A BRIEF HISTORY OF EARLY MINERAL EXPLOITATION
IN THE UINTA BASIN
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INTRODUCTION AND BACKGROUND

Early mining activities in the Uinta Basin can be summarized by saying that they included mining for gilsonite, coal, copper, iron, oil shale, ozocerite, wurtzilite, and oil and asphalt (under the placer mining laws). Of these minerals only coal and gilsonite were produced in commercially significant quantities, especially the latter. Since nearly all of the hydrocarbons discovered were originally on lands reserved by the government for the Indians, the story of how these lands were gradually obtained by the "whites" is of extreme interest. On October 3, 1861 President Lincoln, by executive order, designated the Uintah Valley as an Indian Reservation. In 1875 the boundary lines of the Reservation were surveyed and were found to contain two million acres of land. Prior to this survey, an act of Congress extinguished all Indian titles to agricultural and mineral lands throughout the State of Utah except on the Uintah Reservation.

Meanwhile, back at the ranch, at the old Meeker Indian trading post, 8 miles west of the present site of Meeker, occurred an incident which was to directly affect the mining industry in Utah. Angered because of the roughshod treatment by the Indian agent, Nathan Meeker, the White River Utes rose up and killed Meeker and all of the males at the agency. The "straw that broke the camel's back" occurred when Meeker, objecting to the Utes having horse races on Sunday, ploughed up the race track. Major T. T. Thornburg was sent with 14 soldiers to give assistance to the settlers, but he was ambushed and all of his party wiped out. As a direct result of this uprising, Act of June 15, 1880 (21 Stat. 199), removed the White River and the Uncompahgre Utes from their Colorado reservations and placed them on the Uintah Indian Reservation. By Executive order of Jan. 5, 1882, two million acres were set aside as the Uncompahgre Ute Indian Reservation, for the use of the two deposed tribes (see fig. 1).

Fort Thornburg was established in 1880 on the site of the present town of Ouray to help preserve the peace. In 1881 it was moved to the mouth of Ashley Creek, four miles northwest of Hatchtown (Vernal). Due to the Indian trouble in August 1886, troops were brought in and the Fort Duchesne Military Reservation was established. The fort was vacated in 1912 and became the property of the Department of the Interior and was made the Uintah Indian Agency headquarters and the Ouray Subagency.

GILSONITE MINING AND TRANSPORTATION

On May 24, 1888, because of the political pressure put upon the politicians, a triangular "strip" was removed from the Uintah Reservation by an act of Congress, providing for the payment to the Indians of 20 dollars per acre and requiring the Indians' approval. This act opened the Carbon gilsonite vein for development and was the reason for the legislation. Remington (1959) says, "there came into existence an area outside the Indian and Military reservations and yet a part of the federal lands neither under control of the White-rocks or Fort Duchesne officials nor the jurisdiction of state and county authorities. It was, therefore, a territory without law enforcement." "The Strip," as it was known, because of gambling, selling whiskey to Indians, and prostitution was jokingly called "Sober City." This is now the present site of the town of Gusher (see fig. 1). Unruly activities continued until May 1906 when the land was sold by the Government at $1.25 per acre and then came under county supervision.

As early as 1860 Sam Gilson supplied horses to the Pony Express and was the U. S. Marshall...
FIGURE 1.—Historical map of the Uinta Basin showing the Indian reservation boundaries, forts, mines, and the routes of the narrow-gauge railroad and the toll roads.

FIGURE 3.—Unique method of unloading gilsonite at the Black Diamond mine, north of Fort Duchesne. Devised by C. J. Neal. Note front wheels run on lower track, rear wheels on upper track until car dumps load.
who supervised the execution of John D. Lee for the massacre at Mountain Meadows. He was the discoverer and promoter of many mining properties. He lived in Juab County and derived part of his income by rounding up wild horses which he trailed over the Book Cliffs into the Uinta Basin and over the Uinta Mountains into Wyoming to the Union Pacific Railroad. Although he may not have been the first to "discover" gilsonite, he was the first to promote it and find new uses for this strange hydrocarbon. When the Gilson Asphaltum Co. was formed, he jokingly offered a silver dollar if they named the stuff after him; this was done and it has carried his name ever since.

