

A HISTORY OF THE
GILSONITE INDUSTRY

by

NEWELL C. REMINGTON

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This paper was submitted by the author in unpublished form in April, 1959, to the Department of History, University of Utah, in partial fulfillment of the requirements for a Master of Science Degree.

Typed by Pauline Love and Lithographed by Robert L. Jensen
Salt Lake City, Utah

THE HISTORY OF THE ELECTRIC LIGHT BULB

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DEDICATION

--To the Indomitable miners who, with crude implements and disregard for hazards and physical discomfort, helped to develop a prosperous, modern gilsonite industry.

PREFACE

In 1957 the American Gilsonite Company opened a revolutionary refinery near Grand Junction, Colorado, which had cost them \$16,000,000 to build, and began reducing the gilsonite--a solid hydrocarbon--to high-grade gasoline and pure carbon-coke at the rate of about 700 tons per day. Just as incredible is the fact that gilsonite was and is conveyed from Bonanza, Utah, across the precipitous Book Cliffs to the refinery through a pipeline. The opening of this magnificent plant was eighty-eight years removed from the year 1869 when the blacksmith of the Whiterocks Indian Agency attempted to burn gilsonite as coal in his forge with rather dreadful results. During the interval so many human events occurred in relation to gilsonite--a rare bitumen closely related to grahamite and glance pitch--that it was felt to be an adequate and deserving topic for thorough historical treatment.

Gilsonite mining has been one of the major industries in the Uinta Basin. Gilsonite has received the attention of geologists, chemists, and mining engineers; but until Herbert F. Kretchman's book, The Story of Gilsonite, was published by the American Gilsonite Company in 1957, it was never given much historical consideration. Theses and papers on gilsonite which listed sections on the "history" of the industry devoted a very few pages or paragraphs to the entire, complex story; and these summary statements were not always carefully researched.

Mr. Kretchman's book, while it gives a very detailed account of the American Gilsonite Company's spectacular operations since 1946, presents only a sketchy background to these modern operations. In this paper the reverse will be attempted: a very detailed, historical account of the industry up to 1946 with only a brief narrative of the most recent events.

Chapters I and VIII of this paper do not deal directly with the history of the gilsonite industry, but they are important if not essential to that story. Chapter I tells of events in the Uinta Basin prior to the effective discovery of gilsonite; and Chapter VIII presents the origin, characteristics, and uses of gilsonite.

Motivation necessary for researching the topic of gilsonite and writing this paper was provided by personal experiences and acquaintances in the Uinta Basin. As a child this writer lived seven years at Rector, a gilsonite mining camp south of the White River, while his father was foreman of the Rector Mine. Many relatives and friends worked "at the mines."

While the sustaining interest in the preparation of this paper may have come in part from nostalgia, the task never could have been accomplished without the encouragement and generous aid of many people. Especially deserving of thanks is the writer's father, Fuller Remington, who seldom failed to turn up an essential bit of information or to provide a hopeful word when despair threatened the project. Also, thanks should

certainly go to Professor C. Gregory Crampton for his patience, understanding, and helpful suggestions.

Three men who on several occasions gave many hours of their time, unselfishly reciting information were William N. Cook and Arthur L. Crawford of Salt Lake City and Hyrum Rasmussen of Vernal. Some of the others who generously gave needed information of gilsonite or the gilsonite industry were: Charles Hoel, William A. Banks, and Charles J. Neal of Vernal; and Albert Rasmussen, William F. Beer Jr., Ernest F. Goodner, Robert Pinder, Mary Jane Due, Kennett A. Culmer, and Lewis C. Karrick of Salt Lake City.

Public service never was given more efficiently and willingly than by Allen S. Crow of the Utah Mineral Survey Office (U.S. Government), Horace H. Higgs of the Utah State Tax Assessor's Office, and Lola Anderson and Eva Hatch of the Uintah County Recorder's Office. Many librarians conscientiously assisted, but four must be mentioned for conspicuous effort to aid in this research: Helena B. Stites of the Utah Historical Society, Frederick L. Glover of the University of Utah Law Library, Ruth Yeaman in charge of the University of Utah's Public Documents, and especially Vincent Frederick of the University of Utah Engineering Library.

There is no doubt that the most important source of facts in piecing together the gilsonite story was The Vernal Express; and to its editor, William B. Wallace, goes special thanks for allowing research in his files at all hours of the night before

the paper was microfilmed by the University of Utah. Equally generous with his personal and most complete mineral claim files was Paul Stanley of the Stanley Title Company in Heber City.

Since the residents of the eastern Uinta Basin rejected the Federal Government's suggested spelling of "Uinta" and insisted that their county's name be spelled "Uintah," an unusual confusion of spelling has developed. In this paper, the basin, river, mountains, and geological formations--geographical and geological terms--will be spelled "Uinta"; and the county, Indian reservation, and Indian tribe--political and ethnic terms--will be spelled "Uintah," unless quoted from some source using a different spelling.

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CHAPTER I

INTRODUCTION: THE UINTA BASIN PRIOR TO THE DISCOVERY OF GILSONITE

I. ESCALANTE AND SPANISH TRADERS

Little more than two months after the thirteen colonies declared their independence from Britain, in 1776, the Dominguez-Escalante party¹ from Santa Fe, in search of a route to the Spanish province of California, discovered and traversed the great Uinta Basin. Although the first area discovered, the Uinta Basin was one of the last areas in the Utah territory to be permanently settled and to have its natural resources developed. This basin of approximately 10,000 square miles is enclosed on the north by the Uinta Mountains and Yampa Plateau, on the south by the Roan and Book Cliff, on the west by the Wasatch Mountains, and on the east by the White River Plateau. Its principal river, the Green, which runs generally from northeast to southwest, bisects the basin in halves. Its major tributaries, the Duchesne and the White, which flow from the west and east respectively, converge with the Green at almost the same point, just south of Ouray.

The history of the discovery and development of gilsonite, one of the principal resources of this unique region, is the

¹For a detailed account, see: Herbert E. Bolton, Pageant in the Wilderness (Salt Lake City: Utah Historical Society, 1950), Chapters X and XI.

general topic of this paper. This particular chapter, however, deals with the history of the Uinta Basin up to the time of the effective discovery of gilsonite--the time when gilsonite was seen to be of commercial value and, therefore, was persistently mined--which was in the 1880's.

Escalante's path was far to the east and north of the White River gilsonite deposits and to the south of the Fort Duchesne deposits. If, by chance, some member of his party on a flank reconnaissance had observed a black outcropping of gilsonite, it would have been worth mentioning only as a curiosity, if even for that. The gilsonite veins near the Duchesne River were very conspicuous, but these men were searching for a trail to California, and "coal," as this bitumen probably would have been identified, was completely without value to them. No ores less precious than gold or silver would have caught their serious attention in this remote basin.

It was a century after Escalante's journey that the Uinta Basin was permanently settled by Indian-Service employees and Mormon farmers who made an organized effort to control all approaches to their mountain kingdom in Salt Lake Valley. The settlement of communities came late, as it did, because this avenue of approach through the Uinta Basin was seen more as a deterrent than an invitation to travel and commerce. Paths to the north and south had been chosen almost invariably by the east-west communicant. Usually, those who ventured into the Uinta country before 1870 were trappers, traders, Indian slavers,

horse rustlers, hunters, and Indian agents. While the Uinta Basin was late in being settled, the first non-Indian establishments in the Utah area were made there. The strange truth is that this Basin was the site of considerable traffic before the "settlement" of Utah was effected. The sedentary farmer, as on other frontiers, signaled the end of the migratory fortune hunter; and in this case, he chose to make his first permanent communities at great distances away from the Uinta wilderness.

Though the Spanish chose a Santa Fe-California route far to the south of the White and Duchesne Rivers, they, nevertheless, conducted annual trading expeditions² into the Uinta country after 1812. It is even reported by a reputable informant, Charles Kelly, that the ruins of an adobe Spanish fort have been found at the mouth of the White River.³ Whether this be true or not,⁴ there was considerable Spanish activity in the region before the arrival of the Kentucky and Missouri men. The primary objects of the Spanish expeditions were usually a lucrative trade with the Indians for hides and furs; or the procurement of Indian women to

²Joseph J. Hill, "Spanish and Mexican Exploration and Trade Northwest from New Mexico into the Great Basin, 1765-1853," Utah Historical Quarterly, III, No. 1 (January, 1930), pp. 2-23.

³Work Projects Administration, Inventory of the County Archives of Utah: No. 24, Uintah County (Vernal) (Ogden: The Utah Historical Records Survey, 1940), p. 8.

⁴The writer of this paper chooses to believe that the ruins of Fort Kit Carson have been mistaken for a Spanish fort; for in the ruins of Fort Kit Carson, old Spanish guns have been found. See: Mildred M. Dillman (compiler), Early History of Duchesne County (Springville, Utah: Art City Publishing Company, 1948), p. 73.

sell for wives and slaves; though occasionally, they searched for gold. In all these endeavors, the Spaniards showed no regard for the Indians. A Methodist clergyman, Joseph Williams, met up with these Spanish traders on the Uinta River in 1842 and reported that they and the French were, in spite of their Roman Catholicism, as wicked as any men who ever lived: "No one who has not, like me, witnessed it, can have any idea of their wickedness."⁵

II. MISSOURI AND KENTUCKY MEN

Besides the Spanish and Mexicans, there were many other white men who found attractions in the Uinta Basin before permanent settlements and interests in gilsonite were established. In 1825, William Ashley,⁶ with a party of six men, entered the Uinta country from Wyoming by winding his way down the Green River. Though several portages were necessary, the Ashley party managed, with their buffalo-hide boats, to explore the Green almost as far south as the present-day Greenriver City in Emery County. They then proceeded to walk back upstream to the Duchesne, a river called by the Indians the "Tewinty," "Winty," or "Uinta."⁷ They

⁵ Joseph Williams, "Tour of Oregon," as quoted by J. Cecil Alter, Utah: The Storied Domain, A Documentary Story of Utah's Eventful Career (Chicago and New York: The American Historical Society, 1932), I, p. 28.

⁶ For a detailed account of Ashley, see: H. C. Dale, The Ashley-Smith Explorations and the Discovery of a Central Route to the Pacific, 1822-29, (Cleveland: Arthur H. Clark Company, 1918), pp. 135-153.

⁷ The name "Uinta" originally referred to the entire Duchesne River. Later, as at present, it referred only to a northern tributary of the Duchesne. It is possible that the re-naming was purposive and not an accidental evolution of meanings, since President Lincoln's Executive Order of 1861, which set aside the Uintah Indian Reservation, defined the reservation in terms of the "Uinta" River.

traveled through the very heart of the basin as they walked toward the headwaters of the Duchesne before leaving the region by way of Bald Mountain for a rendezvous with the other Ashley-Henry trappers near Henry's Fork in the upper Green River Valley, north of the Uinta Mountains.

In 1826, Ashley became financially comfortable⁸ by selling his interests in the company to Jedediah Smith, David Jackson, and William Sublette, who subsequently sold out to James Bridger, Milton Sublette, Thomas Fitzpatrick, Henry Fraeb, and Baptiste Gervais, the latter group reorganizing in 1830 and being known thereafter as the Rocky Mountain Fur Company.⁹

It is quite probable that independent trappers, trappers of Smith's company and trappers of the Rocky Mountain Fur Company were along the Green and Duchesne rivers and their tributaries following the 1825 expedition of Ashley; but it is generally agreed, that the next event of considerable importance was the construction of Fort Robideaux,¹⁰ likewise called "Tewinty," "Winty," or "Uinta," near the site later chosen for the White-rocks Indian Agency. Antoine Robideaux, builder and proprietor, conducted a lively trade both with the Indians and the white

⁸J. Cecil Alter, James Bridger (Columbus, Ohio: Long's College Book Company, 1925), p. 78.

⁹L. H. Creer, The Founding of an Empire (Salt Lake City: Bookcraft, 1947), p. 63.

¹⁰This spelling has been chosen over "Robidoux" and "Robideau" which are also used.

frontiersmen who frequented the rendezvous. Rufus Sage, who visited the fort in 1842, said that the common articles of trade received from the Indians were "horses, with beaver, otter, deer, sheep and elk skins" for which were bartered "ammunition, fire-arms, knives, tobacco, beads, awls, etc."¹¹ Sage admitted that the trade was "quite profitable," the skins being the largest and the best dressed of any he had ever seen and the cost only a "trifling consideration."

During its twelve years of existence, Fort Robideaux entertained a long list of notable guests¹² among which were Kit Carson, John Charles Fremont, Miles Goodyear, Denis Julien, Rufus B. Sage, Joseph Williams, Augustus Archambeaux, Toopeechee Reed, Jim Reed, Marcus Whitman, and A. L. Lovejoy. It was, however, abusive treatment of the Indians, rather than notoriety, that determined the fate of old Fort Winty and her sister enterprises in the Basin. The above mentioned Joseph Williams objected to the abuse of Indian children and the "debauchery of the men among the Indian women,"¹³ and he spoke of the Santa Fe traffic in Indian slavery, a thing in which Robideaux, himself, participated

¹¹Rufus B. Sage, "Rocky Mountain Life: or Startling Scenes and Perilous Adventures in the Far West, 1841-1844," as quoted in J. Cecil Alter, Utah: The Storied Domain, A Documentary Story of Utah's Eventful Career (Chicago and New York: The American Historical Society, 1932), I, p. 29.

¹²Mildred M. Dillman (compiler), Early History of Duchesne County (Springville, Utah: Art City Publishing Company, 1948), pp. 70-73; and L. H. Creer, op. cit., p. 74.

¹³Joseph Williams, op. cit., p. 28.

with no apparent restraint.

In this on-going world, "beginnings" are difficult to find. As soon as the "first" fact seems established, an apparent earlier one makes a bid for recognition; and such is the case in determining what was the first year-around, non-Indian abode in the Uinta territory. Most writers have recognized Fort Robideaux with this distinction, but Mrs. Dillman of Duchesne makes a very plausible claim¹⁴ that, in 1828, Toopeechee Reed, thirteen-year-old Jim Reed, Denis Julien and Augustus Archambeaux¹⁵ of Kentucky "entered the Uintah country and set up a trading post near the spring of water just south and east of the present settlement of White Rocks."¹⁶ Mrs. Mary Reed Harris, the daughter of Jim Reed and his Indian wife, is still living at Fort Duchesne and repeating the story, repeated by many other Indians now dead, that the Reed Trading Post was built before Fort Robideaux and was later sold to Robideaux. With considerable certainty, it can be said that these four men were in the Whiterocks area years before Fort Robideaux was constructed; and further, Jim Reed, who went on to California, returned in 1878 with his Shoshone-Ute wife and large family to build "the first two-story house in Ashley Valley."¹⁷

¹⁴Mildred M. Dillman, *op. cit.*, pp. 66-72. There were many Indian witnesses.

¹⁵To the Indians and trappers, Julien was known as "Julie" and Archambeaux as "Sambo." See: *Ibid.*, p. 71.

¹⁶*Ibid.*, p. 69.

¹⁷*Ibid.*, p. 71.

North of the White River and just east of Ouray, across the Green, the well-known Kit Carson, in 1833, after having visited Fort Robideaux, built a trading post of his own--Fort Kit Carson.¹⁸ This post, which bore his name, never achieved the celebrity of Kit Carson himself, having to compete, as it did, with Fort Robideaux, the earlier and major post in the Uinta Basin.

Still another trading post in the Basin is reported to have been on the banks of the Green River at a place known as Horse Bottoms.¹⁹ It is said to have been built in 1839 by Philip Thompson who, two years previously, on the upper Green river, had founded the renown Fort Davy Crockett. Being just north of the Uinta mountains, at Brown's Hole, Fort Davy Crockett was outside of the Uinta Basin; but communication between this mountain rendezvous and the Basin posts was very frequent as, also, was communication and trade between both Brown's Hold and Uinta Basin establishments with Fort Uncompahgre on the Grand river in Colorado. Uncompahgre was the connecting post between Santa Fe and the Uinta mountain country. Having been built in 1825 by Antoine Robideaux, it was to suffer the same fate as all the forts named above.

¹⁸Herbert S. Auerbach, "Old Trails, Old Forts, Old Trappers and Traders," Utah Historical Quarterly, IX, Nos. 1 and 2 (January and April, 1941), p. 40.

¹⁹Work Projects Administration, op. cit., p. 11.

