura? So a gaggle of

geologists was hired, equipped with expensive instruments and four wheel drive vehicles. They began touring the country, making tracks and looking for iron ore where the first prospectors had made tracks one hundred years previously and where others had made tracks continuously since then. After a short time and considerable expense it was concluded there was not much they could add to the Iron County picture.

About this time in early 1954 a couple of higher paid geologists appeared on the scene from the East, introduced as Advisors. It wasn't long before the Advisors advised the geologists to pack up and head for Wyoming.

They spent the next several years exploring and or prospecting an area on the South end of the Wind River Mountains at an elevation of 8,300 feet where the snow fall averaged about 175 inches and the winters were six months long. They rediscovered an iron ore deposit that had been checked over by several parties between 1916 and 1947. It soon became evident that the Pittsburg Authorities involved already knew that this again was "THE PLACE."

The iron ore was a fine grained magnetite deposited at some time as alluvium with very fine grained quartz sand, which had solidified into one of the hardest rocks that existed in the country. The ore assayed about 30% iron and the balance was mostly silica. It was very similar to a so called taconite ore that the Corporation owned a lot of in Minnesota, and more than a lot of the same they were looking at in Canada.

A task force was immediately put together to initiate a feasibility study on this ore deposit. The numbers in this group rapidly increased including the services of several Consulting Engineering Firms and their office headquarters were established in San Francisco. The final objective of this very expensive group study was to plan the mining and beneficiating facilities capable of preparing a satisfactory blast furnace product from the low grade taconite ore. By the end of 1959 it appeared to be a certainty that the next iron mine would be in Wyoming, which put an end to any hopes concerning the development of the Rex Ore Body.

The decade ending in 1959 could have been a period of peak production at the Columbia Iron Mining Company operations but it was not to be due to crippling Steel Union strikes. The mines were in good operating condition, but the outside uncontrollable, aggravating situations were doing nothing but increasing operating costs.

This trend of rising operating costs also existed throughout the Geneva Steel

Plant, sometimes appearing to be more than their fair share. Expensive modifications and improvements were being made to accommodate market opportunities. As time passed continuing and more expensive maintenance work was needed. Real and imaginary water and air pollution problems rapidly became major expense items. These problems were magnified as housing development encroached from the east. At one time it was speculated that every cow within five miles of Geneva had a million dollar lawsuit filed in her behalf protesting fallout. Many of these so called dangers were overblown by radical activists of a type Paul Harvey labeled "Fear Mongers", who built organizations and associations to collect dues, with which they lobbied their cases before Local, State and Federal Governments. Eventually laws like OSHA, EPA and so on came forth to remedy a situation but cost far, far more than they did good.

Another inevitable came as the Local and State Taxing Authorities began taking their toll. In addition to property taxes, the first ever net proceeds tax was levied on ore shipments. The method of calculating this tax was unfair, uncalled for and ridiculous.

All three mining companies, U.S. Steel, Colorado Fuel and Iron Company and Utah Construction and Mining Company filed protests which resulted in some modification but still left a large tax increase. This of course was an unplanned for, added cost of operation at the blast furnace.

It was very apparent that the populace around the steel making facilities enjoyed the high tax take, reveled in the high wages paid some 5,000 employees, but didn't want to put up with any of the nasty smoke and dust that is inherent in the steel making process. They wouldn't realize that these disagreeables could only be contained to suit their demands when the plant was all but shut down. These continually escalating high cost conditions kept Geneva in the category of a "MARGINAL OPERATION" in the eyes of the U.S. Steel Corporation. At this point in time Geneva had a good market but had to ship 80% of its products 700 to 1,000 miles to markets on the west coast at a high, high freight rate.

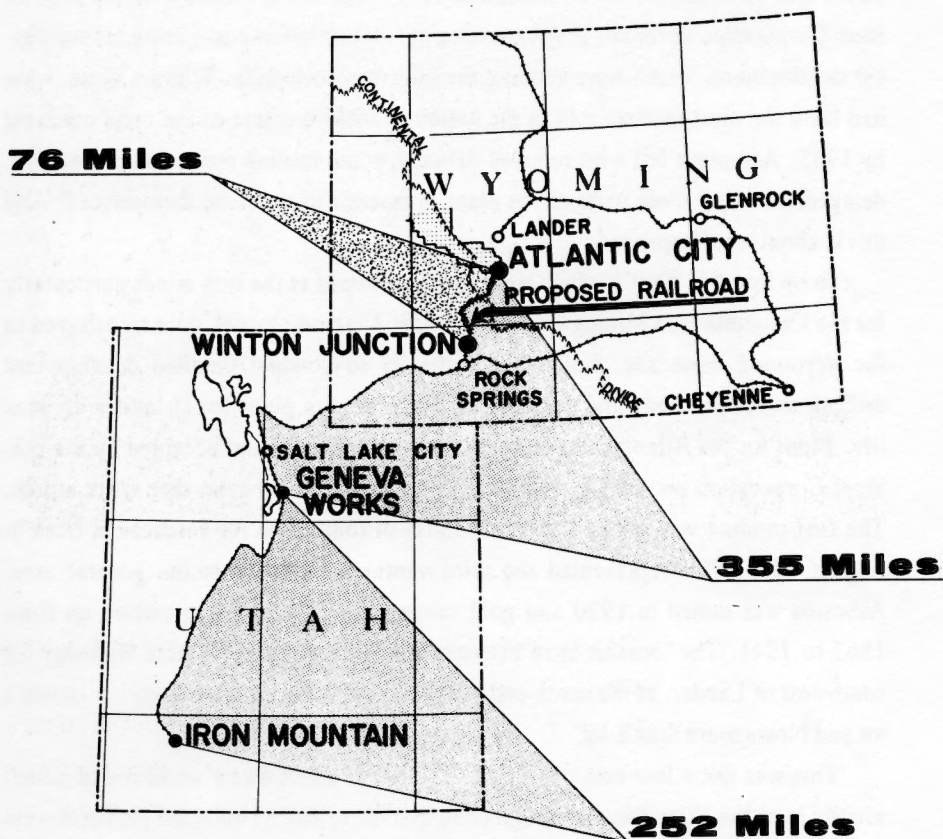
In the meantime, by 1960, Japan operating one of the most modern steel plants in the world, built and paid for by the United States, could ship iron ore from here to Japan, fabricate steel products, ship them back to San Francisco and undersell U.S. Steel. This invasion of the west coast, Geneva's Market, by foreign steel was just beginning. By the end of the 1970's, steel from Europe was passing through the Panama Canal and competing with Geneva.