Another problem arose in the Castle Peak area where additional gilsonite veins were discovered. These too were on the Reservation. Miners made locations and, as promptly as they did, Indian agents and inspectors would ride out and tear them down. When the west line of the Reservation was being surveyed, the local "whites" persuaded the survey team to make a jog of one mile to the east in the boundary line which then put the Pariette vein outside the reservation and open to filing.

In 1899 more than 2,000 tons of gilsonite were shipped from the "Strip." The average price received was $50 per ton at the railroad and production and hauling costs were $21 per ton. At the Carbon mine, the miners were ever aware of the danger of explosion. It is said that they would put their candles to little piles of gilsonite dust and thus create small explosions which they thought would prevent larger ones. Many miners singed hair and suffered burns in doing this. An explosion in the Saint Louis mine near Fort Duchesne in 1896 rattled windows and doors in Vernal, 24 miles away. Mine timbering was thrown 500 feet up into the air and flames as high as 200 feet were capped by dense clouds of smoke. Two men working in the mine were killed. Gilsonite mining of the Duchesne vein which runs northwestward out of the northern portion of the Fort Duchesne Military Reservation was unique in that the miners found it necessary each morning before commencing work to get rid of the soft, tarry gilsonite oozes which covered the mine floor. This they did by starting at one end of the vein and rolling it up like a carpet and then hoisting it to the surface where it was dumps on the pits (figs. 2 and 3).

In 1902, pressure of the "whites" again became so strong in Congress that by special act of Congress the privilege of locating 100 mining claims on the Uintah Reservation was given to the Raven Mining Company. Fifty of the claims were to be for elaterite, twenty-five were to be for gilsonite, and twenty-five for precious metals. Eventually, only sixty-two of the 100 claims allowed were located. In 1905 when the Reservation was "opened," the located claims were purchased by the Raven Company. At the "opening of the reservation" for mineral entry, nearly 100 men gathered in Avintiquin Canyon at the elaterite deposits, some carrying guns. However, trouble was avoided when the men decided to race to the land office after posting notices simultaneously.

Two years prior to the opening, by another act of Congress (?) the odd-numbered sections were opened for location, provided that they had been located prior to 1891 (at which time, of course, it was not legal to locate) and provided that the applicant and the location was the first of such locations prior to 1891, and provided that a new location be made within 90 days following the opening. The Gilson Asphaltum Company acquired most of the gilsonite lands within the odd-numbered sections by purchase from the original locators. The lands within even-numbered sections were set up into 40-acre tracts and sold; all such lands not sold by 1910 were to be reserved. In 1906 President Theodore Roosevelt proclaimed the sale of the lands and in September of that year seventy-five 40-acre parcels were sold. The Gilson Asphaltum Company purchased the remainder of the Bonanza vein for $126 per acre.

Contemporaneous with the opening of the Uncompahgre Indian Reservation for gilsonite location the General Asphalt Company, the holding company of the Gilson Asphaltum Company, proposed and commenced execution of plans for the building of a narrow-gauge railroad from the Black Dragon mine to the Denver and Rio Grande Western line at Mack, Colorado (see fig. 1). They also began construction and completed shortly thereafter a system of toll roads which connected Dragon with Vernal (see fig. 1). Over these roads traveled the company stage line and freighters (fig. 4). In addition, telephone lines and telegraph lines were built. All of these activities were combined under two companies named the Uintah Railway Company and the Uintah Toll Road Company. The railroad was completed in 1904 and abandoned in 1938 when competition from trucks doomed the economic operation of the line.

The narrow-gauge road had the distinction of having perhaps the steepest railroad grade in the
FIGURE 4.—Uintah Toll Road stage at Devil's Playground south of Red Wash. Trip from Watson to Vernal took 8 hours. C. J. Neal with camera, 1912.