III. INDIANS ANNIHILATE TRADING POSTS

In 1844, just three years before the arrival of the first Mormon colonization party in the Great Salt Lake Valley and only a few weeks after John Charles Fremont's visit to the Uinta Basin, the Uinta Utes destroyed Fort Robideaux and massacred all its occupants. Antoine Robideaux, violently hated by many Indians, was away from his post at the time; and therefore, escaped to die sixteen years later in St. Louis, the city of his birth. Early in this same decade and very probably in the same year, the Ute Indians--Uintas, Whiterivers, and Uncompahgres--completely destroyed forts Kit Carson, Philip Thompson, Davy Crockett and Uncompahgre. All who had the misfortune of being in the posts at the time of attack were killed. It was a well co-ordinated attempt to rid the Indians of the nefarious white men who had plagued them with indecent and unfair practices for at least twenty years in that region. This is substantiated by the fact that the established posts were not the only targets for violence, for independent and transient adventurers as well were caught in the clean-sweep effort of the Indians. It is reported that a "large party of Spaniards,"²⁰ who, in search of gold on Wolf creek, north of Hanna, were ambushed and annihilated except for one young boy who escaped to carry the news back to New

²⁰Statement by George R. Goodrich, Personal Interview, February, 1958. Goodrich said that he has heard the story several times from Mrs. Mary Reed Harris and other residents of Fort Duchesne.

Mexico.

Evidently, the Indians had not heard of, or did not subscribe to, the expansionist cries of jingoes in the United States; and in their ignorance of "Manifest Destiny," had dampened the fire of adventure and brought an abrupt end to most of the commerce in the Uinta Basin. The trappers, traders and voyageurs had failed in their Indian relations. It would take farmers, equally intrepid but more civilized, to subdue the Indians and create lasting communities.

The many exposed gilsonite outcroppings in the area of the Duchesne and White rivers had been traversed numerous times. It is quite unlikely that they went unnoticed during twenty years of more than casual exploration. So, our problem here is not one of determining who first glanced curiously at gilsonite, or how many independent discoveries of the mineral had been made; but rather, it is one of finding the "effective" discovery--the discovery that led to an exciting, sustaining hope that this hydrocarbon held very real industrial wealth--the discovery that led to the development of one of today's most important industries in the Uinta Basin. There were yet, after the razing of the trading posts, almost four decades of pioneering before road-building colonizers made the desired discovery possible.

IV. GEOGRAPHICAL ISOLATION, INDIANS, AND ATTEMPTED SETTLEMENT

Brigham Young's Mormon party arrived in the Salt Lake

Valley in July of 1847. Scouting parties were sent out to Cache, Weber, Utah and Tooele valleys; and outpost villages were soon thriving in these valley approaches to the Salt Lake headquarters. Individual scouts may well have entered the Uinta country; but no serious explorations or attempts at settlement were made in this isolated Basin until 1861; and then, the misconceived program failed and lay dormant another seventeen years.

After Utah became an organized territory of the United States, frequent county reorganization and shifting boundaries occurred.²¹ It wasn't until 1918 that the present boundaries of Duchesne, Uintah, Daggett, and Grand counties were established. County organization overlaying the Uinta Basin was usually a "paper organization" with a few men who never entered the basin holding titles to offices over the area. For example: in 1854, William A. Hickman, who came no closer to the Uinta River than Fort Bridger, Wyoming, held the titles of Sheriff, Prosecuting Attorney, Assessor, and Collector.²² "A plurality of offices as well as of wives" obtained in Utah, and "these arrangements trace back to the one cardinal principle: to keep all power consolidated in the hands of the Priesthood."²³

By some definitions of "gilsonite," all the known deposits

²¹Work Projects Administration, op. cit., pp. 12-14.

²²William A. Hickman, Brigham Young's Destroying Angel (Salt Lake City: Shepard Publishing Company, 1904), pp. 100-101.

²³Ibid., p. 205. The quoted comment was made by J. H. Beadle who annotated Hickman's book.

in the world today are located within three counties--Duchesne and Uintah Counties of Utah and Rio Blanco County of Colorado--which include practically all of the Uinta Basin. This great basin was one of the last frontiers of Utah, owing not only to the geographical inaccessibility of the area but also to the fact that it was inhabited by four tribes of Uintah Utes who were not altogether friendly toward white settlement. The Utes had fine horses and were far more formidable than were the Piutes, Goshutes, their Shoshone relatives, and other neighboring tribes. Further, they had in memory relations with Americans and Spaniards of a most unsatisfactory character.

In 1851, only one year after the creation of the Utah Territory, Brigham Young, in addition to his duties as governor, was assigned the Superintendency of Indian Affairs. Three agencies were designated--Parvan, Parowan, and Uinta--with Major Holman being appointed Indian Agent for the Territory and Major Stephen B. Rose Sub-agent in charge of the Uinta Agency. Major Rose took a trip into the Uinta country the following February with six other men.²⁴ Major Rose found no Indians as he struggled through the deep snow. He returned to report the existence of fine stands of timber but very little land suitable for cultivation.

In 1857, Jacob Forney succeeded Brigham Young as

²⁴Work Projects Administration, *op. cit.*, p. 16. The six men were: Farley Granger, Bill Hendricks, George Washington Bean, men by the names of Fayette and Van Etten, and Kihuamuts who was a son of Chief Wanship.

Superintendent of Indian Affairs; and, after a visit to the Uinta Utes, he complained that Garland Hurt, who had established an Indian farm at Spanish Fork and promised a similar farm to the Uinta's was very unwise in his promises. Forney said that Hurt had implored him several times for a farm, but there was no road into the valley and could not be for many years. Farming implements would have had to be taken in on pack animals.²⁵

The Central Overland Mail Company, in search of a shorter route between Denver and Salt Lake City, sent out an exploratory expedition in July, 1861, under the leadership of Berthoud, "known as one of the best engineers in the Pike's Peak gold region"²⁶ and under the guidance of Major Bridger. This party scouted the Uinta Basin along a route almost the same as that taken by Escalante seventy-five years earlier. This expedition decided against a road through the Uinta Basin; nevertheless, they may have had a catalytic effect upon Brigham Young's latent interest in this large uncolonized region.

Brigham Young was not in the habit of careless planning, and his Uinta venture was no exception in so far as the procurement of personnel was concerned. On August 25, 1861, a long list of carefully chosen names was read by Daniel H. Wells in the Salt Lake Tabernacle.²⁷ These men were "called" to settle one of

²⁵Work Projects Administration, Inventory of County Archives of Utah; No. 25, Utah County (Ogden, Utah: The Utah Historical Records Survey, 1940), p. 26.

²⁶Mildred M. Dillman, op. cit., p. 73.

²⁷L. D. S. Journal History, MS. August 25, 1861.

Utah's last frontiers--the Uinta Valley--situated in the western end of the Uinta Basin. Young reported that he had "been requested several times to permit a settlement of that valley, but . . . had never wished to do so until now." He then revealed the motive of his current interest: "The Gentiles will take possession of that valley if we do not, and I do not wish them to have it."²⁸ On the 9th of September, the surveying and road-building party departed for Kamas Prairie from which they would open a road into the Uinta Valley whence they would choose a settlement site for the main party which was instructed to depart Salt Lake City about the 23rd of September. Young's apprehensions about "Gentiles" may have been correct and his planning meticulous, but his information about the area of the projected settlement certainly had not been the best available. Within a week, the road builders commenced a retreat to Salt Lake City, signaling a complete failure of the whole project. They had found that the route of the envisioned road was an extremely difficult course and the valley of their destination far less than desirable. Upon their return, a bitter report was made about the Uinta country, saying it "was one vast 'contiguity of waste' and [im]measureably valueless, excepting for nomadic purposes, hunting grounds for Indians and to hold the world together. . . ."²⁹ They had not found the "fertile vales, extensive meadows,

²⁸Ibid., August 27, 1861.

²⁹The Deseret News, September 25, 1861.

and wide pasture ranges so often reported to exist in that region;"³⁰ and even Governor Young, the Gentiles notwithstanding, was willing for a delay in the desired settlement of a valley so resistant to civilization.

V. UINTAH INDIAN RESERVATION

Henry Martin, Superintendent of Indian Affairs, hearing of Governor Young's plans, prior to the actual attempted colonization, wrote to the Commissioner of Indian Affairs, in Washington, giving news of Young's contemplated project and asking that the Uinta Valley be set aside as an Indian Reservation.³¹ Following this recommendation, President Lincoln, by Executive Order, dated October 3, 1861, designated the Uinta Valley as the Uinta Indian Reservation.³² In reading this Executive Order, it becomes clear that by "Uinta" the President meant "Duchesne." When the boundary lines of the Reservation were surveyed in 1875 by C. L. DuBois, it was determined that they enclosed about two million acres of land around the Uinta and Duchesne rivers and their tributaries. It is easily observed that this Reservation Order was an effective deterrent to Mormon settlement of

³⁰Ibid.

³¹L. D. S. Journal History, MS. October 15, 1861.

³²For a good discussion of Indian affairs in the Uinta Basin, see E. E. Dale, The Indians of the Southwest (Norman, Oklahoma: University of Oklahoma Press, 1949), chapters 9 and 10; and also, W. C. Calef, Land Associations and Occupance Problems in the Uintah Country (Chicago: The University of Chicago, 1948), chapter 6.

the Basin. The only attractive land in the Basin which could be legitimately settled after 1861 was in the Ashley and Green river valleys east of the Reservation and at a greater distance from Salt Lake City. Brigham Young died before the Uinta project was consummated; and though his successor, John Taylor, sent a party of his faithful followers to the Ashley Valley in 1877, the Mormons were neither the first nor the exclusive pioneers of the Basin. It should be said, however, that they lost no time in acquiring an extremely large majority.

In 1864, an Act of Congress³³ extinguished all Indian titles to agricultural and mineral lands throughout the State of Utah except on the Uinta Reservation. The next year, a treaty was reluctantly signed by various Indian chiefs who, in signing, promised to move onto the Uinta Reservation. Inasmuch as the treaty was designed to remove Indians from desirable territorial lands and place them on a reservation exclusively their own, another part of the treaty provided that whites would not infringe upon the reservation. To carry out this latter provision, H. O. Irish, Superintendent of Indian Affairs, posted warning that "all white settlers must forthwith remove from the Uintah Reservation"³⁴ or be prosecuted. Prospectors and horse rustlers were already at work on the Reservation.³⁵ The treaty was, in

³³U. S. Acts, 38th Congress, 1st Session, pp. 67-68.

³⁴Salt Lake Daily Telegraph, January 25, 1865.

³⁵The Daily Union Vedette, January 26, 1865.

reality, of little effect, since the Goshutes and Piutes, who were signataries, settled in areas outside the Reservation; and the white pioneers, driven by an incurably optimistic hope for the "big opportunity" which would bring them immense, if not sudden, wealth, became compulsive violators of reserved lands and minerals.

Beginning in 1851, agents had been appointed to supervise the affairs of the Uinta Utes; but for fourteen years, no agent established an agency among his wards or in the area of the Duchesne River drainage system. Occasionally, an agent would make an exploration of the domain under his supervision; but they usually stayed north of the Uinta Mountains, designating Fort Bridger as their official headquarters. In 1864, Indian Agent D. W. Rhodes built an agency cabin at the head of Daniel's Canyon; but "because of the severe cold and deep snow,"³⁶ a new site was chosen in less than a year. The new location was near the headquarters of the Duchesne River in the northwestern corner of the Uinta Basin. It was "Captain" Pardon Dodds, Indian Agent appointed by President Johnson, who moved the Agency from the Duchesne to Rock Creek and thence to Whiterocks in 1868, arriving there on Christmas day with seven Agency employees. The site, on the east bank of the Uinta River and near the ruins of old Fort Robideaux, had been chosen by Chief Antero and Amos Reed³⁷ because of its central location both in the Basin and

³⁶Mildred M. Dillman, op. cit., p. 80.

³⁷Ibid., p. 81.

among the Indians. Also, it was known that many trails converged there. At this place, the Agency remained for over forty years, being moved to Fort Duchesne when that post was abandoned by the army in 1912.

During the first summer of existence, the Whiterocks Agency was visited by a distinguished guest, Major John Wesley Powell, who was making his first survey of the Colorado River region. Captain Dodds was away from the agency, but Powell was treated kindly. Remaining there for four days, July 1 to July 5, he made a very favorable report about the progress of Indian agriculture, noting that on small patches of ground they were "raising wheat, potatoes, turnips, pumpkins, melons and other vegetables."³⁸ It is reported that Major Powell was shown some gilsonite by John Kelly, Agency blacksmith, who had burned this substance in his forge with rather frightening results, almost burning up his shop.³⁹ The Indians, thinking the gilsonite to be coal, had brought a quantity of it to Kelly upon his request.

In 1871, Powell again visited the agency; and during his second exploration of the Colorado River, he was accompanied and assisted by Pardon Dodds of the Uintah Agency at Whiterocks. Powell later acknowledged "substantial favors" from Dodds.⁴⁰ A.

³⁸J. W. Powell, Exploration of the Colorado River of the West and Its Tributaries (Washington: Government Printing Office, 1875), p. 41.

³⁹Statement by Charles Hoel, Personal Interview, July, 1952. Hoel received this story first-hand from John Kelly, the blacksmith.

⁴⁰J. W. Powell, United States Geological Survey of the

H. Thompson, a member of Powell's party, gave the agency a less favorable description than Powell had given.⁴¹ He said that the skilled labor was all performed by agency employees and all unskilled labor by the squaws while the lazy bucks raced their horses. Also, he described a swindle which seems to indicate that the Indians were quick to learn the ways of the white man: the Utes from the Uinta and White River Agencies would shuttle from one agency to the other collecting gratuities as wards of each agency.

VI. SETTLEMENT OF ASHLEY VALLEY

In 1872, J. J. Critchlow replaced Dodds as Indian Agent; and Dodds, who became Indian Stockman in the Ashley Valley in 1873, built the first cabin in that valley just north of Ashley Creek with the assistance of Morris Evans and Dick Huffaker. With the Uinta Indian Reservation astride the best lands of the Uinta and upper Duchesne Rivers, most pioneer farmers took the cue from Dodds and settled in the Ashley Valley along Ashley Creek, the Green River, or on "the Bench" which was the site of present-day Vernal. The names of early settlements were Ashley Town, Jensen, Hatchtown (Vernal), Mountain Dell (Dry Fork), and

Territories, Second Division, Report on the Geology of the Eastern Portion of the Uintah Mountains and a Region of Country Adjacent Thereto (Washington: Government Printing Office, 1876), p. vii. For an interesting biographical sketch of "Captain" Dodds, see: The Vernal Express, December 20, 1907, p. 5. Dodds was killed while asleep by a falling cottonwood tree when the roots of the tree were burned out in the night by Dodd's own campfire near Ouray.

⁴¹"Diary of Almon Harris Thompson," Utah Historical Quarterly, VII, Nos. 1, 2, and 3 (January, April, and July, 1939), pp. 28-29.

Ouray. Many other government employees settled in Ashley Valley. Some of the earliest were Benjamin Doke, John Kelly, George Basor, and John Blankenship. Dodds and his associates were soon given company by several bachelors who, while awaiting government surveys, began to prove up on squatter's claims. Some of these were Robert Turner, Charles Jones, Bill Hayden, Pat Lynch, and James Barker who became the first editor of The Vernal Express. Two others, Alfred Westover and James Rineman, prior to homesteading, brought herds of government cattle into Ashley Valley from Wyoming in 1874, fording the Green River at the Escalante crossing. Before the winter of 1876, still other bachelors-- Wilbur Britt, Findley Britt and S. P. Dillman--left their prospecting for the "hidden gold mine" on Carter Creek and holed up at Whiterocks, moving into Ashley Valley the next spring.

Robert Snyder brought cattle into the Ashley Valley in 1875 and his wife, child, and a girl named Clara Crouch in 1876. But, the years 1877 through 1879 were the big years for settlement of the Uinta Basin. Thomas Bingham's party of at least thirty-two people, by permission and direction of the Mormon President, John Taylor, arrived at Jensen on the Green River in December of 1877; and within five months, Bingham reported to President Taylor that there were "about 100 families in this precinct."⁴² With several families arriving late in the year, the winter of 1877-78 was a difficult one in which everyone suffered

⁴²The Deseret News, May 25, 1878.

from a shortage of food. Alfred Westover eased the situation somewhat by bringing flour in from Rock Springs, Wyoming, in a two-wheeled cart.⁴³ He also carried mail on snowshoes over this route for twenty-five cents per letter. The most severe and threatening winter of all, however, was that of 1879-80 when most of the cattle died off and starvation became a very real spectre. "Uncle" Archie Hadlock who had just received four hundred dollars from the United States Government as compensation for his son's death in the Civil War, loaned the entire amount for the purchase of flour from Green River City, Wyoming. It is said that Chell Hall also added his pension money to the collection. At least six men, in the dead of winter, made the hazardous but successful trip of procurement to Wyoming and back with the life-saving supplies for Ashley Valley's Hatchtown. These men were Jim Henry, Pete Peterson, Chell Hall, Lee Hall, Dave Woodruff and Jule Stowells.⁴⁴

Before communities grew up in the Basin, cattle men from Heber and Provo had annually brought their cattle into the western end of the Basin to graze upon Indian lands. The formation of large cattle ranches, however, was contemporaneous with the establishment of the villages and farms in the Ashley Valley. Some of the most notable ranches were owned by Abraham Hatch, Charles Pauper, Andrew Strong, J. J. Critchlow, and Dan Moseby.