The foregoing points up some of the more adverse conditions and situations severely affecting operations at both the Geneva Steel Plant and the Iron Ore Mines. This condition is summarized in the following quote from the Utah Economic and Business Review of December 1985; "Perhaps for those reasons, the U.S. Steel Corporation never chose to introduce at Geneva major cost-saving technological developments which were rocking the industry worldwide. Without these, what had been the most modern mill in the nation in 1944 was one of the most outdated by 1985. As output fell with reduced demand, some routine maintenance could be delayed, allowing some parts of the plant in essence to consume themselves." And this is about what happened.

So on into the 1960's, which were turbulent times at the iron mines particularly for the Columbia Iron Mining Company. More Utah employees were transferred to the Wyoming mine site, assigned specifically to conduct detailed development drilling on the ore body and design long range mining plans for at least a 25 year life. Plans for the Atlantic Ore Operation were completed and accepted by the U.S. Steel Corporation on June 1, 1960 and construction was begun that same month. The first product was shipped over 355 miles of railroad to the furnaces in Utah in August 1962. This represented the third venture in mining in the general area. Asbestos was mined in 1920 and gold mining and dredging was carried on from 1867 to 1941. The location is in Fremont County, 30 miles by State Highway 28 southwest of Lander, at the south end of the Windriver Mountains where it snows a lot and blows more than a lot.

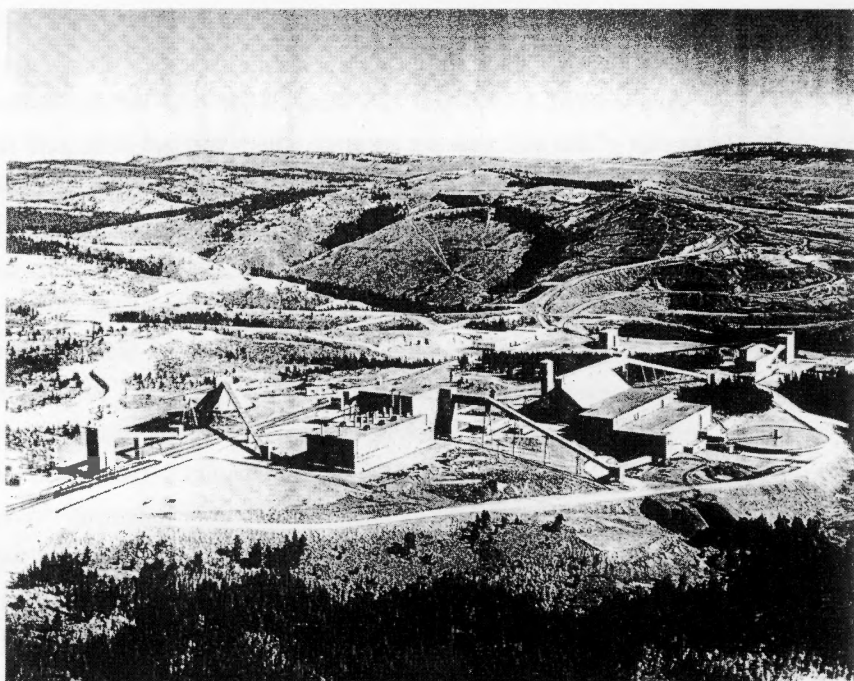
This was not a low cost operation. The end product was a small round pellet, usually less than three fourths of an inch in diameter, which contained plus 60% iron and plus 10% silica. The high silica content required the addition of large amounts of dolomite flux to the furnace charge which had the effect of diluting the percentage of iron. As it came out, the concentrate charge from Wyoming cost four to five times more per ton of hot metal than the raw ore from southern Utah. A standard cost system would not be required to illustrate that this represented higher cost and less profit which Geneva could ill afford at this time. Had the same amount of money that went into the Wyoming mine been spent on the Rex project at Iron Mountain, Utah, a larger reserve would have been available, of a much better quality and at a considerable less cost to Geneva.

Then why go to Wyoming? It appeared then and still does, that the Atlantic City Project was an elaborate and very expensive pilot plant for future developments



ATLANTIC CITY LOCATION

Columbia - Geneva Steel Division



U.S. STEEL WYOMING TACONITE OPERATION 1962 - 1984

on the taconite ore in Minnesota. It also provided a new area for Public Relations Fun and Games, "Antelope Hunting."