FIGURE 5.—Uintah Railway passenger engine at Watson, Utah, 1913.
northern hemisphere, ranging as high as \( \frac{1}{2} \) percent. The grade over the 8,500 ft. high Baxter Pass was achieved by a bewildering series of loops, swirls, and hairpin turns, the most abrupt of which was 66 degrees. Crews who had worked head-on or braked on the Uintah smiled tolerantly at mountain railroading elsewhere. They had taken the graduate course. The railroad cost \$230,000 to build and employed from 60 to 70 employees (fig. 5). In 1911 the railroad was extended another nine miles to Mack, Colorado. — w[^t^] - < ^"^> p - "

The narrow-gauge road was proud possessor of one of the most powerful and distinctive engines built by the Baldwin Locomotive Company. They outshopped (built) a high pressure, articulated engine with a 2-6-6-2 wheel arrangement with 42,000 lbs. of tractive force and a rate of adhesion of 4.62. Eighty-two percent of the total weight of the engine rested on the 12 driving wheels. Water was carried in a pair of tanks on either side of the boiler. In addition, the road owned the only two Mallet locomotives built by the Baldwin Locomotive Company for a common carrier. Upon abandonment of the road the locomotives were shipped to Sumpter Valley in the Blue Mountains of Oregon where they were used another decade. They were then shipped to Guatemala where they are still in use.

The engines of the Uintah Railroad were run on coal from the company coal mine at Carbonera, on the south side of the pass. On steep grades, cinders from the stack would blow back across the gilsonite-loaded cars and often catch the ore on fire. One of the engines came from Venezuela, where it had been used on a mining operation in the mountains. Two of the passenger cars were old Denver and Rio Grande Western sleepers which had been on the Denver to Salt Lake City run when that line was a narrow-gauge system. They later ended their days as "outhouses" in the surrounding countryside.

Freight rates on the Uintah Railroad were raised from \$8 to \$10 per ton in 1906. This was a move on the part of the Gilson Asphaltum Company to force the American Asphalt Association out of business. In 1907 the latter obtained an Interstate Commerce Commission order which reduced the rates back to \$8. When this happened, the Gilsor Asphaltum Company cut the price of gilsonite \$< per ton, thus again reducing the margin of profit. It was the old-time version of the present day "gasoline price war."

The life of the gilsonite miner was not an easy one. The mines were located in remote, lonely country which was hot in the summer and cold in winter.

FIGURE 6.—Miners at:J3lack Dragon mine, 1908.
winter. In 1907 wages for miners were $3 per 8-hour day. The miner paid 75c per day for board and furnished his own tent. Water was so short during the summer months that the miners were forbidden to waste any water by taking baths, the penalty being loss of job. Mining methods were extremely crude. Since the veins were vertical, shafts were sunk and drifting and overhead stoping techniques were employed. No safety precautions or safety ventilation was practiced during the early mining. The use of a water sprinkling system to "lay-the dust" was put into effect in 1907 at the Black Dragon mine (fig. 6). Horses were used to draw the ore cars from the mines and to hoist ore from the shafts. Often mules were used for this purpose. In 1908 electric lights were installed in the Black Dragon mine; a 150-horsepower steam engine furnished the electricity.

In 1908 also occurred an explosion at the Black Dragon mine which killed two Greek miners and caused extensive damage to the mine. The force of the explosion hurled mine timber 2,000 feet across Dragon Canyon. After 14 months of labor the two bodies were recovered, both completely encased in melted gilsonite which had resolidified around them. The fires which were a result of the explosion continued to burn for several years thereafter.

Although the miners worked hard, there were quite a few activities which kept them busy during their off hours. During the summer each mining camp had its own baseball team, and the rivalry between the various camps was intense, highly impassioned, and often violent. A barrel of beer was the usual prize for the winning team. Independence Day was celebrated by all of the miners, local cattlemen, and ranchers and their families either at Columbine or atop Baxter Pass. The railroad sent special trains to carry the party and all the trimming (fig. 7).