⁴³Daughters of the Utah Pioneers, Builders of Uintah (Springville, Utah: Art City Publishing Company, 1947), p. 32.

⁴⁴Ibid., pp. 14-15.

VII. INDIAN TROUBLES

Soon after Uinta Basin pioneering was seriously under way, the Indians became restless and warlike again, partly due to their restriction upon reservations and the white man's never-ending infringements upon reserved domains; but largely, because of the management of affairs on the White River Agency in Colorado. Nathan Meeker, the Indian Agent, had been far less than tactful or considerate in his dealings with the White Rivers, and there resulted, in 1879, a violent Indian uprising called the "Meeker Massacre."⁴⁵ Meeker was dragged by a rope about the agency and finally pinioned to the ground with wooden stakes in the presence of the agency women.⁴⁶ Eleven other men and boys were killed on the agency. Fourteen men of Major T. T. Thornburg's reinforcement troops were killed, including Thornburg himself, as they were traveling toward the agency in answer to an emergency request made by Meeker. Five of the agency women, Mrs. Meeker among them, were taken captive by the Indians but later released.

The Meeker incident brought drastic action from the Commissioner of Indian Affairs. Treaties followed by an Act of Congress, dated March 15, 1880, removed the White Rivers from their

⁴⁵Marshall Sprague, "The Bloody End of Meeker's Utopia," American Heritage, VIII, No. 6 (October, 1957), pp. 36-39, 90-94.

⁴⁶Daughters of the Utah Pioneers, *op. cit.*, p. 13; "Pete Dillman Tells Story of Meeker Uprising," The Vernal Express, (June 16, 1932), p. 1.

Colorado reservation and placed them in Utah, just east and south of the Uinta Reservation. The Colorado Uncompahgre Utes had not perpetrated the Meeker Massacre; but they, too, were moved to Utah with the White Rivers. The time must have been propitious for moving the Uncompahgres while moving the White Rivers, for considerable difficulty had developed between the pioneer prospectors and Uncompahgres, and this was the chance to clear up the whole business. Valuable silver and lead deposits had been found on the Uncompahgre Reservation by the white trespassers. By prior treaties, the Indians had been promised their lands in western Colorado "for ever"; and now, they complained that their treaties had been violated by subjects of the United States. The Americans protested the right of Indians to possess mineral lands or any resources of value. When dealing with the Indians, the white man's solemn promises appeared to lose their solemnity easily, expediency becoming the standard. In all fairness, it should be stated, however, that most Indian Agents were men who worked with sincere regard and understanding for the improvement of the Indians; and most abuses resulted from the central government in Washington having such a sensitive ear to the demands of its western farmers, ranchers, and prospectors. After moving the Uncompahgres to Utah, President Arthur, by Executive Order in January of 1882, formally set aside about two million acres as a new reservation--the Uncompahgre--for use of both the White Rivers and the Uncompahgres. This Reservation was southeast of and contiguous with the Uinta Reservation. The

Agency, Ouray, named after the friendly Uncompahgre Chief, was located near the confluence of the Duchesne and Green rivers, on the site of the first Fort Thornburg. The United States, as agreed by treaty, was to provide fifty thousand dollars annually to be distributed among the White Rivers and Uncompahgres. Nothing was said of the Uintas in the treaty; but they, by common consent of the other Utes, were to share in the distribution of the annuities. From the White River's share of the total allotment, was deducted annual pensions to be paid to the Meeker family, leaving the White Rivers an annual cash allotment of about \$6 to \$7 per capita, while the Uncompahgres and Uintas drew about \$14 each.⁴⁷

Indian troubles did not end with the Meeker Massacre or the removal of the Utes from Colorado. The Utes threatened and attempted, as in 1844, to destroy all white settlers in the Uinta Basin. Friendly chiefs, on their way to assist in the Meeker uprising, warned the Ashley Valley residents to "fort-up." One fort was built in Hatchtown, and was playfully called "Jericho," since Jeremiah Hatch bore the name of the ancient prophet. Another fort was built in Jensen on the Burton Ranch, and still another on Blue Mountain. While preserving their lives behind the walls of these stockades, most of these pioneers lost their cabins, they being plundered and burned by the Indians.

⁴⁷For a good discussion of the Utes and their problems from 1879 to 1900, see E. E. Dale, op. cit., pp. 132-141.

There was much unrest among all four Ute tribes until about 1910, and so it was necessary to maintain a military fort somewhere near or on the Ute reservations. In the fall of 1880, the War Department established, on the site of the present town of Ouray, Fort Thornburg, namesake of the Major killed in the Meeker incident; but the difficulty of supplying this fort and the need for closer protection of Ashley settlers, forced a relocation by the spring of 1881. Fort Thornburg was moved to the mouth of Ashley Canyon, four miles northwest of Hatchtown (Vernal), from which a road and telegraph line were constructed across the Uinta Mountains to Fort Bridger. To Fort Thornburg, the government sent kegs of silver dollars with which the Indian allotments were to be paid. It was believed that the silver would be added inducement for the Indians to peacefully accept their reservation restrictions, but peace was not so easily arrived at. The Indians went so far as to threaten J. J. Critchlow, the White-rocks Agent. Major Day, in command of the troops at Fort Thornburg, called for every available freight team to haul in supplies from Park City by way of Heber and Daniel's Canyon. By 1884, tension had lessened and Fort Thornburg was abandoned by the army, the soldiers travelling over the Government Trail to Fort Bridger. "Buildings were torn down," and "the wire of the telegraph line was used for fence wire."⁴⁸

⁴⁸Work Projects Administration, Inventory of the County Archives of Utah: No. 24, Uintah County (Vernal), op. cit., p. 32.

The abandonment of Fort Thornburg proved to be too hasty, because in less than two years, another serious incident occurred. White Rivers and Uncompahgres who returned to Colorado to gather their cattle and horses were, on their return to Utah, ambushed by homesteaders and militiamen of Colorado, after being encouraged by the ostensibly friendly militiamen to camp on an open, flat country. The whites, in this disgraceful engagement, killed several Indians and stole "about five thousand pounds of dried meat, twenty-five hundred goats and sheep, and several hundred head of horses and cattle."⁴⁹ The Indians were never reimbursed for this depredation though they, the Indians, continued to pay the annual pensions to the survivors of the Meeker family for the atrocities of 1879. Troops were again brought in from Fort Bridger. Companies, C, I, F, and K of the 21st Infantry arrived on the Uinta River August 16, 1886, under the command of General Crook where they were confronted with about 700 Utes in full war dress. The army quickly dug-in for a long siege; and General Crook, thinking he had reached the Duchesne River, hoisted a flag and declared, "This is the future Fort Duchesne."⁵⁰ Lt. Colonel Benteen with two units, Companies B and E of the 9th Cavalry, from Fort Washakie, Wyoming, soon re-enforced the Fort Duchesne trenches; and in June of 1888, all the above troops were replaced by Companies A, C, F, and K of the 16th Infantry

⁴⁹Mildred M. Dillman, op. cit., p. 84.

⁵⁰Ibid.

and C and M of the 9th Cavalry. This military reservation was officially established on the lands taken from the Indian reservation by President Cleveland's Executive Order of September 1, 1887.

VIII. ROADS AND COMMUNICATIONS

A road and telegraph line were soon run to Price on the Denver and Rio Grande Western Railroad, hereinafter referred to as the D&RGW Railroad, by way of Nine Mile Canyon, a trail long used by early whites and Indians. Freighters and Indians, with greater concern for camp fires than communication systems, soon chopped down the telegraph posts, which the army replaced with iron poles. When Fort Duchesne was vacated by the army in 1912, the post became the property of the Department of Interior which immediately occupied the buildings with the Uinta Agency and its Ouray Sub-agency.⁵¹

In summary, it could be said that within the approximate 10,000 square miles of the Uinta Basin there were, early in the 1880's, a few hundred white pioneers, living mostly in the Ashley Valley, and approximately 4,000 Ute Indians on two reservations which totalled about 4,000,000 acres in area. Because of misunderstandings and hostilities between these two racial and cultural groups, there was maintained on the Uinta River a heavily-manned army post, Fort Duchesne.

⁵¹Ouray was made a Sub-agency of the Uinta in 1886.

Further, connecting this remote basin with the outside world were three wagon roads over which freight and mail could be hauled. These were: first, the Government Trail, running north from Vernal over Taylor Mountain into Carter's Station on the Union Pacific Railroad, just north of Fort Bridger; second, the Park City Road, running west along the Duchesne River, Current Creek, Strawberry River, and Daniel's Canyon into Heber City and thence to Park City; and third, the Nine Mile Road, running south from the Duchesne River to Minnie Maud Creek, through Nine Mile and Soldier Canyons to Price. A fourth and natural road, though undeveloped, lay, from Ouray, eastward into Meeker, Colorado, following generally the barren country bordering the White River. Of the four roads, the first was least used, since it was an extremely difficult wagon route. The last named road, through Nine Mile Canyon, was most used and fairly could be considered the lifeline of the Uinta Basin until about 1904, continuing in effective use as late as 1919.

It was in this setting of geographical isolation, undeveloped communications, and unsettled Indian problems that the effective discovery of uintahite--called "gilsonite"--occurred during the 1880's.

CHAPTER II

THE DISCOVERY AND NAMING OF GILSONITE AND THE ST. LOUIS MINE

I. DISCOVERY

Gilsonite deposits have been found over an area of about 1,500 square miles within the Uinta Basin. Many of the veins, such as those near the Uinta River, White River, and Evacuation Creek were clearly visible on the surface and were situated on routes traveled by Indians, trappers, explorers, cattlemen and Indian Agency employees; and they could hardly have escaped notice. The principal concern here, however, is to determine when discoveries were made which led to the development of the gilsonite industry, so important a factor in the history of the Uinta Basin economy.

Here, again, difficulty is encountered, since there are many who claim original or most important discoveries. After reviewing many apparently conflicting claims, the conclusion has been reached that most claims to early discoveries and achievements were made in honesty and good faith, but usually in ignorance of other claims and claimants. It was not unusual for several independent discoveries to be made of the same vein. Most statements of discovery seem to agree in text and chronology; but as some were given in superlative terms and with little knowledge of similar achievements, the illusion of contradiction was often created. Then, too, there have been many careless but honest mistakes made by those who did record events or copy the

recorded events.

Herbert Abraham, in the fifth edition of his comprehensive work on asphalts, reports that gilsonite was discovered in 1882.¹ It is correct that discoveries were made in 1882, but these certainly were not the first. Samples of gilsonite found their way out of the Uinta Basin to the east and west coasts much earlier than 1882.

In 1865, the collection of Professor John S. Newberry of Columbia College School of Mines contained a sample of "an unusual variety of asphaltum." Part of this sample was given to Dr. Henry Wurtz who reported that it "had been sent from some point in central Colorado, not precisely known."² Dr. Wurtz preferred to call this "new Colorado Resinoid" a variety of the same species as the Grahamite of Ritchie County, West Virginia. He gave a paper on this topic to the American Association for the Advancement of Science at Salem, Massachusetts, in 1869.³

¹Herbert Abraham, Asphalts and Allied Substances (New York: Van Nostrand Co., 1945), 5th edition, I, p. 250. In earlier editions, Abraham reported the discovery date as 1862, but changed this to 1882 when A. L. Crawford pointed out that Abraham was perpetuating a typographical error made originally by the U. S. Bureau of Mines. See A. L. Crawford, "Gilsonite and Related Hydrocarbons from the Uinta Basin, Utah," Bulletin of the Mineralogical Society of Utah, VII (1947), p. 45.

²Henry Wurtz, "Uintahite, A Variety of Grahamite," The Engineering and Mining Journal, XLVIII, No. 6 (August 10, 1889), p. 114.

³Ibid.

This gilsonite sample could have been secured from western Colorado, south of the White River, from the Black Diamond Vein, or it could have been found in or near some vein in eastern Utah. At any rate, it is quite certain, as pointed out by Professor W. P. Blake,⁴ that the sample was from the Uinta Basin.

Thomas Taylor and Enoc Gurr, Ashley Valley freighters, and John McAndrews, Indian Service employee, claim to have discovered the "conspicuous exposure of gilsonite" on the Ashley-Salt Lake City Road.⁵ This "conspicuous" vein could have been none other than the later famous Carbon Vein near the present site of Gusher, two miles east of Fort Duchesne. It would be ridiculous to question their discovery even though no specific date was given. It must be said, however, that these men were not in the valley early enough to have been the first to discover this particular vein so near the Whiterocks Indian Agency.

It is certain, as related earlier, that Pardon Dodds established the Whiterocks Indian Agency in 1868 and that in the year 1869 Major Powell made his first visit to that agency. It is related⁶ that in 1869 the agency blacksmith, John Kelly, asked the Indians if they knew where any "coal" was located. They

⁴W. P. Blake, "Uintahite--A New Variety of Asphaltum from the Uintah Mountains, Utah," The Engineering and Mining Journal, XL, No. 26 (December 26, 1885), p. 431.

⁵A. L. Crawford, "Gilsonite--Its Discovery and the Early History of the Industry," Guidebook to the Geology of the Uinta Basin, Eighth Annual Field Conference, edited by Otto G. Seal, Intermountain Association of Petroleum Geologists, (1957), p. 149.

⁶Statement by Charles Hoel, personal interview, July, 1952. Hoel was an intimate acquaintance of Kelly, Blankenship,

replied that they knew where to find "coal" as described by Kelly, whereupon they brought him a quantity of gilsonite from the Carbon Vein south of the agency. The results of Kelly's use of this new "coal" were memorable because the ore burned at a high temperature, giving off a heavy, black smoke and a strong, petroleum-like odor as it melted and ran flaming from the forge, nearly burning down the blacksmith shop. It is further reported that samples of this strange ore were given to Major Powell, though he never mentioned this in his journals. The agency employees wasted no time in being escorted to the ore vein; and soon after, George Basor "located" the vein, posting his location notices, but doing no assessment work and making no recording of his claim, since the vein was within the Uinta Indian Reservation and there was no local land office in which to make the recording. We will return to Basor's location after making a brief summary of other gilsonite discoveries.

Don Maguire reported that "early in the seventies" some prospectors brought samples of elaterite and gilsonite to Provo and Salt Lake City"; and further, that "some of it was sent to San Francisco."⁷

Dodds and others of the agency. For a similar account, see: Work Projects Administration, Inventory of the County Archives of Utah; No. 24, Uintah County (Vernal), (Ogden: The Utah Historical Records Survey, 1940), pp. 34-35. The date of the incident as reported in this latter account is 1876. It is believed that 1869 is the most realistic date, since Powell was supposed to have been shown the ore and most of the employees named had left the agency by 1876.

⁷Don Maguire, "The Hydrocarbons of Eastern Utah," Mines and Minerals, XX, No. 9 (April, 1900), p. 398.

He also asserted that as early as about 1860 hunters and prospectors made known that they had observed this "dark, strange substance" inside the Ute Indian stronghold. Maguire explained that little attention was paid to this hydrocarbon, however, as the miners generally were searching for gold, silver, and lead. Any type of asphalt was uninviting in the heart of that Indian country which had such a rough and broken surface and was such a great distance from a railroad. Its development would have to await the approach of a railway with accessible, connecting wagon roads.

In his report of the White River explorations of 1876, F. M. Endlich tells of his find of "approximately vertical veins" of asphalt on Two-Water Creek,⁸ a southern tributary of the White River, lying between the Colorado State Line and the Green River. He said that the veins varied in width from a quarter of an inch to several feet. Chittenden of the same expedition found "springs of this mineral"⁹ at the head of Sweet Water Creek "where the asphalt slowly oozed out of the sandstones similar to petroleum in certain regions."

To indicate the thoroughness with which these early government explorations were conducted, it should be shown that A. C. Peale in his explorations along the Book Cliffs in the same year, 1876, found these same asphaltum springs between Sweet Water

⁸F. M. Endlich, "Report of F. M. Endlich, S.N.D., Geologist of the White River Division," United States Geological and Geographical Survey of the Territories, 10th Annual Report (Hayden), (Washington: Government Printing Office, 1878), p. 85.

⁹Ibid., p. 86.

Creek and Willow Creek. They visited them "early on a cool morning and no flow was noticed. Near the crevice, however, the tar was soft."¹⁰ Many such spots were seen.