This supposition was verified by John P. Hoerr in his book, "AND THE WOLF FINALLY CAME", The Decline of the American Steel Industry, from which the following is a quote: "It ought to be axiomatic in the world of business that one century's victorious strategy is apt to become the next century's strategy for failure... In the nineteenth century Carnegie steel became the wonder of American Capitalism when it reached a stage of total integration, from mined ore to finished steel. One of the major steps in reaching this goal was the acquisition of the large reserves of high grade iron ore on the Mesabi Range. In the 1950's the Mesabi ran out of high grade ore. Was a new strategy called for? Should vertical integration be cut short and modified by the use of low cost imported ores? No!! The prospect of losing control of any link in the ore-to-steel chain, especially to foreign outsiders, was unthinkable. American steelmakers thereupon embarked on two courses of action. First they began an extremely costly development of ore fields in the remote areas of northern Canada. Second, they made major investments in plants to upgrade and pelletize (convert ore dust to pellets that suited the taste of U.S. blast furnaces) the remaining

low-grade ores mined on the Mesabi and upper Michigan ranges as well as in Canada.

This might have worked, except that U.S. demand for steel shrank, making redundant a large part of this vast new ore capacity, which still had to be paid for. To make better use of their ore processing capacity, the steel companies reduced their imports of high-grade ore from Australia and Brazil. These were available in some markets at less cost than the U.S. and Canadian ores. The U.S. producers had become captives of their high-cost mining operations. At the same time, Japanese steel makers were importing Australian ore at nearly half the price that U.S. firms paid for the Canadian ore. This helped the Japanese underprice U.S. steel on the West Coast.' Another quote: "This STRATEGY replaced lower cost ores with higher cost ores, largely because of U.S. Integrated Companies." This action was termed stupid by some and more kindly by others as very poor judgment. Nevertheless it is a good example of many wrong turns taken by the steel industry such as: poor market forecasting, not just once but repeatedly, slowness in accepting new technology, and continually underestimating foreign competition.

Geneva's production was gradually decreasing due to the uncertain market conditions on the West Coast plus the many customers lost during the long steel strike in 1959. The Ironton No. 2 blast furnace shut down in October 1960, never to start up again. These conditions reduced the ore requirement accordingly. Another historical landmark was the completion of mining in the Black Hawk ore body where mining started at Iron Mountain in 1936. This was followed soon afterwards by the depletion of the Pinto and Burke 2 ore bodies. From this point on all ore would be shipped from the east side of Iron Mountain and from around and about Granite Mountain and the Three peaks area.

During 1957 a very significant "FIRST" occurred at the iron mines. Early in the year the Geneva Steel Plant began producing a by-product, prilled ammonium nitrate, for a fertilizer. There existed a possibility that this material could be used as an explosive agent. Accordingly tests were immediately commenced in March 1957 using a mix of nitrate and fuel oil in place of the conventional dynamite in the blast holes. Results were spectacular. This innovation was introduced and tests carried out by Management and Engineering personnel at the Columbia Iron Mining Company's Desert Mound Mine.

After considerable testing the optimum mix of prills and fuel oil was determined, and that thorough mixing of the two parts was very important. The Desert Mound

Mine eventually used a bulk storage tank equipped with measuring devices for the ammonium nitrate, and adapted a conventional truck mounted cement mixer to stir the agents into a mush. This unit could deliver the preparation directly to the blast holes. This development had the effect of reducing the explosive costs at the mine about 50% which was a substantial saving.

Since the nitrate is soluble in water, this process was limited to dry blast holes. And as mining progressed deeper more and more ground water was collected in the blast holes. This problem was overcome by Dr. Melvin A. Cook and Associates of Salt Lake City, Utah, who discovered a process for mixing the nitrate slurry using water rather than fuel oil. Properly handled, this slurry product could be used in either dry or wet holes, in any kind of material that required blasting. This application completely revolutionized the explosive use in mining and elsewhere, and also developed a large unexpected market to the producers of ammonium nitrate.

In April 1961, the Utah Construction and Mining Company, much to their credit, put into operation low grade ore beneficiation processes, a first in the mining district. A typical washing, flotation and magnetic separation system was first used, and later a mobile, dry magnetic separation unit was developed. This effort was directed toward a more complete utilization of ore reserves, and furnishing a much better iron ore product to the furnaces.

Expiration 1962 - to - 1986

The move to the Wyoming Atlantic City Ore operation was completed during the first seven months of 1962. Some of the Utah miners transferred to Wyoming, some retired and some had to be placed on lay-off. This move plus the purchase of ore from the Utah Construction and Mining Company reduced the Columbia Iron Mining Company operation by some 75%. Ore receipts at Geneva were now allocated at 54% from Wyoming, 25% from the Columbia Iron Mine at Desert Mound, and 21% from the Iron Springs operation of Utah Construction and Mining, for a total of 2,820,000 annual net nons.

The Utah iron "MAGNET" was winding down.