The miners learned early to coat their bodies with mutton tallow or cream and to powder this greasy covering to prevent the gilsonite dust from sticking like tar to their skin, since the dust can only be removed otherwise with solvents. The protective layer thus applied can be washed off with hot water. In the early days miners would often go for months without a bath, the gilsonite forming a solid crustlike layer.

During the first years of its existence, Dragon was a tent town. The company refused to build houses for the miners, but in 1908 built a boiler.

FIGURE 7.—Narrow-gauge Uintah Railway at Baxter Pass, with Gilson Asphaltum Company employees on Fourth of July outing, 1910.
FIGURE 8.—Black Dragon mine and camp in 1908. View looking northwest. Note vertical Dragon vein.

FIGURE 9.—Gilsonite mining camp at Rainbow, Uintah County, 1925.
FIGURE 10.—Photo of C. J. Neal operations, 1940, at Rainbow gilsonite mine, Uintah County, Utah, showing vein in hill. View looking northwest. Gilsonite in 200 lb. sacks awaiting shipment.

FIGURE 11.—Gilsonite trucks crossing Evacuation Creek at Watson, Utah, 1940, on the old Uintah Railway bridge.
FIGURE 12.—Rigging up west of Asphalt Ridge at Uintah Development Company No. 3 well, sec. 17, T. 5 S., R. 21 E., Uintah County, Utah. T.D. 1,749'. Wooden mast on ground; boiler with steam up. April 26, 1913. C. J. Neal, operator.

FIGURE 13.—Moving buildings to Uintah Development Company No. 3 well, 1913. Skidding carpenter shop and cookhouse with four-horse teams. Note horsemen in background "winching doghouse into place with lariats tied to saddle horns."
house and installed shower rooms for the miners (fig. 8). The town had corrals for the horses, loading bins, warehouses, a rock crusher for making cement, a company-owned sawmill, stores, a hotel and restaurant, saloons, feeding yards, blacksmith shop, bunk houses, boarding houses and later, a public school for the children.

Prior to the building of the school, all of the local dances and special events were held in the boarding house. Dragon even had a "free public library." As early as 1910 the miners even saw an occasional movie, silent of course. In the town culinary water was hauled to Dragon in tank cars from Columbine. Each house and tent had a water barrel which was filled frequently from the water car. Rain water was collected from the house roofs in barrels. Ice was stored in sawdust or gilsonite flakes in company ice houses. The houses and tents were heated by wood-burning stoves. Each house or tent had its own outdoor toilet. Kerosene lamps later gave way to gasoline lamps.

In 1911 another explosion in the Black Dragon mine shot mine timbers over Dragon Canyon, over the next hill, and almost to Whiskey Creek, a distance of more than 1 mile. Although no miners were killed the damage was so extensive that the Gilson Asphaltum Company began shifting its operations to the Rainbow mine and began extending the railroad to Watson. Mining operations continued here until 1935, when mining was commenced at Bonanza (fig. 9). The Barber Asphalt Company was the sole owner of the Gilson Asphaltum Company until 1946 when the Standard Oil Company of California became joint owner. Since that time the company has been known as the American Gilsonite Company.

In 1936 the Uintah Railway petitioned for permission to abandon services and in 1939 all services were discontinued. Later operations by C. J. Neal at the Rainbow mine (fig. 10) utilized trucks in hauling the gilsonite in 200 lb. sacks. The old railroad bed of the Uintah Railway was utilized and was built into a road over Baxter Pass (fig. 11). During the heyday of the railroad, regularly scheduled freight wagons and stages of the Uintah Toll Road arrived from and departed to Fort Duchesne and Vernal daily. The stages went to Bonanza where the Vernal stage left the Fort Duchesne stage and continued to Alhambra on the Green River, via Devils Playground and Red Wash (fig. 3), while the Fort Duchesne-Myton stage went on westward.

FIGURE 14.—Cable tool rig at Rangely, Colorado, 1918. Emerald Oil Co. lease. Note boiler and rig equipped with wheels.
FIGURE 15.—First refining plant. Rangely, Colorado, on White River, 1918.