Augustus D. Ferron is credited with the discovery of the Willow Creek gilsonite veins south of Ouray in 1879.¹¹ He was employed as a U. S. Deputy Surveyor; and was, at the time, surveying the boundaries of Township 10 South, Range 20 East, Salt Lake Base and Meridian. "Likewise Daniel G. Major noted 'asphaltum' when he surveyed several neighboring townships in 1882 and 1883."¹²

In 1880, Professor S. F. Peckham referred to reported asphalt veins on the banks of the Green River;¹³ and in 1882, Ovando J. Hollister told of "scale wax" in Nine Mile Canyon¹⁴ south of the Duchesne River.

Thomas H. Wigglesworth, who was on a reconnaissance for wagon roads to be used in the construction of the D&RGW Railroad, traveled through much of the gilsonite country in 1883, and made subsequent reports of various asphalt discoveries.¹⁵

¹⁰A. C. Peale, "Report Of A. C. Peale, M.D. Geologist of the Grand River District, 1876," United States Geological and Geographical Survey of the Territories, 10th Annual Report (Hayden), (Washington: Government Printing Office, 1878), p. 175.

¹¹A. L. Crawford, op. cit., p. 149.

¹²Ibid.

¹³S. F. Peckham, "Report on the Production, Technology, and Uses of Petroleum and its Products," Tenth Census of the United States, 1880, X, p. 20.

¹⁴A. L. Crawford, op. cit., p. 150.

¹⁵R. W. Raymond, "Note on a Specimen of Gilsonite from Uintah County, Utah," Transactions of the American Institute of Mining Engineers, 1888-1889, XVII (1889), p. 113.

Wigglesworth achieved considerable notoriety as a result of his correspondence and the samples of gilsonite which he distributed up through channels in his company. A specimen which he took from the Carbon Vein arrived in R. W. Raymond's hands in 1887 by way of Messers J. A. McMurtrie and William Wagner, both of the D&RGW Railroad Company. Wigglesworth mentioned seeing this same material in White River Canyon, in Wagon Hound Canyon, and north of the White River. Also, he found a similar substance on a sand bar in Strawberry Creek. He heard reports of many other discoveries and was convinced that the supply of such material was practically inexhaustible in that region.¹⁶

Gilsonite and elaterite were surely known to be in the Uintah Country years before people identified the ore or determined its value. For example, The Vernal Express in talking of the "early days" reported that cowboys T. C. McNeil, Jesse Hainline, L. H. Woodward and the Burton boys who, in camping in the badlands, had mistaken gilsonite for coal. ". . . When they attempted to burn the stuff it melted like rubber and spread over the ground."¹⁷

II. SAM GILSON AND NAMING

It was some time before the name "gilsonite" was recognized as the name for this new mineral. It was known by a great

¹⁶Ibid., p. 115.

¹⁷"The Minerals of Uintah Basin," The Vernal Express, December 20, 1907, p. 6.

variety of common asphaltic names, as most observers were not quite sure that it was a unique substance deserving a new name.

It was Professor William P. Blake¹⁸ of New Haven, Connecticut, and later of Provo, Utah, who after having received ore samples, wrote a paper in 1885 on a "new variety of asphaltum from the Uintah Mountains" to which he gave the name "uintahite,"¹⁹ naming it after the country in which it was found. "Uintahite," then, is the official, scientific name of this asphaltite; but there is little doubt that "gilsonite" has been and will continue to be the name most frequently used, the latter and popular name being taken from one of the most enthusiastic of the early promoters--Samuel Henry Gilson.

Sam Gilson was an ambitious and imaginative man with extremely varied interests and activities. He had a wide-eyed wonderment of his universe worthy of a man of the Italian Renaissance. His energy and creativity left its mark wherever he went. Coming from Plainfield, Illinois, at the age of fifteen, he settled in Austin, Nevada, where he married Alice Larkin Richardson. The Gilsons soon moved to Gilson Valley, Nevada, to develop their interests in cattle. In their Nevada home, Mrs. Gilson many times stood guard with a rifle against hostile Indians.²⁰

¹⁸Because of a mistake by a copyist, "Blake" has become "Parker" in numerous writings on gilsonite. There is no W. P. Parker who had anything to do with gilsonite. There was an Edward W. Parker who wrote articles on asphaltum in 1895 and 1896. See bibliography.

¹⁹W. P. Blake, *op. cit.*, p. 431.

²⁰E. W. Harmer, "Gilsonite Mining in Utah Expands," The Mining Journal (Arizona), XXIII, No. 7 (August 30, 1939), p. 6.

From Nevada the Gilsons moved to Utah, first to Juab County, then to Price, and eventually to Salt Lake City.

Sam Gilson supplied horses to the Pony Express during the year that it was operative, 1860.²¹ He was the U. S. Marshall who supervised the execution of John D. Lee at Mountain Meadows.²² He was the discoverer and promoter of many mining properties, and the inventor of several successful machines, including a hydraulic ore concentrator or separator.²³ He even spent considerable effort in an attempt to develop a flying machine.²⁴ One of his contrivances was a coke oven in which he converted coal into "coke of excellent quality."²⁵

From near his home in Juab County, Gilson would round up horses which he would trail across the Wasatch Plateau, the Book Cliffs, the Uinta Basin and the Uinta Mountains into Wyoming to the Union Pacific Railroad, traversing the Uintah Indian Reservation and the gilsonite fields enroute. Just how soon he began making this long drive with the horses is uncertain, but the following inscription found on a cedar tree in Horse Canyon would indicate that he was in the Uintah area as early as 1878: "Sam

²¹A. L. Crawford, op. cit., p. 151.

²²Ibid.

²³"The Gilson Hydraulic Concentrator," Salt Lake Mining Review, II, No. 5 (June 15, 1900), p. 10.

²⁴A. L. Crawford, op. cit., p. 151.

²⁵The Eastern Utah Advocate, December 26, 1901, p. 2.

Gilson, June 1878, by God."²⁶

Harmer²⁷ reports that there were many stories of how Gilson discovered this strange ore, such as seeing it after a ground hog had kicked some up, or seeing it in an ant hill, or being shown the ore by Indians as he returned from a horse selling trip; but in fact, cattlemen, who had found the ore by some means near Fort Duchesne, carried samples to Gilson in 1885. Gilson took several sacks home with him where his ever curious mind went to work. Mrs. Gilson reported that she "was not exactly overjoyed with her husband's discovery, since he filled practically every pot and pan in the house with the 'messy stuff' in order to carry on his experiments."²⁸ Gilson's efforts were not entirely wasted, for he developed a sort of "chewing gum and an insultation for wires, and paint for the piles at Saltair . . . with the tar-like substance."²⁹ Gilson was soon back on the Reservation where he was shown the Carbon Vein by someone other than Bert Seaboldt as has been incorrectly reported by some writers.³⁰ Gilson and Seaboldt made independent investigations of the Carbon Vein, combining their interests in Salt Lake City

²⁶Harold A. Bezzant, "The Chromatographic Separation of Gilsonite," (unpublished Master's thesis, Brigham Young University, Provo, 1949), p. 3.

²⁷E. W. Harmer, op. cit.

²⁸Ibid.

²⁹Ibid.

³⁰Letter from Seaboldt to Arthur L. Crawford, May 31, 1946, p. 1.

in 1886.

It was in 1886 that gilsonite became important enough to cause real action, and one must turn to Bert Seaboldt and Sam Gilson to see the industry develop into an exciting, cash-paying business. First, however, a further statement on the name "gilsonite." It was the tireless efforts of Sam Gilson to develop a commercial use for this hydrocarbon and his undying conviction that the substance was of great value which caused the Basin settlers to dub it "gilsonite." Also, when the first company was formed to mine this new substance it was named the Gilsonite Manufacturing Company. This company was soon bought out by another which was controlled by St. Louis business men. In connection with this latter company, an incident occurred which added considerably to the permanency of the names "Gilson" and "gilsonite." When the St. Louis men held a board meeting in Price to organize and name a company for exploiting the Carbon Vein, Gilson jokingly offered one silver dollar to have it named after him.³¹ The joke carried, and the company became known as the Gilson Asphaltum Company of Missouri and their patented trade mark became "Gilsonite." This Company and its successors were to be the largest and most persistent of all gilsonite companies. The name "gilsonite" also was given added acceptability when Professor Fristo of Washington, D. C., called the ore

³¹Statement by Charles Hoel, personal interview, July, 1952. Hoel said that C. O. Baxter, who attended the meeting, reported this incident to him personally.

"gilsonite" after having conducted rather extensive experiments.³²

It seems fitting that Gilson's name should have been perpetuated by this asphaltite which he so earnestly promoted, though, in truth, it may have been just as rightly named after Bert Seaboldt whose efforts to promote were equally as determined and effective as Gilson's. The residents of Price, Utah, were as impressed by Gilson as the people of the Uinta Basin, for they placed his portrait among the notable figures in the murals of the Price Municipal Building.

To recapitulate, it can be said that between 1860 and 1888, the year gilsonite was first mined commercially, that there were many discoveries of gilsonite; and further, that even before George Basor located the Carbon Vein in 1869, a sample of the ore had reached the east coast. Secondly, Sam Gilson was not the discoverer of gilsonite; but rather, he was the man whose intense labors, optimism and self-promotion fixed his name upon this peculiar asphaltite.

III. BERT SEABOLDT, THE GILSONITE MANUFACTURING COMPANY, AND THE CARBON VEIN

The development of a gilsonite industry which would require the transportating of large quantities of ore to eastern markets had to await the coming of a railroad which could be

³²Don Maguire, "The Hydrocarbons of Eastern Utah," Salt Lake Mining Review, II, No. 3 (May 15, 1900), p. 11.

reached profitably by wagon. The Union Pacific line through Wyoming and northern Utah was 150 miles distance from the Carbon Vein near Fort Duchesne; and the shortest road, which ran to Carter's Station, on the Union Pacific Railroad in southwestern Wyoming, was across the Uinta Mountains, a route far too hazardous and expensive.

Another problem which threatened to block all enterprising action was the fact that nearly all the gilsonite lands discovered in Utah were situated on one or the other of the two contiguous Ute Indian Reservations--the Uintah and the Uncompahgre--and were therefore withdrawn from entry.

The former problem appeared solved when in 1886 the D&RGW Railroad extended their line westward to Price, Utah, bringing railway services within a hundred miles of the Carbon Vein. Roads to the south were not an impossibility. In fact, a crude wagon trail, which was serviceable during part of the year for light wagons, was already being used. It ran from Fort Duchesne to Well's Draw, to Nine Mile Canyon, to Soldier's Canyon and thence to Price, being about a five or six day freight trip one way. This trail was later made into a serviceable, non-toll road by the Fort Duchesne troops. With the railway so near at hand and with hopes of a later branch line running into the Basin itself, spirited men like Bert Seiboldt and Sam Gilson were not to be thwarted by federal laws or Indian reservations.

Bert Seiboldt first became acquainted with gilsonite in 1886. He was assistant to the Chief Engineer and was Manager

of Construction for the D&RGW Railroad between 1882 and 1890, during the time that the line was built from Grand Junction to Ogden; and he made his first trip into the Uinta Basin in 1884. Two years later he returned, camping at Pardon Dodds' Ashley home. George Basor was visiting with Dodds, and it was he who "brought out a flour sack and dug out several pieces of the black stuff"³³ which he handed to Seaboldt, asking "What's that, coal?"³⁴ Seaboldt reports that he answered it was not coal but a "pure hydro-carbon of some kind that I can't classify." Seaboldt asked Mrs. Dodds for some fresh churned butter which he mixed with the gilsonite to form a chewing gum, and they soon "were all busy chewing." Basor then took Seaboldt to the Carbon Vein which may have been a mistake on the part of Basor who on more than one occasion demonstrated a lack of opportunism which rated him second to Seaboldt or Gilson. Seaboldt, learning that Basor had done no assessment work upon his claim, it being upon the Reservation, jumped the claim³⁵ and posted his own notices. The United States Land Office in Salt Lake City shows the first recorded locations--those at Seaboldt's arrangements--to have been January 9, 1886. Seaboldt located seven claims, Carbon #1 through Carbon #7, under the following six names which are given in the order of location:

³³Letter from Seaboldt to A. L. Crawford, May 20, 1946.

³⁴Seaboldt says Basor knew better than to ask if the stuff was "coal," because with it they had "nearly burned down the agency on the Uintah River." See Letter from Seaboldt to A. L. Crawford, June 24, 1946.

³⁵Statement by Charles Hoel, personal interview, July, 1952.

T. J. Almy, R. C. Chambers, Richard McIntosh, George Goss, Walter Almy, Abraham Hanover, and T. J. Almy.³⁶ The reason for these names appearing on Seaboldt's claims will be apparent as the subsequent narrative of Seaboldt's activities proceeds.

Seaboldt carried a very few pieces of the ore with him to Salt Lake City. On the way, he gave a sample to R. C. Chambers of the Ontario Mine in Park City. In Salt Lake City, he discussed the Carbon Vein possibilities with Sam Gilson. Gilson was later taken to McIntosh and Chambers by George Goss.³⁷ At Sandy, Seaboldt gave a specimen to Richard McIntosh, owner of the Sandy Samplers. The Sandy chemist overheated the crucible and destroyed the specimen, so Seaboldt went to Price where he outfitted a pack train and fought his way through "deep snow on the summit"³⁸ to get a thousand pounds of sample ore. Seaboldt was then sent to build a wagon "road" from Price to the Carbon Vein after which he "set up a tent town" at the Vein and began experimenting with the ore. Seaboldt says "the first result was varnish and the next insulation as the stuff was absolutely impervious to acids of any kind and of course to moisture."³⁹

³⁶See "Carbon #1 through Carbon #7" under "Uintah County" in the mineral claim files of Stanley Title Company, Heber, Utah.

³⁷George Goss was the Engineer who built the Michigan Southern Railroad. See letter from Seaboldt to A. L. Crawford, June 24, 1946.

³⁸Letter from Seaboldt to A. L. Crawford, May 20, 1946.

³⁹Ibid.

During the time that Seaboldt was thus employed, Sam Gilson, who had also seen the Carbon Vein, was sent by Chambers and McIntosh to the Smithsonian Institute in Washington to determine just what this new material was. The Institute declared it to be a hydrocarbon or bitumen which was 99.6 per cent pure.⁴⁰ The impurities were not named.

Just as the Chambers-McIntosh-Goss-Gilson-Seaboldt group was beginning to take shape, the Indian Agent, T. A. Byrnes, notified Seaboldt that his tents were on the reservation and that he was trespassing. The Indians had been acting very surly and hostile about the mineral explorations and carefree trespassing of their reservation to which they were assigned only a few years previously with a promise of exclusive rights. Their warlike activities reached a high pitch after a number of Utah Utes were ambushed and killed in Colorado, making it necessary to rush in troops to establish Fort Duchesne in the summer of 1886, as explained in Chapter I above.

Seaboldt consulted former agents, Surveyor General's records and even made surveys himself, all to no avail: no matter how he figured, the Carbon Vein remained within the Uintah Reservation. The group was left with only two choices of action as Seaboldt viewed it: "to abandon the whole thing or attempt the impossible by getting a piece cut out of the reservation."⁴¹

⁴⁰Ibid.

⁴¹Ibid.

The latter alternative was chosen after Seaboldt scouted the political situation in Washington. Chambers and McIntosh provided \$25,000 to fight their cause in the Federal Congress, but Congress adjourned without taking any favorable action in 1887. Upon his return to Utah, Seaboldt learned that cowboys had discovered three large veins of gilsonite on the Uncompahgre Reservation to the east of the Uintah, but it was decided to let the Uncompahgre deposits rest until the Uintah problem was solved.

On May 24, 1888, Congress removed a triangular "Strip" of about 7,000 acres from the eastern end of the Uintah Reservation, providing for a payment of twenty dollars per acre to the Indians and requiring the Indians' approval which was secured in September, 1888, through "much proselyting," as Seaboldt put it. The Act included a "preferred right of entry" recognizing earlier locations. After securing the Carbon Vein, Seaboldt and associates then turned their attention to the Uncompahgres to convince them that they should accept their land allotments which would make their mineral lands available to entry.

With The Strip off the Reservation, the "Gilsonite Manufacturing Company," officially organized in Salt Lake City, was ready to develop and promote legitimately the Carbon Vein of gilsonite. The company patented six lode claims, each 600 feet wide and approximately 1500 feet long, running contiguously and lengthwise on the exposed vein.⁴² Nearly all gilsonite is found

⁴²"Notes," Utah Mineral Survey Office, (U.S.), Salt Lake City, Utah, Book 141, p. 1: These notes show that the U. S. Deputy Surveyor was Augustus D. Ferron who later figured prominently in the gilsonite story. Also, Bert Seaboldt and William Thomas were chairmen while R. C. Chambers was listed as the company attorney.

in vertical fissure-like veins with a strike generally northwest to southeast, varying in width from a fraction of an inch to twenty-two feet; and running to great depths, probably to the Green River Shales, or farther, as in the case of the Black Diamond Vein, to the Wasatch Formation. Depth of gilsonite veins, as measured from the surface, varies from about one hundred to two or three thousand feet as determined by vertical movements of the strata in which it is located and by surface erosion.