The activities of the Columbia Iron Mining Company during the three years, 1959-1961, raised pertinent questions in the Cedar City area. Many local residents feared the move to Wyoming would seriously erode the tax base at the mines which would cause a serious tax revenue problem, and it did. However, the following appeared in the Iron County Record newspaper June 9, 1960. "Considerable apprehension has been manifest by local residents since the announcement by U.S. Steel, Columbia-Geneva Division, that plans for extensive development at the Company's holdings at Lander, Wyoming are being considered. It is feared by many that this development may result in a reduction of operations at the mines west of Cedar City. We have been assured by Company Representatives, that the development at Lander is designed to supplement the source of ore of iron ore from the Cedar City mines, and that the program will not result in curtailment of operations here." This is a typical production from the U.S. Steel's Public Relations office in Salt Lake City, who knew that the Wyoming project had received Corporation approval June 1, 1960, and who also knew what it would do to the Southern Utah operations.

The Locals felt the full effect when the Corporation office in Cedar City was closed and the few remaining employees were relocated at the Desert Mound Mine.

The United States Steel Corporation again went through arduous reorganization pains. On December 13, 1963 the Columbia Iron Mining Company was dissolved and merged into the Corporation, ending a life of twenty-seven years. On January 1, 1964 the Columbia-Geneva Steel Division was completely dismantled and the officers either quit, transferred to Pittsburgh, or retired. This was part of the ill-advised

decision to congregate in Pittsburgh and re-establish the centralized steel manufacturing system that couldn't and didn't work.

Back to the expensive work force. Smarting from the disabling strikes of the fifties, labor negotiations were being conducted on a more cautious basis, but the same pattern prevailed. The Union stated their exorbitant demands and a weak Management was resorting more and more to appeasement rather than risk an expensive strike and loss of business. Also, there was the ever present helping hand of Government helping labor. As an example, in April 1962, the young and ambitious President of the United States, John F. Kennedy, personally pressured the acceptance of what he called a non-inflationary wage contract that gave everything the Union wanted and nothing for the Industry. Shortly after the contract was signed, Roger Blough, then President of the U.S. Steel Corporation, went to the White House and told President Kennedy the steel companies were raising steel prices six dollars per ton. Kennedy threw a tantrum and called Blough and his colleagues a name that will not be repeated here.

The Unions continued to use the strike threat and the Companies tried to operate in the atmosphere of fear of a strike. Wage trends continued to accelerate up, productivity slowed and the profit margin shrank.

Note this comparison. In 1966 the hourly employment cost in Japan was \$2.31, in the United States \$12.50. In an effort to compete the industry was closing old, worn out, completely un-profitable plants and trying to effect other cost reductions, seemingly too late, too little. It was becoming the survival of the fittest. And while most everyone was trying to save money, no one turned off the geologists. They were merrily scurrying around over the country, from Bull Valley to Alaska, looking for iron ore for Geneva who no longer needed any.

It should be interesting at this stage of the game to have clearly identified the various participants who were making the history from 1922 to 1990.

The United States Steel Corporation has the largest investment of the three companies in the mining business. U.S.S. came into the mining when they bought the Columbia Steel Company in 1930. They built the Iron Mountain ore crushing and loading facility in 1936. They built the Geneva Steel Plant for the Government War effort in 1943; bought the plant in 1946 and operated the mill until 1986. Another ore processing plant was built at Granite Mountain in 1951. The final installation for blast furnace feed ore was a mine and taconite beneficiating plant in Wyoming. The mining wing moved hundreds of millions of tons of material during the fifty year life from 1936 to 1986.

The Colorado Fuel and Iron Company operated a steel plant near Pueblo, Colorado for which they had acquired considerable ore reserves in Iron County, Utah. The C.F.&I. Company did not engage in any mining, but rather chose to contract such work. Some ore was shipped to the C.F.&I. furnace from their Desert Mound property during the period from 1926 to 1936. World War Two created an urgent need for ore again at their furnace. They contracted with the Utah Construction Company in 1943 to open a mine at Iron Mountain and construct a crushing plant and railroad loading facility. Utah Construction began shipping ore to the Colorado Steel Plant in the fall of 1943 and continued until C.F.&I. stopped shipments in 1981. The Colorado furnace went out of business shortly thereafter.

The third and very major participant in the mining story was the Utah Construction Company, who started in the business in 1943 when they came to Iron Mountain on a six month contract with C.F.&I. to construct a mining facility. As soon as the plant was finished, C.F.&I. hired Utah to begin mining. From this start, the six month contract ended 43 years later when U.S. Steel shut down the Geneva plant and Utah Construction by another name had become a major producer of iron ore. The Utah Construction Company was formed in 1906, principally to construct highways and railroad grades. They moved on into building large dams such as the Grand Coulee, Boulder Dam, later named the Hoover Dam, and the Davis Dam on the Colorado River. Part of the equipment and crew from the Davis Dam started their iron mining operation in 1943. Recognizing the need for ore due to the war, they acquired ore reserves in the Iron Springs Mining District, rapidly built the required facilities and began selling quality iron ore. Their first customer was the Kaiser Fontana Steel Plant in California. They soon proved to be a going concern and a Good Civil Engineer would call them a Good Outfit to work for and with. They didn't have to wait six months, or a year, or possibly never, to get a decision from ribbon clerks, thousands of miles away to buy even a pickup truck.

They participated in the uranium boom development in Wyoming which led to a new name, The Utah Construction and Mining Company in 1958. In 1969 they sold their Construction wing to the Fluor Corporation. They became Utah International Incorporated in 1971 when they reached the point where they were able to mine anything that needed mining anywhere in the world. For a favorable financial consideration they merged with the General Electric Corporation in 1976 and made a final move in 1984 when they sold a part interest to an Australian concern to the B.H.P.-Utah International.