FIGURE 16.—First refinery at Rangely, Colorado, showing the first runs of gasoline. Operated and built by C. J. Neal, 1912. Dr. Bonner, Sr. of the University of Utah shown holding graduated cylinder. Note tank wagon, capacity 1,000 gallons, used to haul gasoline to Vernal.
FIGURE 17.—Cable-tool rig on Neal Dome, north of Vernal. View looking northwest. First well drilled to Weber sand, 1922.

EARLY OIL AND GAS OPERATIONS

Prior to 1918 C. J. Neal of Vernal, Utah drilled, for the Uintah Development Company, several wells on the west flank of Asphalt Ridge. One of these, the Uintah Development Company No. 3 well which was located in the center of NE1/4 SE1/4 sec. 17, T. 5 S., R. 21 E., Salt Lake meridian, was drilled to a total depth of 1,749 ft. The cable tool rig had a coal burning steam boiler and a wooden derrick (fig. 12). The rig was moved onto location by wagons and horses (fig. 13). This well encountered tarry oil in the Tertiary in several zones, together with small shows of gas. Six cable-tool holes were drilled along Asphalt Ridge prior to 1947, many of which had shows of oil and gas.

In 1918 he drilled several shale wells for oil at Rangely on the Emerald Oil Company lease (fig. 14). Also that year he built the first refinery at Rangely on the White River at the present site of the California Company’s pipeline station. The plant had a refining capacity of 350 gal. of gasoline per day (figs. 15 and 16).

In 1922 C. J. Neal put together a block of acreage on a small closed anticline a few miles north

FIGURE 18.—First commercial gas discovery in Utah blowing in Utah Oil Refining Company's No 1 Ashley Valley, sec. 23, T. 5 S., R. 22 E., Uintah County, Utah, April 13, 1925. Gas from Morrison sand interval, 1,673 to 1,680 ft., gauged over 15.00C Mcf per day. Gas was later piped to Vernal and used domestically.
of Vernal, which subsequently became known as Neal Dome. A cable-tool rig was moved in and a well drilled to 1,800 ft., recovering fresh water in their objective, the Weber Sandstone (fig. 17).

On April 13, 1925, the Utah Oil Refining Company completed the first gas well at Ashley Valley in the SWV4 NW4 sec. 23, T. 5 S., R. 22 E., Salt Lake meridian for 15,000 Mcf per day from the Morrison Formation at a depth of 1,673 to 1,680 ft. The well blew gas over the crown block and sand from the well bore showered over the doghouse (see fig. 18).

**EARLY OIL SHALE OPERATIONS**

Many placer mining claims were filed for oil shale prior to its withdrawal from filing in 1930. Assessment work was expensive and although many had the dream of immediate development and riches, only the few who held on over the years and brought their claims to patent, or are in a position to do so, may eventually benefit from the production of oil from the shale. In 1920 C. J. Neal began construction of an oil shale plant on the White River, south of Bonanza, for the Ute Oil Shale Company (fig. 19). The plant was never finished, and the remains of the structure are still in evidence.

**EXPLOITATION OF METALLIC MINERALS**

Hard rock mining for precious metals, copper, lead and other minerals did not play an important economic role in the growth of the population of the Uinta Basin. However, the copper ore which was produced from the Dyer Mine located in the Carbonate mining district, 25 mi. north of Vernal, was developed as replacement-type deposits in Mississippian limestone. In 1887 L. P. Dyer and others located the Ace, Antietam, and other claims. Between that time and prior to 1897 over 400 tons of copper ore which assayed in excess of 49.47 percent copper and 26 ounces of silver and $6 worth of gold per ton was sent to the smelter at Park City. In 1899 the operators erected a blast furnace which had a 42 in. water jacket. This furnace operated over two years, until October, 1901. At this time the tenor of the ore averaged 33 percent copper with 26 ounces of silver per ton. The copper which was produced here was 95 to 98 percent pure. Some iron from the nearly Pope claims was used in the smelting process.