The Carbon Vein, located on The Strip, is about three miles northeast of Fort Duchesne in Township two South, Range one East, Uintah Special Meridian.⁴³ There is a gentle dip of the strata to the north of about two degrees or less.⁴⁴ The strike of the vein is approximately north forty-one degrees west, but reported differently by many people due to poor surveying instruments and techniques. Ferron reported some extreme variances were caused by locations being made with a pocket compass and "adding rather than subtracting the variation of the needle."⁴⁵ The superficial strata are of the Uinta Formation consisting of "soft, dark sandstone, with intercalated layers of hard, dark-red

⁴³The Uintah Special Survey can be thought of as having been shifted 17 Townships East and 4 Townships south of the survey based on the Salt Lake Meridian.

⁴⁴Earl Douglass, "Final Report of the Gilsonite Holdings of the Gilson Asphaltum Company in Utah and Colorado," (unpublished Report, 1928), pp. 167, 171. Dr. Douglass insists that Eldridge, from whom most writers have copied, has his dips too steep.

⁴⁵"Notes," (Utah), Mineral Survey Office, (U.S.), Salt Lake City, Utah, Book 141, p. 11.

clay."⁴⁶ The vein, which varies from three to five feet in width, can be followed on the surface for about two miles. The ore near the surface was pencillated and had a tendency to crumble, while down a few feet in depth the ore, unaltered by atmospheric influences, was massive, homogeneous and cuboidal. The Carbon Vein was nearly all first grade ore--"selects" of the finest quality--which fractured with a clear, smooth, shiny surface.

Claims One and Four were soon under vigorous development. As the ore was dug out the company's laboratory in Salt Lake City began experimentations which proved gilsonite suitable "to the manufacture of mineral paints, varnishes, and lacquer of the most superior quality, and the first gilsonite sold in the American market brought \$120 per ton."⁴⁷ In 1900, it sold for about \$60 per ton at Price Station; and since that time, there has been a great fluctuation of prices, generally below \$50 per ton at the railway station. It is reported that during the year 1888 the shipments of gilsonite aggregated 3,000 tons, and that it sold for \$80 per ton on the railway cars.⁴⁸ During the first eight months of 1889, the Gilsonite Manufacturing Company shipped 1,500 tons⁴⁹ of ore to Price by wagon.

⁴⁶R. W. Raymond, op. cit., p. 114.

⁴⁷Don Maguire, "The Hydrocarbons of Eastern Utah," Salt Lake Mining Review, II, No. 3 (May 15, 1900), p. 11.

⁴⁸"Uintah County," The Engineering and Mining Journal, XLVII, No. 2 (January 12, 1889), p. 52.

⁴⁹W. P. Blake, "Uintahite, Albertite, Grahamite, and Asphaltum Described and Compared," Transactions of the American Institute of Mining Engineers, XVIII (1890), p. 570.

IV. GILSON ASPHALTUM COMPANY AND THE ST. LOUIS MINE

Profitable as these shipments were; the company, in September, sold all six of their claims to a St. Louis company for at least \$150,000, the sale being made by four men only, Gilson having nothing to do with the sale.⁵⁰ Several of the employees of the Gilsonite Manufacturing Company, including Seaboldt, were retained by the St. Louis company which continued operations on the Carbon Vein, producing over 600 tons of ore themselves within the remaining four months of 1889.

The St. Louis company, named "The Gilson Asphaltum Company" by means explained above, was incorporated in Missouri; and with its successor companies, was destined to become the biggest operator in the gilsonite industry. In fact, the holdings and gilsonite output of this company exceeded the aggregate of all competing companies. "Gilsonite" became their trade mark and Bert Seaboldt their superintendent of mines. Offices were maintained in St. Louis and New York with a European Agent in Hamburg.⁵² C. O. Baxter, the president and chief organizer of the company, came into the gilsonite business by a rather indirect chain of events⁵³ which began with Bert Seaboldt in Salt

⁵⁰Letter from Seabolt to A. L. Crawford, May 31, 1946). The sale price was reported as \$185,000 by the Vernal Express, May 6, 1897, p. 1.

⁵¹"The Gilson Asphaltum Company," Corporation Files, Office of Utah Secretary of State.

⁵²Company letterhead stationary, dated June 18, 1897.

⁵³Letter from Seaboldt to A. L. Crawford, May 31, 1946.

Lake City. Seaboldt gave a few pounds of gilsonite and a bottle of his gilsonite varnish to C. E. Soest, a friend of long standing, who was the vice-president of the Anheuser-Busch Brewing Company in St. Louis. When Soest got home, he varnished a big safe in the treasurer's office. Adolphus Busch became interested in the varnish and immediately sent for a Mrs. Murphy, widow, and varnish company owner whose deceased husband had been a very close friend to Busch. Busch had bought a part interest in the varnish company as a means of subsidizing Mrs. Murphy. Mrs. Murphy varnished her own safe with Seaboldt's so-called "first perfect varnish"; and while in the process, C. O. Baxter, who was in the picture frame business, came into the store to make his usual purchases of varnish. Baxter, too, was a close friend of Adolphus Busch. That is, their wives were very close friends, and Busch sent Baxter to Utah to investigate more thoroughly the source of the varnish. Seaboldt took Baxter to the Carbon Vein and showed him the process for manufacturing varnish. Baxter returned to St. Louis, but was soon back on The Strip with Charles Nagel, later Secretary of Commerce, who had long been the personnel counsel for Busch. Negotiations began with Chambers and McIntosh and resulted in a quick purchase of the Gilsonite Manufacturing Company's six claims. On the northwest end of the vein and adjacent to the six named, claims were two individual, privately-operated claims which had been located May 26, 1888-- Pardon Dodd's Lode and A. C. Hatch Lode. These, too, were eventually bought by Baxter, who always had a yen for complete and tidy business, giving his company all eight claims on, and

complete control over, the entire Carbon Vein, thereafter known as the "St. Louis Mine."

Busch, characteristically inventive,⁵⁴ wasted little time in experimenting with what he imagined to be a very valuable use of gilsonite: he had a number of his beer barrels lined with it in lieu of an asphaltic product previously imported from Sicily for that purpose. The experiment was a costly and disappointing failure, however, for the gilsonite coating flaked off and ruined the beer.⁵⁵

The gilsonite industry, though in its infancy, was now under way. A Lon Black⁵⁶ and other men from Old Ashley Town had opened up the St. Louis Mine. Shafts were sunk and the ore stoped back in both directions from the shaft, leaving an open cut which eventually ran more than a half mile. Shafts were sunk still farther, and some drifting and overhead stoping was done. With the open-cut mine, candles were unnecessary until considerable depth was reached. The ore was dug loose by a

⁵⁴For an excellent discussion of this most unusual man see: Dictionary of American Biography, XXI, Supplement 1, (New York: Charles Scribner's Sons, 1944), pp. 141-43. Adolphus Busch was the youngest child in a family of 21 children. Among his many diverse activities was the pasteurization of beer for distant shipments, the development of fine work horses, the construction of the St. Louis Manufacturers Railway, the introduction of the diesel locomotive to the United States, and the construction of the Adolphus Hotel in Dallas, Texas. He proved himself a great commercial organizer and a man of limitless imagination.

⁵⁵Statement by Charles Hoel, personal interview, July, 1952.

⁵⁶Ibid.

four-sided mining pick which was tapered to an extremely sharp point, the most successful method being to cut a shallow trench along the wall which caused the ore to easily be chipped out of the center of the vein. The ore slid down the stope to the bottom of the shaft where it was shoveled by a hand scoop into a tough burlap bag holding about 200 pounds. It was then sewn up by the miner and hoisted to the top by a horse-drawn cable which ran through a pulley held atop the shaft by a pole tripod. A little later, a horse whim was used in lieu of running the horse out and back along a straight line. As the ore was removed, it became necessary to timber the open vein. Timber was scarce in this rather desolate area; but luckily, little timber was required. When the vein walls were of solid rock, hitches were chiseled in them, one an open hitch; and then a stull was driven in to prevent the walls from collapsing upon the ore in the vein. When the walls were of shale or clay, it was necessary to drive the stull in between headboards. The vertical and horizontal spacing of these stulls or timbers was about five to twenty feet in distance, depending upon their use. Apparently, there was no pressure forcing the walls inward, and closely placed timbers only shut out the light. Closer timbers were required in holding broken rock or shale walls. As time went on, improvements were made in methods; but for a good many years, the horse furnished the hoisting power, the pick and shovel were the miner's tools, and sunlight or the open candle provided his light.

Gilsonite dust sticks like a tar to a man's skin, and is almost impossible to clean off without solvents. After many

years of experience, miners learned to cover their bodies with mutton tallow or a less expensive grease or cream and then to powder this greasy covering to prevent clothes from sticking. This covering, which becomes very black with dust after a few hours, is washed off by a hot water bath. There was no cream, no powder and no bath, however, during the early operations of the St. Louis Mine; and men sometimes went months without a bath, the gilsonite forming a solid crust-like layer on the miner's body. Further, the earliest miners had to live in tents, haul their water from the Uinta River, and do their own cooking. This rugged, comfortless occupation could have been attractive only to genuine pioneers or adventurers who were driven by a thirst and optimistic hope of wealth.

V. THE STRIP

As work progressed, a blacksmith shop, boarding house, bunk houses, a store and stables were constructed on the grounds of the Gilson Asphaltum Company. Off the claims, but still on The Strip, there were built two saloons and another store; and there are numerous stories still circulating among old-timers about the lawlessness and immorality of The Strip. It is obvious that unusual freedom was enjoyed on The Strip, since it was off the Indian and Military reservations and yet a part of federal lands, it neither came under the control of Whiterocks or Fort Duchesne officials nor the jurisdiction of state or county authorities. It was, therefore, a territory without law

enforcement. "The wildest men of the territory found it a suitable place for gambling, drinking, shooting . . ."57 or other disorderly or illegal activities which they chose. Several men were killed there in gun battles including outlaws George Hughes and Jack Thomas. According to Major Randlett, "The Strip became the location of a tough class of squatters, men and women without means of existing except gambling, selling whisky to Indians and prostitution."58 Because its inhabitants were frequently drunk, The Strip was jokingly called "Sober City."

The death of Jack Thomas was reported to be the tenth by violence on The Strip. When Sheriff Preece investigated the incident he found that Thomas got in a fight with a negro soldier named "Carter." In his anger, Thomas called Carter a "dirty black Son-of-a-bitch"59 and hit him over the head; but Thomas was soon dead, leaving the sheriff with a need for a jury.

On a Sunday in February, 1898, an Indian whose name was "Pheno" had visited a saloon on The Strip where he was refused liquor. Pheno intended to force his way with his drawn pistol, but was disarmed immediately. He then, after leaving and returning with a Winchester, "commenced firing through the windows and the walls of the house, one of the shots that went through

⁵⁷A. Reed Morrill, A Historical Study of Ashley Valley and Its Environs, (unpublished Master's thesis, Brigham Young University, 1937), p. 176.

⁵⁸The Vernal Express, July 3, 1894, p. 4.

⁵⁹Ibid., May 4, 1899, p. 1.

the wall . . . the bar and a bottle of beer, struck Albert Davis in the leg making an ugly flesh wound."⁶⁰ Observers prevented further casualties by taking away the Winchester.

Unruly activities continued to characterize The Strip until it was sold by the government in May of 1906 at \$1.25 per acre with immediate conveyance of title to the purchaser.⁶¹ The Strip's infamous and colorful days were over: once under county supervision, it could not be distinguished from the surrounding territory.

VI. ORE PRODUCTION AND C. O. BAXTER

Production figures and profits are often difficult to find, a fact which is understandable when it is realized that companies made it a special point of "keeping their business well guarded from the public,"⁶² but enough random information can be pieced together to give some fairly useful generalizations about production which continued at a steady and almost unbroken pace from 1888 through 1904. As already shown, 3,000 tons were shipped to Price during 1888 and more than 2,000 tons during 1889 in spite of a change of ownership. It is reported that during 1899 there was approximately 200 tons shipped per month, and that the output of 1900 would far exceed 1899.⁶³

⁶⁰"Shooting Affair on the Strip," Ibid., February 24, 1898, p. 4.

⁶¹"Local and Personal," The Vernal Express, May 12, 1906, p. 3.

⁶²Herbert Tyzack, "Uintah's Gilsonite Mines," Salt Lake Mining Review, II, No. 17 (December 15, 1900), p. 13.

⁶³Ibid.

This seems to agree with Bert Seaboldt who, in 1896, said that the mine's output was 200 tons per month. He also stated that a shaft had reached a depth of 100 feet, and that the gilsonite met with "ready sale" in eastern markets.⁶⁴ Another source claims that over the years of operation, the St. Louis Mine produced an average of 300 tons per month, and that the average price at the railroad was \$50 per ton while production and hauling costs amounted to \$21 per ton, leaving a net profit of \$29 per ton.⁶⁵ In 1904, the last year of operation, it was told that a group of miners were "under contract to mine and ship 400 tons per month to the railroad at Price,"⁶⁶ but there had been some set-backs too. It is known that in 1903 the Gilson Asphaltum Company could not "keep up with the demand for gilsonite, owing to a fault in the vein."⁶⁷ Likewise, there were times when the company found it difficult or impossible to get all the mined ore transported to the railhead, as was the case when freighters were busy with the annual wool haul,⁶⁸ or during the muddy season when roads were impassable. Usually, the company maintained seven six-horse teams of their own and employed all

⁶⁴The Vernal Express, July 2, 1896, p. 1.

⁶⁵"The Minerals of Uintah Basin," The Vernal Express, December 20, 1907, p. 6.

⁶⁶Salt Lake Mining Review, VI, No. 13 (October 15, 1904), p. 17.

⁶⁷"Gold Discovery in Uintah County," Salt Lake Mining Review, V, No. 10 (August 30, 1903), p. 20.

⁶⁸"Around the State," Salt Lake Mining Review, III, No. 5 (June 15, 1901), p. 18.

freighters traveling empty to Price.⁶⁹ It is believed that an average figure of 200 to 300 tons per month would be representative of the actual ore production during the eighteen years that the St. Louis Mine operated.

The mine prospered so well that Tyzack reported that the Gilson Asphaltum Company "viewed with indifference the trend of events" over on the Uncompahgre, "feeling secure in its monopoly"⁷⁰ of the gilsonite business. While it may have appeared that the company was indifferent, and while it may not have been realized by many that the gilsonite deposits in the White River area would soon become the heart of the industry, it was nevertheless the case that the company was working tirelessly to acquire claims on the White River gilsonite, knowing full well that the future of gilsonite lay to the east of the Green River. The company was equal to the challenge of fierce competition, and within a few years they had extended their virtual monopoly across the Uncompahgre gilsonite as previously over the Uintah.

President C. O. Baxter was a promoter and salesman who kept a keen eye to the future. Ore was "furnished consumers free of charge in order to introduce it and establish it in the market as a commercial article."⁷¹ It was profit which he

⁶⁹Statement by Charles Hoel, personal interview, July, 1952.

⁷⁰Herbert Tyzack, "Hydro-Carbons of Uintah County," Salt Lake Mining Review, II, No. 19 (January 15, 1901), p. 11.

⁷¹Ibid.

desired; and therefore, was alert to all opportunities regardless of their relatedness to gilsonite. He even opened a large store in Price. By 1891, he was running half-page ads in the Eastern Utah Telegraph.⁷² The store was known as the Gilson Asphaltum Company Store, and the ads showed Baxter as president, Bert Seaboldt as superintendent, and A. A. Mulholland as agent. Advertised were dry goods, groceries, confectionary items, tobacco, hardware, patent medicines, and the famous Schutler wagons. The ads also name the Gilson Company "Government Contractors and Forwarders."

VII. EXPLOSIONS

The story of the Carbon Vein would never be complete without a statement about the highly inflammable and explosive nature of gilsonite dust and two tragedies which occurred in the old St. Louis Mine. Miners were not long in learning that a lighted candle touched to a handful of suspended ore dust would cause a quick flash of consuming fire which in the mine would also make its percussive force felt. Fearful of a major explosion which could be caused by igniting a whole shaft or drift full of dust-laden air, the miners, perhaps quite wisely, put their candle flames to each little pocket or pile of dust, hoping to prevent accumulation. Every old-timer who worked in these mines relates that he personally created many little

⁷²See issues beginning with January 15, 1891. Later this paper was renamed The Eastern Utah Advocate.

explosions himself and further that in playfulness or misjudgment had his face and hands slightly burned and his hair singed as a result. Hyrum Rasmussen said⁷³ that even after terrible explosions, serious injuries and deaths had been witnessed, some men continued their hazardous pranks and seemed to have little fear of the possibilities of a big explosion.