Throughout all this shuffle, practically the same crew of capable miners remained at the iron mines. About the time U.S. Steel was moving over half of its mining operation to Wyoming, Utah Construction became the major producer of iron ore in Iron County, probably mining over three-fourths of the ore shipped between 1963 and 1985.

The Utah Miners were associated with the A.F. of L. Trade Union Groups and it seemed they and Utah Construction could handle their contract negotiations without major strikes. About the only times Utah Construction was idled for any length of time was when the United Steel Workers Union shut down the Steel Industry.

Affecting all mining and steel operations, the discouraging economic picture did not improve as time passed on into the 1970's. Geneva was particularly hard hit because of the alarming rate at which foreign imports were reaching the West Coast. By the end of the seventies, 45% of the western states steel requirements were from foreign sources, compared to 26% nationwide. Of serious note was the coke problem. Utah coals had always been marginal coking coals which needed to be mixed with import coals from east of the Rocky Mountains to provide a good, usable coke. One by one the Utah mines closed until by 1982 all coking coal was imported which increased furnace operating costs significantly.

By early 1971 it was more than evident the National Steel Industry was in big trouble. Huge capital investments designed to modernize the plants seemed to come too little, too late. Geneva received no help in this regard and was rapidly approaching the point of no return. Steel imports kept taking more and more of the U.S. market, plant improvements yielded little increase in productivity, the industry was heavily in long term debt and profits were negligible. For the first time ever the Government Economists on the Potomac expressed concern about the very survival of the industry.

Within this atmosphere important contract negotiations were coming up. R. Heath Larry, of U.S. Steel, Chief Bargainer for the industry, argued for restraint. However, I.W. Abel, the Union President, though somewhat sympathetic with the industry's position, was faced with internal union problems, his own forthcoming re-election as president, and strong pressure from the high wage advocates. He therefore used the strike threat to his advantage, and being aided and abetted by the Nixon Administration, came out of the turmoil in August 1971 with an enormous pro-union settlement. The wage increase alone amounted to 31% over three years

and the Union regained the lucrative cost of living allowance they had lost several years previously. Fearing a strike many customers had stockpiled large steel inventories. The result was, after costly preparations and delays from expecting the worst, the industry found part of their market gone and were forced to lay off thousands of workers.

In late 1972 Abel and Larry began a series of secret meetings supposedly to develop a way of avoiding the 1971 debacle. They reached a tentative agreement which the Union accepted March 29, 1973. This was called an Experimental Negotiating Agreement, shortened to ENA, but known to the iron miner as the No Strike Contract. The Union take included, from 1974 through 1982, a guaranteed annual wage increase of 3%, which was usually more, and the Cost of Living Allowance (COLA) payments.

Again, a pertinent quote is taken from John P. Hoerr's book where he stated, "To the steel companies' eternal regret, the ENA turned out to be the most incredible money making machine ever invented in collective bargaining." Accounting would classify this cost as labor expense but it should not be construed as pay for honest work.

The Union has just plainly out-traded, out-bargained and out-smarted the Industry Representatives. The companies apparently wanted the no-strike application for benefits that didn't exist, and which would not have helped at all in solving their real problems which were internal, within the corporate structure. The COLA mechanism was a loaded gun with no safety. No one came up with a realistic way to measure cost of living effects district by district, and certainly costs were higher in some areas than in others. So a national average figure was used that was calculated by some Federal Bureau and which would be anything but realistic. For instance, in 1973 and again in 1979 the OPEC Nations imposed oil embargoes that quadrupled the price of oil. Inflation rapidly followed and the higher prices were applied to the cost of living adjustments nation wide, which in turn generated grossly unfair, bloated COLA payments. These unearned wages also applied to vacation and pension calculations.

About at this stage of the game, two persons entered the fray who, it appeared, exerted the primary influence as to what happened to U.S. Steel from 1975 on.

One, Mr. David Roderick was named President of the United States Steel Corporation in 1975. He had only 16 years service with the Corporation, all in the accounting department, and part of the time in Europe. By 1979, four years later,

he had finessed himself into the position of Chairman of the Board of Directors. He styled himself as a specialist in financial analysis, but due to his complete lack of operating experience he was nicknamed "Top Bean Counter."

Two, was a J. Bruce Johnston, hired by U.S. Steel in 1966 as a labor attorney. Consequently he became very familiar with all phases of company and labor relations. He was considered a real loner and didn't involve himself in any particular group level except with Roderick. He became Executive Vice President of Labor Relations in 1986.

Neither of these two liked much of anything that was going on in U.S. Steel, particularly disliking the ENA and COLA applications.... So both the Old and the New Wrong Guessers who were running U.S. Steel, tried for the next ten years to get rid of these two contract applications, but to no avail. They could not dis-able Mr. Union, I.W. Able.

Look at what happened. In 1966 the labor costs per ton of steel in Japan were \$51.93 per ton; in the United States \$149.94. In 1982 they were \$87.99 in Japan vs. \$194.64 in the U.S.