Some early prospecting was done in the Browns Park area at Red Creek, Jessie Ewing Canyon, and Willow Creek Canyon. The ore deposits were irregular veins of quartz carrying copper carbonates with some copper sulfides and with small amounts of carnottite. The mention of carnottite in "The ore deposits of Utah" (Butler, 1920, p. 605) caused considerable excitement during the uranium boom of the 1950's, although no ore of commercial significance was found.

South of Ouray in Uintah County, some prospecting and development work was done for copper in beds of the Uinta Formation. Where the sandstone beds are highly carbonaceous small podlike deposits of copper carbonates occur. The ore is of limited areal and vertical extent and the deposits are of academic interest only.

Two miles west of Ouray on the south side of the Duchesne River is an occurrence of molybdenum; the ore is the hydrous sulfate islemannite. The deposit resembles the copper occurrences mentioned above and there is no history of production due to the limited extent of the reserves. The prospect was discovered in 1917 (Schaller, 1917).

During 1913 a gold dredge was set up above the present location of the bridge across the Green River at Jensen (fig. 20). Attempts were made with this machine to recover the fine flour gold from the channel and terrace sands although the operation met with little success.
COAL MINING

Mining of coal was extensive in the Uinta Basin and for many years helped augment the economy of the local ranchers and townspeople. Here was a relatively cheap natural resource which could be utilized locally. Lynn Pack, long a Vernal resident, operated coal mines northwest of Vernal at Coal Mine Basin (personal communication). There were three grades of coal at the mine: Select sold for $4.50 per ton at the mine; $5.50 delivered in town from 1912 to 1930. The second grade coal sold for $3.75 per ton and the nut coal for $1.50 per ton at the mine. Laborers were paid $1 per car for mining the coal. Since it took 2 cars to make a ton, they received $2 per ton. The average man could mine 5 cars per day and thus earned $5 per day.

The coal is in beds of the Cretaceous Frontier Formation. There were four beds, the upper or top bed being 24 in. to 26 in. in thickness with shale and clay below; the second bed was 6 in. thick and was locally called the "Blacksmith vein"; below this was more shale and clay and underneath was the "bottom coal" which ranged in thickness from 12 in. to 14 in. and at the base of more shale was the "floor coal," which was 4 in. thick. The entire coal section was mined by inclines which averaged 17 percent grade. The mines had good eand roofs and good clay floors until water was reached at a depth of 1,400 to 1,500 ft. The roof was "shot" and room and pillar methods of mining were employed. Often the pillars were pulled and leccvered. The coal was bituminous and had a very high Btu content, although the iron content was fairly high also, causing some local trouble with grates burning out. Some distillate was recovered in cans placed en the iloor of the mine at seepage points and was used by the miners in their lamps. The deepest production was from an incline depth or 2,200 ft. Water encroachment, combined with increasing competition from truck-hauled coal from the mines at Price and Sunnyside, at the southwestern corner of the Uinta Basin, caused the abandonment of the workings in the late 1930's. During the years 1930 to 1931 no money was available for paying wages and so the miners took their wage:; in produce or other items of barter which the owners had taken as payment for the coal. The mine owners often took hay, calves, cows, beans, sugar and flour in payment for coal; these were stored in the company warehouse and on pay­day the miners would go down and take in produce the value of their wages. Then they would come into Vernal and barter what they had for what they needed.

FIGURE 20.—Praefke's gold dredge on the Green River north of Jensen, Utah, 1913.
EPILOG

In retrospect, it can be said that the mining industry in the Uinta Basin has contributed greatly to the growth and economic stability of the community. While gilsonite and phosphate mining are the only two minerals other than oil being produced in the basin today, economic utilization of the oil shale and bituminous sands may be at hand and we may shortly see an upsurge in mining activities which would surely gladden the heart of the old prospectors. Then too, there are still those of light heart and faith who may still scour the flanks of the western Uinta Mountains for the legendary, yet fairly well substantiated and documented, lost "Rhodes gold mine" which supplied the gold for plating the angel Moroni on the Latter-Day Saints Temple in Salt Lake City.

REFERENCES CITED


ADDITIONAL SELECTED REFERENCES