In October of 1894, an earth-shaking explosion in the St. Louis Mine killed Isaac C. Cook. Two years later, the relatives of Cook sued the Gilson Asphaltum Company for \$25,000 in damages. As grounds for damage, it was alleged that the defendant company was negligent in failing to sprinkle the mine with water to prevent the accumulation of the highly explosive dust. The federal court ruled in favor of the defendant, however, contending that "the plaintiff had failed to prove that the defendant company was aware of the explosive nature of the dust."⁷⁴ Even if for the first time, the company then aware of dangerous nature of the dust, did little about it. While Bert Seiboldt and Tom Taylor, the mine superintendent and foreman, were returning from the trial another explosion occurred. On arrival at The Strip, they found two men were dead, several injured and the mine a raging inferno. The Vernal Express carried a long, detailed,

⁷³Statement by Hyrum Rasmussen, personal interview, June, 1958.

⁷⁴"Verdict for the Defendant," The Vernal Express, November 26, 1896, p. 1; and Isaac Cook v. Gilson Asphaltum Company, U. S. Court, District of Utah, Law 137, (enrolled Nov. 20, 1896).

first-hand account of this spectacular event, most of which is repeated here:

Tuesday afternoon between three and four o'clock the people of Vernal and the entire valley were startled by the rattling of windows and doors and a rumbling noise like the cannonading of distant thunder, and many a heart turned faint at the thoughts of another explosion at the Gilsonite mine near Fort Duchesne.

Within an hour word was telephoned over from the Post that another explosion, far greater than any yet known in the history of gilsonite mines, had taken place at the mines of the Gilson Asphaltum Company, a distance of 24 miles from Vernal. The timbering of the shafts was thrown 500 feet into the air and the flames were leaping to a height of 200 feet. Two men were missing, Charles Anderson and Andy Garnes, and other were wounded.

Intense excitement prevailed in Vernal all evening and groups of men could be seen everywhere on the streets discussing the terrible event. J. T. McConnell, who is agent for the company at this place, immediately made preparations to go to the scene of the explosion as both Bert Seaboldt and Tom Taylor, manager and foreman respectively, of the mine, were away in Salt Lake as witnesses in the case of Cook et al. vs. Gilson Asphaltum Company. The stage arrived at about six o'clock but the driver could not enlighten the people any as he was at the halfway hollow at the time of the explosion. He could see the flames and smoke and as he came over the ridge into the valley about sundown, said he could see flames and a great mountain of black smoke rolling heavenward as high as the eye could see. Between eight and nine o'clock in the evening the Express representative, accompanied by Sheriff Pope, took a single rig and started for the scene of the explosion. The night was cloudy and very dark until about eleven o'clock when the moon would occasionally shine through the clouds and make it more easy to follow the road. When within seven miles of the mine a huge cone was seen which looked like a distant mountain peak, but by close observation it was noticed that the cone changed in appearance and we came to the conclusion that it was smoke from the burning mine.

Gaining the top of the sand ridge two gigantic columns of fire capped by a dense cloud of black smoke, was seen issuing from the mine, looking much like the craters of two volcanoes in active eruption. Arriving at the mine and at 1:15 a.m. chilled to the bone, Messrs Taylor, Davis, Bennett, and Goff were found awake watching the burning mine. Our tired horse was soon cared for and some good strong coffee

disposed of and we proceeded to take a nearer observation.

The gilsonite vein runs in nearly a straight line . . . and this mine has seven air shafts only a few rods apart in the following manner:

0 0 0 0 0 0 0 * 0 *

the two stars representing the position of the two men who were in the mine when the explosion occurred and who were undoubtedly killed and afterward cremated by the fierce flames that were issuing from the two right hand shafts where the two men were located.

It was a grand and awful sight to look upon and left an impression upon the writer that time cannot obliterate. Great tongues of fire which took upon them all the colors of the rainbow, shot up through the dense black smoke, sometimes to the height of a hundred feet, coming apparently, from the bowels of the earth, cracking and roaring like distant musketry, made one think they stood at the mouth of Hell and the doomed souls were having a battle among themselves. The burning air shafts were near the top of the hill and the lower shafts furnished a draft through the eighteen and one hundred foot levels that fanned the flames to a heat like a furnace.

While standing within about thirty yards of the largest fire a loud crash was heard and immediately following the air was filled with burning particles of gilsonite. It is needless to say that the pencil pusher and his companions fled to safer quarters and came to the conclusion that distance lent enchantment to the view.

For hundreds of feet about the mine the ground was strewn with the broken and blackened pieces of timber that was thrown with terrific force from the mine by the explosion and the windows in the building belonging to the mine were nearly all broken by the shock.

At the spot where the two men were at work when the explosion occurred, tons upon tons of debris had fallen in, caused by the intense heat melting the gilsonite. . . .

When daylight appeared the parties who were at the mine when the accident occurred, were interviewed and a list of the injured taken. Two men, Andy Garnes and C. M. Anderson were in the mine and were killed. . . . There were seven men, mostly freighters, standing near the mouth of one of the air shafts. Walter Carloss, an employee, noticed a slight puff of smoke issue from the shaft and cried "run for your life" and started to run but was knocked down by

the explosion which immediately followed the smoke he saw issue from the shaft. He got up and started again and was knocked down the second time when he crawled to a place of safety on his hands and knees. The others also started to run at the same time, but were knocked down by the shock and four of them were badly burned and bruised about the head and face. Dave Bennett and Newton Stewart, were working in another shaft not connected with the one that exploded when the shock hurled them from side to side like straws. They were badly frightened but not injured. The list of the injured are: Thomas Goff, of Siggard, Utah, eyes burnt not thought to be seriously injured. Peter Francian, of Castle Dale, face and eyes seriously burnt. Frank Warren, of Price, head and face burnt. Joseph Draper, of Wellington, eyes burnt. Nearly all of the seven men had their hair singed and faces blackened by the flash of fire from the shaft when it exploded.

Miss Eliza Wall and her sister were in the kitchen of the Boarding House several hundred feet from the mine and when the shock from the explosion tore the windows from the building, it frightened them nearly into hysterics and they had to be taken to the Post.

The explosion was seen and felt for miles. At Ft. Duchesne, which is two miles distant from the mine, the shock was distinctly felt and as the mine is in plain view of the Post, a great many saw the explosions.

Those that were eye witnesses of the explosion, said that each shaft exploded, one after another in rapid succession, making a noise like the firing of heavy artillery, and the flames shot up hundreds of feet into the air, followed by dense column of jet black smoke which seemed to pierce the very heavens.

Dishes and furniture rattled in the houses at the Post and a great many thought it was an earthquake shock.

What caused the explosion will never be known, as the only ones that could possibly give an explanation are killed. It seems though that the mine had given silent warning that it was in a dangerous condition. Bennett, noticed that the dust seemed to be in a condition to explode at any time and warned the men of his fears. George Erickson, who had been working in the mine, but happened to be in Vernal on a visit when the accident occurred, is said to have told some friends that it was nearly impossible for him to keep awake while at work in the mine, a symptom of the presence of carbon acid gas.

Bert Seaboldt, manager and Thomas Taylor, foreman, were

on the road between Ft. Duchesne and Nine Mile on their way to the mine when a messenger met them with news of the fatal disaster. They arrived at the mine in the evening, but could do nothing.

Mr. Seaboldt and Mr. Taylor, both stated they could in no way account for the explosion, as the men were furnished with safety lamps made expressly for the work and the only way fire could be communicated from the lamps, was to break them. Both these gentlemen regretted the fatal results of the accident and seem to feel very keenly the condition in which they are placed.

Mrs. Seaboldt has secured a number of teams and scrapers and proposes to fill one of the air shafts and stop the progress of the fire as it is supposed to be burning only at one end of the mine.

Andy Garnes is from Salt Lake and has been working at the mine about two years.

Charles M. Anderson has been a resident of Uintah county for a year past coming from Salt Lake, and is a son-in-law of the late G. W. Crouch. He has a wife and one girl 7 years old who live on the old Crouch place in Ashley canyon, and he had been working at the mine about one month.⁷⁵

The victims, who incidentally were not cremated by the flames, but whose bodies had been mutilated by the blast,⁷⁶ were recovered from the gilsonite which had melted over them and then solidified. About three months of ore production was lost, but the mine was soon repaired and in full swing again, producing until closed in the transfer of operations to the White River region after 1904.

Charlie Hoel, who was the driver of the whip or whim horse, said⁷⁷ that Josh Birchell was also trapped down the mine

⁷⁵"Another Explosion," The Vernal Express, November 26, 1896, p. 1.

⁷⁶Statement by Charles Hoel, personal interview, July, 1952.

⁷⁷Ibid.

during an explosion, but that he had fallen on his face and was "hardly hurt." A rescue crew went down on ropes where they found Birchell lying unconscious and covered with blood. Because of the "fumes" the rescuers hastily got out of the mine. They then "went to work on Birchell and he came alive." In spite of this narrow escape, Birchell was never afraid of the mines, doing years of contract mining after that time.

A miner called "Swede" took a much different view of gilsonite's danger, however. He was a victim of a small explosion⁷⁸ which burned his hair and hands badly because he fought the flames with a sack, creating a draft which increased the intensity of the fire. Swede was afterwards filling his pipe with tobacco and expressing his decision to quit the mine when the call to dinner was sounded. In hastily answering the call, Swede left his pipe behind with a practical joker--Newt Stewart. Newt put a piece of fuse in the pipe beneath the tobacco and awaited the after-dinner results. When Swede finally lit his pipe, the sudden flare of the fuse so startled him that he threw the pipe across the room and lost no time in leaving The Strip, convinced that even the explosion in the mine shaft had been a "put-up job."

Professor H. Hirsching, speaking of the 1894 explosion at the St. Louis mine, said that he had warned of the dangers

⁷⁸ Ibid.

of gilsonite because of the high percentage of "carburetted hydrogen compound, free hydrogen and free oxygen" which he had found in the ore.⁷⁹ In view of these properties he said the correct name of the substance was "glance pitch." Further, he scorned the practice of politically appointing mine inspectors. He thought that only "an engineer of high standing and of long practical experience should occupy such a responsible position."

⁷⁹"Fire-Damp and Coal Dust Explosions," The Vernal Express, December 17, 1896, p. 1.

CHAPTER III

OTHER MINING OPERATIONS ON THE PERIPHERY OF THE UNCOMPAHGRE INDIAN RESERVATION

There were three other gilsonite mining developments prior to the opening of the Uncompahgre Reservation which opening signaled the end of mining on the Carbon Vein and a shift of the center of operations to Dragon, Utah, south of the White River. The three veins being mined contemporaneously with the Carbon Vein were the Culmer and Seaboldt Vein System situated about twenty direct miles southwest of Fort Duchesne; the Duchesne Vein,¹ running northwest out of the northern end of the Fort Duchesne Military Reservation and being about three miles west of the Carbon Vein; and the Black Diamond Vein, just south of the White River and east of the Utah-Colorado State Line.

I. BLACK DIAMOND VEIN AND MINE

Contrary to the usual reports of the Culmer operations being much earlier than any gilsonite mining except the St. Louis Mine, this writer asserts that the second vein to be mined commercially was the Black Diamond in Rio Blanco County, Colorado. Albert Rasmussen who freighted ore from both areas

¹Some early writers carelessly called the Carbon Vein the "Duchesne Vein" because of its nearness to Fort Duchesne, not anticipating the later location of a Duchesne Vein.

claimed as much;² and Charles Hoel, who likewise worked at all these early mines, made a similar and independent statement of chronology. While the Black Diamond was quite probably earlier in its beginnings, it was certainly of less importance to the gilsonite industry than the Culmer and Duchesne Veins which operated successfully for many years, the Culmer, in fact, still operating to this day. This was due to the poorer grade of ore in the Black Diamond and the necessity of an extremely long wagon haul, it being about 150 miles to the D&RGW Railroad at Rifle, Colorado.

Between the Bonanza and Cowboy Veins in Utah lies the Weaver, a wide vein of first grade ore. Where this vein crosses the White River into Colorado, it is known as the Black Diamond and diminishes in width and ore value. While it is not of the best grade ore, it is, however, the only known vein of importance in Colorado. The vein is situated just east of Township ten South, Range twenty-five East, Salt Lake Meridian; and it runs north sixty-one degrees west, which is a greater deviation from north than the course of the Carbon Vein, a phenomenon to be explained later. The vein averages two to three feet in width and can be followed on the surface for a distance of about six miles. Douglass claims that it continues down 300 feet into the Wasatch Formation,³ providing a probable depth of more than a

²Statement by Albert Rasmussen, personal interview, July, 1951.

³Earl Douglass, "Final Report of the Gilsonite Holdings of the Gilson Asphaltum Company in Utah and Colorado" (unpublished Report, 1928), p. 153.

thousand feet.

The dip of the strata is about three degrees to the northwest, and the terrain is covered with very little vegetation, mostly sagebrush, and is corrugated with ridges and ravines, forming about a hundred-foot relief. The country was so rough that Douglass, who made his investigation in 1928, said that while a buckboard could have been driven part of the way northward from the Watson-Rangely Road, it would have been necessary to have walked much of the distance.⁴

Not much is known of the discovery of the vein, but it was Pardon Dodds and Bert Seaboldt who were the first to locate and develop the Black Diamond Vein. Dodds later sold out his interests to Goslin. Al Rasmussen recollected that it was about 1890 that ore was hauled northward to Harry Goff's ranch and thence along the White River to Meeker, Colorado, crossing the river twice enroute. From Meeker, the freighters went southward up Horse Creek and then along Dry Rifle Creek to Rifle on the D&RGW Railway, a distance of 150 miles.

By 1894, there was considerable activity on the Black Diamond, it was then being worked energetically by the Colorado Gilsonite Company organized by St. V. LeSieur⁵ with the express purpose of exploiting the Black Diamond and other asphaltic

⁴Ibid.

⁵Mistakenly called "LaSaur" by Douglass. See: Earl Douglass, Ibid., p. 152.

holdings in western Colorado. Much could be said of LeSieur's contributions to the American asphalt industry. By some, he was called "the founder of the asphaltum industry in the United States"⁶ which, though an overstatement, indicates the attention and respect directed to him. In 1885, LeSieur was one of the organizing spirits behind the North American Asphalt Company⁷ with great asphalt holdings near Thistle, Utah. A list of organizers gave the names of Adolphus Busch, C. O. Baxter and six other notables of St. Louis.⁸ In 1887, with North American's asphalt, LeSieur paved the "J" Street sidewalk in Salt Lake City and several thousand feet of sidewalk in St. Louis; and two years later, he put an asphalt floor in the Anheuser-Busch Brewing Company's storehouse in St. Louis and a similar floor in the Fisher Brewery of Salt Lake City. In 1890, LeSieur, with other Salt Lake City gentlemen, organized the Wasatch Asphaltum Company and the Salt Lake Gilsonite Company, holding many claims in the western end of the Uinta Basin. Through the North American, Wasatch, Salt Lake and Colorado companies, LeSieur shipped ore to various parts of the United States,

⁶"Utah Asphaltum Beds," The Vernal Express, May 6, 1897, p. 2.

⁷Ibid.

⁸"Utah," The Engineering and Mining Journal, XLVI, No. 26 (December 29, 1888), p. 553. For a complete list of about forty stockholders, see: "North American Asphalt Company," Corporation Files, Office of Utah Secretary of State. This list includes Charles Nagel, C. E. Soist, Robert Walsh, Antoine Holm and Robert Holm, all of importance to the story of gilsonite.

England, France, Germany, and Japan.⁹

LeSieur's confidence and energy did little to improve the grade of ore or to shorten the haul; and consequently, the Black Diamond operation was not a complete success. LeSieur's imagination would not admit immediate defeat, however. He knew that gilsonite which was melted and re-hardened took upon it the physical characteristics of first grade ore. That is, it would fracture into unstructured, cuboidal chunks with a brilliant surface; and so he set up a melting furnace with cooling receptacles.¹⁰ The pencillated ore then took on a high grade appearance; but in reality, it had probably lost some of its value in the process by vaporizing the more volatile constituents. This process of "rejuvenating" gilsonite did not end with LeSieur. It was later tried by other operators such as Ray Davis of Provo, and then with satisfaction. LeSieur's processing failed to profit him financially;¹¹ and rather than holding stubbornly to a failing business, he went exploring other and more promising asphalt lands to the southwest of the Uncompahgre Reservation.