In 1983 the companies and the unions, when the levels of production relative to capacity were the lowest since the great depression of the early 1930's, agreed to an approximate 10% decrease in wages and benefits. This was purely a cosmetic or a bandaid approach. Labor costs were still excessive, approaching \$25.00 per hour. U.S. Steel lost \$154.00 for each ton of steel shipped in 1962, \$60.00 more than the industry average. This was partly due to high overhead costs in the company's bureaucratic organization. There were too many vice presidents, assistant managers and technical specialists, many of whom were still assigned to practically nonexistent parts of the business. John P. Hoerr characterized the condition as follows: "The proliferation of bosses in the plants had produced supervisory rigor mortis. Orders passed down the hierarchy but few ideas from below penetrated the layers of bureauacracy surrounding the decision makers." In the civil service type pecking order, promotions had been based on the ability to conform to the old way of doing things. This produced a crop of inept people on the top level who apparently didn't know or care what was going on, which coupled with the activities of a greedy, powerful Union brought on the need for some kind of drastic action.

By 1983 many of the old steel facilities had been junked. A combination of poor market conditions and punitive actions from the illustrious Environmental Protection Agency almost shut down the Geneva Steel Plant in 1979-1980. If the

same bunch of non-thinking "Obstructionists" that exist today in the EPA and their associated World Saving extremist groups had existed in the 1940's, World War II would have been lost. They create more hell, hatred and unnecessary expense than ever should be tolerated.

Also in 1983 Roderick decided he needed a strong production man who knew steel operations, as his second in command. He chose a Tom Graham from outside the U.S. Steel ranks and made him vice-chairman and chief of steel operations and related resources. He was to conduct the ongoing demolition of the U.S. Steel Corporation. His course of action was clear. More plants had to be shut down and those remaining had to reduce the per-ton cost of making steel or be shut down also. The most drastic action was the severance of salaried, non-union employees which by 1986 had been reduced from 20,837 to 7,736. Of seven superintendents who ran the primary steel plants, none still worked for the corporation in 1983.

In the plants cost reduction programs, more and more work was contracted out. This created a continual battle with the Union, unrest and a backlog of grievances that never were settled. Contracting out was a primary cause of the long work stoppage in 1986-1987. But steel could not hope to compete paying \$25.00 per hour for labor not producing as much as foreign workers being paid less than half that amount. A \$23.00 an hour janitor in the Steel union didn't perform as well as a contractor being paid a third as much. The impasse continued and the Steel Union did not appear at the bargaining table when the contract expired July 1, 1986. This served as the needed excuse for closing the Geneva plant. One year later when no labor agreement was in sight, Roderick made the closure permanent.

This should have been of no surprise to anyone. By the end of 1984, U.S. Steel's iron mines in both Utah and Wyoming had been closed down, the plant facilities dismantled and sold for scrap. The Company coal mines had ceased operating. Contract ore purchases from Southern Utah also were terminated in 1984. The handwriting had long been on the wall.

As all of this was happening, it was amazing to witness how a large, possibly too large, old, established corporation such as U.S. Steel could go from being a productive giant to a dismal failure in a comparatively short time.

On July 8, 1986, Roderick announced that the remnants of the old company were divided into four separate and distinct parts, called "stand alone" operating units. Remaining steel plants and domestic iron ore facilities were called USS. Marathon Oil, Texas Oil and Gas and US Diversified Group were the other three

which accounted for three-fourths of the corporation's revenues. The company adopted the name of USX to reflect the changing mix of the business. This structure would facilitate the disposal of all or parts of the operating units which was being done in steel. The failure of the steel giant has been blamed largely to the inept managers in command calling the wrong signals. One could question whether or not the new signal callers are doing any better. It was reported in November 1986 that USX's current debt was over six billion dollars, plus over three billion dollars in "shut down" liabilities that are the equivalent of long-term debt.

So this part of the story ends on a somber, even a tragic note. The large United States Steel Corporation was in complete disarray, leaving the Utah and Wyoming iron mines obliterated. Good operating plants had been left to thieves, vandals and the junk man. It didn't seem necessary, but that is the way it was in 1984.

Resurrection 1987

It was contemplated that THE MAGNET story would end when the United States Steel Corporation finally shut down the Geneva Steel Plant. When this happened in 1986 it looked as though the high operating costs at the blast furnace had eaten up the Iron County iron mining industry in much the same way the Pioneer industry had been gorged in 1883, one hundred and three years earlier.

But now it seems an interesting new chapter is being added. Some new life lines seem to have been attached to the old Geneva Steel Plant, which it probably always will be known as.

In late 1986, before the final fires were extinguished at Geneva, with the help of both Federal and State politicians, a group of hurry up investors was assembled in an attempt to buy the old U.S. Steel's Utah properties from the USX Corporation. After almost a year of negotiations the purchase was completed, at a reported price of forty million dollars. Considering that the purchase included all the USS iron ore reserves and a good operating stone quarry, they made a bargain buy even though the steel plant was about 45 years old, and probably the most outdated mill in the country.

Almost as soon as the ink was dry on the purchase documents August 31, 1987, the new owners who call themselves Basic Manufacturing and Technology of Utah, started up the steel making process. In 1988 they purchased from B.H.P.-Utah International the iron ore crushing and loading plant at the Comstock Mine on the east side of Iron Mountain. They also purchased all of the remaining ore reserves of the old Colorado Fuel and Iron Company which gave them an operating mine at the Comstock.

Good coking coal is purchased from several sources, one as far away as Kentucky.

The Keigley Quarry, just next door, west of Payson, Utah on the south end of Utah Lake, can furnish all the high grade limestone and dolomite that Geneva will need.

The iron bearing material in the present blast furnace burden is set at sixty percent pellets and forty percent raw ore. High grade, fluxed pellets are being shipped 1,657 miles over three railroads from USX's concentrating plant at Mintac, Minnesota. Raw ore is being mined from the Comstock Mine on the east side of

Iron Mountain which was left idle but operational in 1986 by the BPH-Utah International Corporation and Colorado Fuel and Iron Co. The remnants of this ore body should furnish the raw ore requirements at the present rate of usage for at least fifteen years.

Present annual furnace consumption calls for around 750,000 net tons of raw ore at 54% iron content and 1,500,000 net tons of pellets at 63% iron which equates to approximately 1,300,000 net tons of hot metal annually. Raw steel production has been over 1,000,000 tons per year during the first three years of operation, and the optimistic operators hope to maintain that level.

However, there are built in hazards at Geneva, some of which may be:

1. The steel market is anything but steady and is experiencing more and more competition.
2. Operational costs are favorable, only as long as the current wage rates and low overhead can be maintained.
3. Their best enemies seem to be located in the Provo to Orem area, where very likely each family runs two or three cars and trucks spewing exhaust fumes into the air, for which Geneva gets a lot of undue credit.
4. The uncalled for harassment from the Obstructionists in the Clean Air and Water Bureaus will probably continue until they are cut off at the source, by the same dreamers along the Potomac that concocted them in the first place. Their activities at the present time have reached the sublimely ridiculous state. They have set themselves up as the sole judge, jury and imposer of punishment for non-compliance of overblown and very often unattainable so-called objectives.

This over critical attitude toward industry, particularly the mines and smelters, likely will have only one effect, the curtailment or closure of the operations. This will leave plenty of space for fun and games, but not enough tax money to support them.

In late 1990 THE MAGNET is offering some attraction for iron mining and hopefully will continue to do so for some time to come.

Ironically, there are over two hundred million tons (200,000,000 net tons) of iron ore existing in the Pinto and Iron Springs Mining Districts that could be mined either by open pit or underground methods. But given the existing governmental regulations, including taxes, plus the silly environmental restrictions the iron ore will never be mined.

THE MAGNET

Tonnage Mined - Iron Ore

	<u>MINER</u>	<u>NET TONS</u>
I	<u>PIONEER EFFORTS 1952 -to- 1888</u> Float ore was picked up in the foothills of Granite Mountain and Three Peaks nearest to Cedar City and on the Southwest flank of Iron Mountain near the site of Iron City.	1,000
II	<u>COLUMBIA STEEL COMPANY 1923 -to- 1926</u> Mined from the Pioche Mine for the new blast furnace constructed just south of Provo, Utah.	613,000
III	<u>UTAH IRON ORE CORPORATION 1924 -to- 1936</u> Mined from claims owned by the Milner Family and the Colorado Fuel and Iron Company. A. High grade ore sold for flux to various foundries and smelter, 134,000 net tons. B. Sold to Columbia Steel Company, which became U.S. Steel Corp. after 1929, 1,500,000 N.T. C. Mined from Colorado Fuel and Iron property for the C.F.& I. furnace at Minnequa, Colo., 778,350 net tons.	2,412,000
IV	<u>HELENE E. BEATTY 1937 -to- 1960</u> Shipped high grade flux ore all over the United States from float ore and mined ore on and around the Great Western claim on the south flank of Three Peaks. Some of the local men hired to hand pick ore were Trenton Jones, Dee and Ross Woolsey, Jack Berry and sons, and Ellis and Aubra Lambeth.	234,000

THE MAGNET

Tonnage Mined - Iron Ore

	<u>MINER</u>	<u>NET TONS</u>
V	COLUMBIA IRON MINING COMPANY 1936 -to- 1980 <u>(Subsidiary of U.S. Steel Corporation)</u>	56,024,000
	A. Processed at the Iron Mountain Plant from the Black Hawk, Pinto and burke ore bodies 28,872,000 N.T.	
	B. Processed at the Desert Mound Plant from the Short Line, Desert Mound, Pioche and Mountain Lion ore bodies 27,152,000 N.T.	
VI	UTAH CONSTRUCTION COMPANY 1943 -to- 1984 <u>(Name changed three times to B.H.P.-Utah International)</u>	52,756,000
	A. FOR COLORADO FUEL AND IRON COMPANY FROM C.F. & I. PROPERTY 1943 -to- 1984	
	1. Processed at the Iron Mountain Plant from the Duncan and Blow Out ore bodies, 1943 -to- 1968 10,600,000 N.T.	
	2. Processed at the Comstock Plant from several C.F. & I. claims, 1954 -to-1981 . . . 18,886,000 N.T.	
	TOTAL C.F. & I. 29,486,000 N.T.	
	FROM THE IRON SPRINGS PLANT FOR SALE TO:	
	1. U.S. Steel Geneva Steel Plant 1958 -to- 1981 13,200,000 N.T.	
	2. Kaiser Steel Company and many other customers, 1944 -to- 1981 10,070,000 N.T.	
	TOTAL IRON SPRINGS 23,270,000 N.T.	