The next Black Diamond operators were the Sharrer Brothers--Will and L. V.--who are reported by more than one source to have "jumped" these particular claims and to have

⁹"Utah Asphaltum Beds," The Vernal Express, May 6, 1897, p. 1.

¹⁰Earl Douglass, op. cit., p. 152.

¹¹Statement by Charles Hoel, personal interview, July, 1952.

made a general practice of "jumping" claims.¹² Their activity on this vein was of even shorter duration than that of LeSieur. They too went in search of a more remunerative prospect--to the ozokerite deposits around Soldier's Summit.

By the time that Eldridge visited the vein in 1895 escorted by John McAndrews and Joseph Luxon, a full two miles of the vein had been prospected and two shafts were worked to a depth of a hundred feet.¹³ Hope dies slowly on a vein with such a promising surface as the Black Diamond. The third operator, Charlie Goslin, moved right in enthusiastically with a large force of men and teams from Vernal.¹⁴ Johnny Angus, Jeff Mathews, Jim Mott, Lew Pearson, Bob Allred and several others¹⁵ built a road for Goslin up Douglas Creek and over Douglas Pass to Fruita, Colorado. Ore was hauled by this route to the railroad and also by the old trail up the White River to Rifle. Some of the freighters from the Goslin Mine were Henry Glines,

¹²Statements by Charles Hoel and Hyrum Rasmussen, Personal interviews, July, 1952, and June, 1958, respectively. Statements voluntarily and independently made. Rasmussen also reported a less ordinary trait of L. V. Sharrer: "You know, that Sharrer fellow could draw the blueprints of a bridge or house and tell you the exact dimensions of every single part of it by memory for months afterwards."

¹³George H. Eldridge, "The Uintaite (Gilsonite) Deposits of Utah," United States Geological Survey, 17th Annual Report, Part I, (Washington: Government Printing Office, 1896), p. 935.

¹⁴The Vernal Express, May 27, 1897, p. 1.

¹⁵Statement by Charles Hoel, personal interview, July, 1952.

Bert Glines, Chess Gilman, and Albert Rasmussen.¹⁶

In 1899, a fourth operation began. Eleven Black Diamond claims were sold to George S. Wedgewood of Omaha "through Bert Seiboldt, the well known mining man who is heavily interested in various Utah mining enterprises . . ."17 Those selling these claims were reported to have been Judge J. T. McConnell and J. W. McCaslin of Vernal, selling for about \$20,000. The new owner stated his intention to begin operating the property "at once." The extent of Wedgewood's activity on this vein is not known, but it is believed that his work was not comparable to LeSieur's or Goslin's.

By 1900, the Gilson Asphaltum Company had obtained several claims on the Black Diamond Vein and was working them under the "able management of 'Tom' Taylor, formerly superintendent of the company's mines at [Fort] Duchesne."¹⁸

All operations on the Black Diamond ceased completely with the opening of the Uintah Railway in 1904 which linked Dragon, Utah, with Mack, Colorado, and made possible and economical a full-scale operation of the Black Dragon Vein. The Black Diamond Vein has not been mined since 1904. When Douglass

¹⁶Statement by Albert Rasmussen, personal interview, July, 1951.

¹⁷Wedgewood Buys Gilsonite," Salt Lake Mining Review, I, No. 1 (April 15, 1899), p. 11; and The Vernal Express, October 7, 1899, p. 3.

¹⁸Herbert Tyzack, "Uintah's Gilsonite Mines," Salt Lake Mining Review, II, No. 17 (December 15, 1900), p. 13.

visited the vein in 1928, he found an old abandoned cabin standing on the Gilson Asphaltum Company's claim Black Prince #2. This dilapidated cabin seems to characterize the present status of the remote and resting ore lode--"held in reserve."

II. CULMER-SEABOLDT VEIN SYSTEM¹⁹

Crowding the Black Diamond for recognition of prior beginnings is the Culmer Vein upon which was located the famous Pariette Mine, claiming development early in the 1890's. The Culmer-Seaboldt Vein System, twenty-five wagon miles nearer Price Station than the St. Louis Mine, is located mostly in Township eight South, Range sixteen East, Salt Lake Base and Meridian but running to the northwest into Township four South, Range two West, Uintah Base and Meridian, coming under the jurisdiction of the Castle Peak Mining District.

This vein system has a general strike of north thirty-one to forty-four degrees west. It is noted here that all gilsonite veins do not run in parallel lines; but rather, taking all the Uinta Basin veins into cognizance, they seem with some exceptions to form a gentle arc, turning more sharply to the north in the extreme western part of the Basin. Also, each long vein or vein system seems itself to curve in the same manner.

¹⁹The best study on the Culmer Vein is: H. Clyde Davis, "Geology of the Culmer Gilsonite Vein of Duchesne County, Utah," (unpublished Master's thesis, Brigham Young University, 1952).

The Culmer-Seaboldt System is made up of two principal veins with about a hundred-foot offset. The northern most vein is also the western vein and is usually referred to as the "Culmer," though sometimes the "Pariette," and even the "Toquor." The southeastern vein is known as the "Seaboldt," the "Baxter," or sometimes the "Castle Peak" Vein. Between the northwest end of the Seaboldt Vein and the southeast end of the Culmer Vein is an area of ore outcroppings known as the "Dalton Area" which actually consists of a broken extension of the Seaboldt Vein with an eastern lateral. To the northwest of the Culmer is an area called the "Toquor Area" which is, on the surface, an irregular continuation of the Culmer Vein with laterals or small parallel veins. The Culmer Vein has surface outcroppings for a distance of approximately two miles, while the Seaboldt can be traced on the surface for about three miles. The entire vein system is conspicuous for a distance of seven miles. There are many lateral veins in this system diverging at acute angles from the primary veins. Some of these laterals surface for great distances, as in the case of the January Lode which runs a half mile in length in the Dalton Area. These branches are usually very short; and as in the case of the primary veins, they are very narrow. These veins and veinlettes vary in width from a fraction of an inch to thirty inches, but a common width on the Culmer or Seaboldt veins would be ten to sixteen inches, which is much narrower than any of the veins previously discussed.

The associated rock consists of gray, purple and green

sandstone and shale of the Bridger and Uinta formations. The strata dip is a gentle five degrees north of northeast. Douglass estimated that the Seaboldt Vein, which he called the Baxter, would probably be workable to a depth of 3,000 feet.²⁰ Because of the findings of the Carter Oil Company's Ute Tribal #1 Well, Crawford and Davis believe that the gilsonite in this vein system has its source beneath the marlstones of the Green River formation.²¹

Several writers report that the Culmer-Seaboldt Vein was discovered by George Culmer of Salt Lake City with no date earlier than 1889 being given for the discovery. One report claims that it was "first discovered in 1889 by a Mr. Lake and Sam Gilson."²² Baxter and Seaboldt, the two men after whom the southeast primary vein is alternately called, should not be overlooked in this matter, however. It is known that C. O. Baxter located five claims on the Seaboldt lode on July 27, 1887,²³ antedating the Gilson claim by two years; and that Bert Seaboldt was Baxter's close friend and assistant at the time would probably warrant the assumption that Seaboldt also visited his namesake vein in 1887. There is no doubt that all four of

²⁰Earl Douglass, op. cit., p. 164.

²¹H. Clyde Davis, op. cit., p. 42.

²²"The Pariette Gilsonite Mine," Salt Lake Mining Review, VI, No. 11 (September 15, 1904), p. 20.

²³"Notes," Utah Mineral Survey Office (U.S.), Salt Lake City, Utah, Book 247, p. 179.

the above named men and many others had personally visited the Culmer-Seaboldt veins prior to 1889. When Baxter's claims were relocated in 1906, the record showed that Baxter had three associates: Robert Holm, E. A. Holm and Antoine Holm.

Very little work was done on the Seaboldt Vein before 1896 when George Eldridge made his first official visit for the United States Geological Survey. In his report, he said that the Seaboldt Vein had "received less attention" than the Culmer, "but so far as known is hardly of a thickness to warrant development."²⁴ The work that was done on the Seaboldt Vein was done in violation of federal law, because the Seaboldt and the southeastern end of the Dalton Area were within the Uncompahgre Reservation, making it illegal to locate or develop the gilsonite deposits before the reservation mineral lands were opened to entry in 1903.

For violation of these federal restrictions, St. V. LeSieur and L. C. LeSieur were ejected from the reservation in the summer of 1897.²⁵ The LeSieur brothers, who claimed to own the Castle Peak Gilsonite Mine, brought eight men from Price "to increase the working force"²⁶ which was mining the Seaboldt Vein just southeast of the Remington Lode. One of

²⁴George H. Eldridge, op. cit., p. 933.

²⁵Salt Lake Herald as cited by The Vernal Express, July 15, 1897, p. 1.

²⁶Salt Lake Tribune as cited by The Vernal Express, July 22, 1897, p. 4.

LeSieur's couriers stirred the ire of Captain Beck, Indian Agent, when he, the courier, went to Smith's Well for provisions and began talking of the spirited operations at the Castle Peak Mine.

It had been known for several years that the Seaboldt Vein was in or near the western end of the Uncompahgre. It could easily be thought of as within or without the reservation, depending upon your personal interests. Government survey markers moved around so frequently that surveyors could hardly keep up with them.²⁷ In 1897, another official survey was made to determine decisively whether the Castle Peak Mine was on the reservation.²⁸ It was, and Captain Beck was determined to stop illegal mining at once.

III. CULMER VEIN AND PARIETTE MINE

To the northwest the story was somewhat different. The Assyrian Asphalt Company of Chicago, which was organized in 1894 and in which George F. Culmer was an executive, persuaded federal authorities to make a jog of one mile to the east in the western boundary line of the Uncompahgre.²⁹ This peculiar deviation of the line left the Pariette Mine outside the reservation

²⁷Statement by Charles Hoel, Personal Interview, July, 1952; and by Hyrum Rasmussen, June, 1958.

²⁸Salt Lake Tribune as cited by The Vernal Express, (July 22, 1897), p. 4.

²⁹Salt Lake Tribune as cited by The Vernal Express, (July 15, 1897), p. 1.

and available for exploitation. Mining actually began on the Culmer Vein soon after 1890, and "the property was worked by various parties until 1894, when Chicago capitalists formed a company known as the Assyrian Rubber Company, and sank shafts at various points along the vein."³⁰ James P. Mallette, Charles B. Eggleston, and James F. Hill, all of Chicago, were some of the "capitalists" who organized this company.

In his 1896 report, Eldridge said that the vein had been prospected for a distance of about two miles from the northern end.³¹ One of the prospectors, before Culmer's 1896 locations, was Will Sharrer who had abandoned his questionable operations on the Black Diamond Vein. He dug a shaft forty or fifty feet deep on the Culmer Vein and then exploded it purposely by building a fire in the shaft and pouring gilsonite dust down on top of the flames.³² Supposedly, his purpose was to make the vein appear worked. Sharrer didn't stay long. As stated above, he went to the Ozokerite deposits at Soldier's Summit.

After the western boundary of the Uncompahgre was successfully shifted eastward a mile, H. L. A. Culmer, brother of George F. and W. H., located, September 26, 1896, three placer claims on the Culmer Vein.³³ These claims were the Blackbird,

³⁰"The Pariette Gilsonite Mine," Ibid.

³¹George H. Eldridge, op. cit., p. 932.

³²Statement by Hyrum Rasmussen, personal interview, June, 1958.

³³"Notes," Utah Mineral Survey Office (U.S.), Salt Lake City, Utah, Book 191, p. 13.

Raven and Brunette. The advantage of a placer claim was that by narrowing the claim in width you could, with the usual twenty acres, control a much greater length of the vein itself; whereas lode claims had been uniformly 300 feet wide and up to 1,500 feet long. The Raven placer was 3,870 feet long; and it was on this claim and the Brunette to the southeast that the famous Pariette Mine was situated, the first shaft being sunk right on the line between them. Later, the "1500 Mine" was sunk on the Brunette claim. The Blackbird, northwest of the Raven, was still inside the Uintah Indian Reservation.

A step toward modernization of the Pariette Mine was taken in 1897 when Will Culmer, Civil Engineer and son of George F. Culmer, put in an electric light plant.³⁴

In 1901, the Assyrian Asphalt Company declared bankruptcy.³⁵ The company, under a judgement of \$112,648 went into receivership. W. H. ("Willie") Culmer was a "Rover" who ran off to sea, leaving George F. and H. L. A. Culmer "holding the sack."³⁶ A Mr. William H. Jennings was so affected by the company's failure that he committed suicide.

In 1902, the American Asphalt and Rubber Company, with a capitalization of \$500,000, absorbed the Assyrian Company, taking over the Pariette properties along with many others.

³⁴The Vernal Express, May 27, 1897, p. 1.

³⁵The Eastern Utah Advocate, December 26, 1901, p. 1.

³⁶Statement by Kennett A. Culmer, personal interview, June, 1958.

The American Asphalt and Rubber Company had a number of foreign markets for gilsonite; but also, they had a large factory in Chicago "where they manufactured mineral rubber from No. 1 ore, by a long tedious process, with certain oils."³⁷

Under management of this company, a very severe accident, which is discussed below, occurred in 1906 which closed the Pariette temporarily. It was working again the next year, however, and worked intermittently until purchased by the Pariette Mining Company twenty-three years later. The operating company during most of this time was the Canadian Mineral Rubber Company, Ltd. of Toronto, Canada, which was under a \$250,000 mortgage to the British Empire Trust, also of Toronto.³⁸

The Canadian Company took over the mine in 1915 and bought the Blackbird, Raven and Brunette claims by 1921. The company's mining was conducted by Joseph Holder of Myton. At this time, there was at the mine two dwelling houses, an ice house, a boarding house, bunk house, wash house, power house, granary, and stables.³⁹ The principal machinery was a boiler, air compressor and a hoist.

In 1930, the Pariette Mining Company bought the Pariette Mine and opened full-scale operations in 1933. The contracting

³⁷"The Pariette Gilsonite Mine," op. cit.

³⁸Statement by C. J. Neal, personal interview, August, 1958.

³⁹"Canadian Mineral Rubber Company," Assessment of Mines, 1915, Office of Utah State Tax Assessor.

miners were C. J. Neal, Heber Hall, Leland Kimball, and Fred Ferron. John T. Hoyt of Connecticut was the company's president and C. B. Oliver of Illinois its vice-president and secretary.

The Raven Mining Company of Utah, directed by Lowell F. Lindley of Chicago, bought the Pariette Mine in 1942;⁴⁰ and operations were put under the supervision of Fred Ferron, son of A. D. Ferron, of Roosevelt, Utah. Lindley had already acquired, in his own name, three claims on the Culmer Vein to the northwest of the Pariette Mine. These were Doris No. 1, Doris No. 2, and the Black Jack.

The Raven Mining Company has kept control of the Pariette Mine to the present time, but the name of the company was changed to "Standard Gilsonite Company" in 1956. Lindley, who had been bedfast for more than a year, was declared "incompetent" in 1949, leaving the company affairs to the other officers. Between 1947 and 1955, the Raven Company, with \$150,000 debt, was on the verge of bankruptcy; but since 1956, under the leadership of Robert Pinder and Fred Tedesco of Salt Lake City, the company has re-established a paying operation. This they have done in spite of a fire which cost the company at least \$20,000 in damages to their surface facilities in 1957⁴¹ and the embezzlement

⁴⁰Most information regarding the Raven Mining Company since 1942 was obtained from a personal interview with Robert Pinder, in June, 1958.

⁴¹"Utah Crews Put Out Costly Gilsonite Fire," Deseret News, September 5, 1956, p. 1B.

of several thousand dollars (as yet an undetermined amount) by the company's treasurer, in 1958.

Standard Gilsonite Company, through one of its subsidiaries, the Southwest Chemical Company, distributes gilsonite under the copyrighted name of "Beaver Dam." Beaver Dam is specially prepared in the company's plant at Myton, Utah, for use as a drilling fluid additive which acts as a lost circulation material. Being non-porous and impervious to caustic acid or alkaline solutions, it is claimed that it "vulcanizes" lost circulation zones. Further, it acts as a lubricant and a non-corrosive agent.