THE MAGNET

Tonnage Mined - Iron Ore

<u>MINER</u>	<u>NET TONS</u>
I PIONEER EFFORTS	1,000
II COLUMBIA STEEL COMPANY	613,000
III UTAH IRON ORE CORPORATION	2,412,000
IV HELENE E. BEATTY	234,000
V UNITED STATES STEEL CORPORATION	56,024,000
VI UTAH CONSTRUCTION COMPANY	52,756,000
ESTIMATED TOTAL IRON ORE MINED 1852-1984	112,040,000

Tonnage Mined - Waste Material

ITEMS I, II, III, AND IV	NONE
V UNITED STATES STEEL CORPORATION	112,048,000
(Waste removed estimated at one cubic yard per net ton of ore mined and a weight ratio of two tons per cubic yard.)	
VI UNITED CONSTRUCTION COMPANY	156,268,000
(Waste, not including rejects from beneficiation plants, estimated at 1.5 cubic yards per ton of ore shipped and two tons per cubic yard.)	
ESTIMATED TOTAL TONS OF WASTE REMOVED 1936-1984	268,316,000

TOTAL IRON ORE AND WASTE REMOVED IN THE PINTO AND IRON SPRINGS MINING DISTRICTS IN IRON COUNTY, UTAH	380,356,000
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NOTE: Records do not exist that will provide an exact figure of material mined by ore body nor by company. Records were kept as long tons, short tons, net tons, or just tons which add to the confusion. Sufficient information was found to provide an acceptable total for the 132 year period of mining activity. Apportionment by Company and Area were estimated as reasonably as possible. For clarity figures herein are reported on a net ton basis, 2,000 pounds per ton.

Total Material Mined For U.S. Steel's Utah Operations

The United States Steel Corporation's Utah Steel Making Facilities including both the Ironton and the Geneva Plant, form the basis for this story, particularly the economic aspect. Therefore to complete the picture the iron ore pellets from Wyoming must be added to the furnace ore from Utah to show the total consumption.

Iron Ore

<u>MINER</u>	<u>NET TONS</u>
A. Iron Ore Used At The Ironton And Geneva Furnaces	104,499,000
From 1923 -to-1984	
1. From Mines in Iron County, Utah . . .	71,337,000 N.T.
a. From U.S. Steel's mines	56,024,000 N.T.
b. From Utah Construction's mines	13,200,000 N.T.
c. Other Mines	2,113,000 N.T.
2. From U.S. Steel's Atlantic City Iron Ore Taconite Plat in Fremont County, From 1962 -to- 1984 . .	33,162,000 N.T.

Waste Material Moved

Waste Material Listed Here Will Be That Required To Provide The Above Tonnage Of Iron Ore And Taconite Pellets (Pellets From 1962 -to- 1984)

1. From Utah mines over burden and side stripping
..... 151,648,000 NT
2. From Wyoming mine overburden, side stripping and tail-
ings from the concentrating plant ... 200,916,000 N.T.

**TOTAL MINING MATERIAL HANDLED FOR UTAH
STEEL MAKING PROCESS FROM 1936 -to- 1984 457,563,000**

THE MAGNET

Mining Aftermath

The 380,356,000 net tons of material dug, moved and redistributed during one hundred twenty-eight years (1852 -to- 1980) of iron mining activity left its mark. It began when the first Mormon Pioneers began digging here and there by hand, and practically ended when the United States Steel Corporation closed down the Geneva Plant in 1986. The iron ore was utilized at many places in the United States and some was even shipped to Japan.

The first visual affects of this activity would likely be where trees were chopped down and holes were dug for the purpose of locating mining claims and doing assessment work. This would occur after the Federal Mining Law was enacted in 1872. Some of the early claims would be the Blackbird, Federal Survey No. 57 located at the north end of the Three Peaks country; The Desert Mound, Survey No. 38, on the southwest flank of Granite Mountain; the Black Magnetic, No. 54 on the west side of Iron Mountain; the Duncan, Survey No. 37 and the Blowout No. 44 which was patented in 1879 and located on the south side of Iron Mountain. Eventually the Iron Belt some 15 miles long and 3 miles wide was well prospected, covered with claim locations and pocked with trenches, holes, shafts and tunnels used for exploration and development work.

This was followed with roads or trails all over, built for survey crews and drill sites. After drilling, a mining pit could be designed. The outline of the pit was marked on the ground surface and all vegetation was cleared off over the pit area. Stripping and mining activities could then begin.

As mining progressed railroads were constructed, wide haulage roads were built for haulage trucks, large pits or holes were dug and many waste dump mountains were left. Large areas were denuded of trees and other plants. But being the desert country that it is, the trees had little value except for firewood that the "Clean Air Fanatics" don't want burned and other plants were not the best of forage for livestock.

The original ground surface may have been changed radically, but not all for the worst. The waste dumps are being overgrown with native plants and grasses and unexpectedly most of the mined pits contain year-round water used and appreciated by birds, wild game and domestic livestock. The large pit in Wyoming is now a good sized lake about 300 feet deep and a fine fishing spot.

THE MAGNET

Mining Aftermath

Millions of dollars in wages were paid to hundreds of employees, who by 1985 were being paid the highest wage rates in the United States if not in the world.

Not always fairly assessed, but more millions of tax dollars were collected by every existing taxing authority. Though not always used wisely, the taxes contributed to better school conditions, hospitals, road improvements and other social activities.

There seems to be no question but that the many benefits accrued from this iron mining industry, have far offset any undesirable consequences. It is doubtful that anyone looking west 20 miles from Cedar City, Utah will ever see anything like it again. Case closed December 31, 1990.