Another and most promising development in well-drilling products is the recent and completely satisfying results obtained from "Gilsonite Cement,"⁴² which is generally a mixture of gilsonite with Portland Cement but with or without Bentonite, Pozmix, or Pozmix 140. Gilsonite Cement provides a strong but light-weight product for high fill-up or multiple-stage cementing, plug-back operations for lost circulation, or for setting production liners in gas wells with weak formations. Standard Gilsonite Company recently secured an exclusive contract to supply the Halliburton Oil Well Cementing Company with all of the Gilsonite Cement they use. To meet the commitments in this contract, Standard Gilsonite Company finds it necessary not only to use the entire gilsonite output from their Pariette Mine and

⁴²"Gilsonite Cement," The Oil and Gas Journal, LVII, No. 1 (January 5, 1959), p. 150.

their newly opened "GK Mine," which is situated about eighteen miles southeast of Ouray, but to purchase some additional ore from the American Gilsonite Company at Bonanza, Utah.

Standard Gilsonite Company has also developed a protective coating, made principally of gilsonite, which protects wood or metal from water, corrosion, acid, mildew and fire. The product is known as "Flame-Control." Gilsonite has been used in protective coatings since 1890, however; and it has been specified by the United States Armed Services as the basic ingredient to be used for undercoating and weatherproofing vehicles for overseas shipment.

The Pariette Mine, which was started early in the 1890's, has had a long and sporadic career. By 1900, the main shaft was down 200 feet with 150-foot drifts going each way along the vein. In 1906, the shaft was down to 800 feet;⁴³ and by 1908, it was down to 900 feet, continuing the same procedure of drifting. Under the Raven Company, the shaft was sunk to 1,400 feet. In the "1500 Mine," on the Brunette Claim to the southeast, a shaft went to 1,450 feet by 1947.⁴⁴

The ore from the Pariette Mine, like the St. Louis Mine, is sorted into "firsts" and "seconds," most of it being a very fine grade. In the earlier operations, however, it was often necessary to screen sand and fine rocks out of the ore. This

⁴³"Myton News," The Vernal Express, April 28, 1906, p. 1.

⁴⁴H. Clyde Davis, op. cit., pp. 57-58.

was done by throwing the ore over a coarse sieve or screen. Due to the narrowness of the vein near the surface, a lot of rock and sand from vein walls was taken down with the ore. In some places, it was necessary to stand sideways to work in a drift; and in order to change hands on the pick or turn around, the miner had to back-out to the shaft.⁴⁵ Fortunately, the vein opened up to a width of three feet or more as the mine reached a few hundred feet in depth. Ore was hoisted from the vein in a one-ton bucket and sacked on the surface. After 1904, a fifty horsepower friction hoist engine was used to lift the bucket.⁴⁶ Today, under recent management of the Standard Gilsonite Company, compressed-air chipping machines have replaced, for the most part, the miner's pick which for so many years was the exclusive tool for loosening the gilsonite.

The average daily production of the Pariette and 1500 Mine when operating was about fifteen to twenty-five tons each. Until the advent of gasoline trucks and a good road to Heber, Utah, most all of the ore from the Culmer-Seaboldt system was hauled by wagon to Smith's Well where the freighters turned southward on the Fort Duchesne-Price Road. The wagon distance from the Pariette to Price was about seventy-five miles, twenty-five miles shorter than the haul from the Carbon Lode. Today the ore is trucked to Heber, Provo, or Price. Electric hoisting

⁴⁵Statement by Hyrum Rasmussen, personal interview, June, 1958.

⁴⁶"The Pariette Gilsonite Mine," op. cit.

equipment has replaced the horse-operated whim; gasoline or diesel trucks the horse-drawn wagons; and for the most part, chipping machines the mining picks. Through both the primitive and modern methods, it is estimated that by 1952 approximately 110,580 tons of gilsonite and 25,000 tons of rock and rock gilsonite have been mined from the Pariette.⁴⁷

On the very same day as the great San Francisco earthquake and fire--April 18, 1906--a tragedy transpired in the Pariette Mine. In the Uintah Country, this accident, which took the lives of four men, was given a great amount of grave concern in spite of the simultaneous San Francisco catastrophe. A detailed and contemporary description of this Pariette tragedy which occurred under the management of the American Asphalt Company and which killed Elmer Hopkins, Otto Anisy, W. H. Foreman and B. L. Riordon, is given here from The Vernal Express:

One of the most disastrous affairs happened at the Pariette mine, last Wednesday afternoon, that has happened in this part of the country for many years. The gas or after damp killed four men. . . . It seems the night shift had just gone down a shaft to relieve the day shift. The members of the day shift had gotten in the cage or bucket immediately after the night shift had gotten down and the cage took them to the top and the cage as usual went back at once. It had not been at the bottom long when the shift boss of the night shift, Victor Barney, heard the men at the bottom of the shaft cry out to hoist the cage. It will be well to state here that Victor Barney and another member of the ill fated shift had stopped at what is known as the lower upper north, a station about sixty feet above the bottom. Ernest Lund was with Barney. They had stopped on the lower upper north to fix the telephone and signal system, as per instructions from J. C. Charlsworth, the mine foreman, the other four men going on down to their work

⁴⁷H. Clyde Davis, op. cit., p. 64.

at the bottom. Very soon after the four had gotten down, Barney heard them begging for the cage to be pulled up and Barney gave the signal to the engineer to lift the cage but the cage stuck and the men soon died. Barney and Lund got up the ladder a distance of nearly eight hundred feet and reported to the foreman that he thought all were dead. A rescuing party at once was formed among the miners all of whom stood ready to go down to their dead comrades. C. F. Baker, C. W. Penny, and Albert Juelke were the first three down and they found all but Hopkins in the cage and Hopkins floating in the water, which was about three feet at the bottom of the shaft. It was about two hours after the accident that the rescuers could get down owing to the bad air in the mine but they were persistent in their efforts even if they had to suffer with the gas and bad air. Word was at once sent to Myton, H. G. Clark and the constable Bassett at once went out to the mine. A jury was summoned and in inquest held at 11 o'clock the morning of April 19, 1906. The verdict of the jury was as follows:

An inquest having been held at Pariette in the Duchesne Precinct, Wasatch County, on the 18th day of April 1906, before H. G. Clark, justice of peace in Duchesne precinct, in said county, upon the bodies of Elmer Hopkins, Otto Anisy, W. H. Foreman, and B. L. Riordon, there lying dead by the jurors whose names are herewith subscribed. The said jurors upon their oaths do say: That the said men came to their death April 18th, 1906 while employed in the Pariette Mine and the death of the said men was caused by burning gas, and we, the jury, further find from the evidence that there is no ladder reaching to the bottom of said mine and the cage having become fast, said men had no means of escape, and we the jury further find that the mine has been closed for the last 12 hours with no air pumps running, making it exceedingly dangerous to enter the mine at this time thereby preventing the jury from making the personal investigation desired.

In witness whereof said jurors have hereunto set their hands this nineteenth day of April one thousand nine hundred and six.

Signed--W. M. Gentry, E. T. Powell, E. M. Jones.⁴⁸

The men probably died with fire-damp caused by methane gas, the presence of which had been known at the Pariette "for

⁴⁸"Myton News," The Vernal Express, April 28, 1906, p. 1. Spelling and punctuation are as they were.

several years."⁴⁹ This fatal event closed the mine until the next January. The Pariette had been producing and shipping to Price about five railway carloads of ore per month with increases anticipated as wagon roads dried out;⁵⁰ and so, there is little wonder that cheer was expressed among Uintah freighters when the mine re-opened.⁵¹

It has been reported by many writers that in 1908 a terrible explosion and fire closed the Pariette Mine. Severity of the explosion and the number of men killed varies with the account. Mildred Dillman expresses the confusion on this issue and avoids mentioning a specific date for the accident or accidents:

The Pariette mine had a catastrophe [sic] in the early 1900's. An account was attempted . . . but upon interviewing thirty people who were living near the mines at the time . . . from one to one hundred and thirty people were reported killed in a single explosion. There have been five men who stated that they were the first ones down the shaft after the disaster. Until more data has been compiled it is impossible to give an accurate account of these disasters.⁵²

It is contended by this writer that there was no serious explosion in 1908; but rather, the reports are confused accounts

⁴⁹"Fatal Mine Explosion," The Vernal Express, April 21, 1906, p. 1.

⁵⁰The Eastern Utah Advocate, as cited by The Vernal Express, March 24, 1906, p. 3.

⁵¹The Vernal Express, January 12, 1907, p. 1.

⁵²Mildred M. Dillman, compiler, Early History of Duchesne County, (Springville, Utah: Art City Publishing Company, 1948), p. 28.

of the 1906 tragedy which was neither an explosion nor a fire. When C. J. Neal went down the Pariette to revive operations in 1932, he found on the 750 foot level a few charred sticks piled up in campfire fashion. There were hardly any signs of melted ore around the small fire site of unknown origin.⁵³

Besides the problem of methane gas, the Pariette was plagued with water and dampness. Consequently, rheumatism was a common malady among the miners who worked there for long periods of time.⁵⁴ The shafts never failed to have a few feet of water in them; but since the water was brackish, all water used at the mine had to be hauled twelve miles from the Duchesne River.⁵⁵ Timber, too, was scarce in this bleak, barren region and had to be hauled in. All parts of the shaft were lagged with four to six inch timbers which were "collar braced to prevent rock falling and the large self-dumping one-ton bucket from jumping the track."⁵⁶

IV. DALTON AREA

It is interesting to note that A. D. Ferron, a Deputy U. S. Surveyor who surveyed township lines in the Castle Peak district located six claims in the Dalton Area on January 1,

⁵³Statement by C. J. Neal, personal interview, August, 1958.

⁵⁴Statement by Hyrum Rasmussen, personal interview, June, 1958.

⁵⁵"The Pariette Gilsonite Mine," op. cit.

⁵⁶Ibid.

1889, in the name of the Ferron Mining Company.⁵⁷ These claims were the Helene, Salamon, Tillie, Dalton, Alice and Remington. In 1908, the Helene and Salamon were patented by C. E. Soest and Adolphus Busch; and the Tillie, Dalton, Alice and Remington were patented by A. D. Ferron, Sam Gilson and William Remington. Some of these claims have been mined, but no development of any significance has taken place here. Long lists of specific cuts on the ore lode in the Dalton Area can be found,⁵⁸ but most of these were made to comply with minimum annual assessment requirements.

In 1937, the Gilson Asphaltum Company's successor -- The General Asphalt Company -- secured from Kennett A. Culmer, son of H. L. A. Culmer, a quit claim to the Dalton Area. The Dalton Area was acquired by the American Gilsonite Company when it gained title to the Barber holdings in 1946, the company being a joint creation of the former Barber Company and Standard Oil of California. The Dalton Area is held in reserve by the American Gilsonite Company today.

V. SEABOLDT VEIN AND CASTLE PEAK MINE⁵⁹

To the southeast of the Culmer Vein and the Dalton Area lies the Seaboldt Vein upon which is located the Castle Peak

⁵⁷"Notes," Utah Mineral Survey Office (U.S.), Salt Lake City, Utah, Book 149, p. 483.

⁵⁸Ibid., Book 149, pp. 486-590.

⁵⁹The best source on the Castle Peak Mine is: H. Clyde Davis, op. cit., pp. 49-56.

Mine. Because it was situated within the Uncompahgre Reservation, the Castle Peak got a little later start than the Pariette; but has, nevertheless, had a long history of operations and operators. As stated above, C. O. Baxter located five claims-- A, B, C, D, E-- on the Seaboldt Vein in 1887 and relocated in 1889 and 1906. Also, in 1889 and again in 1906, Caroline Veltman, F. R. Moore, and Peter Harrison each located a lode claim on the Seaboldt Vein.⁶⁰ These claims covered the same area as the Baxter Claims B, C and D respectively. These three claims were worked annually; but patents were never issued on them, because Baxter's earlier locations held priority.

L. V. LeSieur and others, as told above, tried to mine this vein, but were ejected from the reservation. By the time of Baxter's third location of the vein, the Uncompahgre had been opened; and at that time, shipments of ore were made to a Denver roofing and paint plant in which Baxter held interest.

In 1908, the mine was sold to the Castle Peak Asphalt Mining Company of Denver, Colorado, whose president was E. J. Yetter. The mine under the new ownership was worked actively for about four years, and then it was de-activated until it was leased in 1915. The leasing stock company--the Uintah Asphalt Mining Company, c/o L. W. Partridge of Denver, Colorado--drove the shaft to 400 feet in depth. They were not discouraged by a rock offset in the vein at the 200 foot level;

⁶⁰"Notes," Utah Mineral Survey Office (U.S.), Salt Lake City, Utah, Book 249, 169 and Book 251, p. 703.

but when the vein narrowed to two inches at 400 feet, they were convinced of the mine's unprofitable nature and turned it back to the Castle Peak Asphalt Mining Company.

Many lessees followed before Ray Davis of Provo took over the Castle Peak in 1937. For example, in 1921 Basin Gilsonite Company, lessee, mined a very little ore and quit; and in 1935 Albert Shaw, lesee, became discouraged after having shipped a few tons of second grade ore, relinquishing its lease like the former operators.

Ray Davis, who leased the Castle Peak in 1937, later bought the lode and made a very determined effort to recover a workable width of the vein. To accomplish this, the shaft was sunk deeper and deeper, and drifts were sent out every seventy-five feet. By 1940 the shaft was down to 1,135 feet, and in one drift the vein did widen to a workable width of twenty-eight inches. A new shaft, Castle Peak No. 2, was sunk in 1945 which reached a depth of 670 feet by 1946. Daily production of gilsonite during that year averaged about twenty tons.

At first, Davis bagged the ore at the mine, but later at his warehouse in Provo. The ore was screened, as a method of sorting into three classifications: "dust," "fines," and "bold"--less than 1/4 inch, 1/4 to 3/4 inch, and more than 3/4 inch respectively. In 1941, he built a "blending plant" in Provo by which an even melting point was imparted to the gilsonite and impurities were removed, increasing the value of the ore by a process of melting and re-chipping similar to that

which had proven less profitable to LeSieur on the Black Diamond Vein in Colorado.

It is estimated⁶¹ that the total gilsonite mined out of the Castle Peak to 1951 was 110,270 tons. In addition, approximately 25,000 tons of rock and rock gilsonite have been mined. Further, there may be yet in reserve as much as 10,000,000 tons of gilsonite in this vein, though this writer believes this estimate to be excessive.

In 1955, all five claims on the Seiboldt (Baxter) Vein and the Provo blending plant were purchased by Gordon S. Ziegler of Great Neck, New York, who had already purchased mines in the Bonanza, Rainbow, and Fort Duchesne areas from the American Asphalt Association and the Utah Gilsonite Company. The blending plant was moved to the site of the Little Bonanza Mine in 1958 where the plant, like the mines in the area, are under the management of A. L. Wilson. Under Ziegler's ownership and the direct management of William F. Beer Jr., the Castle Peak Mine has produced between 100 and 200 tons of gilsonite per week. The mine is still operating, but its ore is now shipped to the Little Bonanza plant for processing. The processed ore is subsequently shipped by the company's own trucks to the railhead at Craig, Colorado.

The Ziegler company maintains a large plant at New Market, New Jersey, where a staff of chemical engineers blend

⁶¹H. Clyde Davis, op. cit., p. 64.

gilsonite into many commercially valuable wax and pitch compounds. At the plant pure gilsonite is crushed and graded as to melting points for use as a hot-pipe insulation known as Tri-sulite, a product identical to American Gilsonite Company's Gilsulate. On all Tri-sulite sold a royalty is paid to the latter company which by some means secured a use patent on this crushed ore. A unique and very satisfactory product of the Ziegler plant is a lining, principally of gilsonite, for beer aging-vats in breweries. Ziegler also announces that he carries select gilsonite ore of all melting points which is uniform, clean, and dependable.⁶²

VI. DUCHESNE VEIN AND THE RAVEN MINING COMPANY

The third vein to be operated contemporaneously with the Carbon Vein was the Duchesne Vein, running northwestward out of the northern end of the Fort Duchesne Military Reservation. This vein was probably unknown in 1895, for Eldridge failed to mention it in his study of that year,⁶³ and local people did not list it among the six, large known veins.⁶⁴ The mine later located on this vein was exceptionally well known, however. It was called the "Raven" or the "Duchesne." Executives in the

⁶²"Gilsonite" and "G. S. Ziegler & Co.," Thomas' Register of American Manufacturers, II, 1957, p. 2917.

⁶³George H. Eldridge, op. cit., entire report.

⁶⁴"Sale of Asphaltum Lands," The Vernal Express, December 5, 1895, p. 1.

Raven Company which operated the mine referred to it as the "Duchesne Mine,"⁶⁵ while residents of the Uintah country usually called it the "Raven Mine."

There are ten lode claims on this vein, Duchesne Number One through Duchesne Number Ten. Each is a standard 1,500 by 600 feet except for Number Ten which, when found to be mostly within the Duchesne Military Reservation, was cut to 185.9 feet in length. The vein length covered by these ten claims is 13,685.9 feet. This group of claims is located in Township two South, Range one East, Uinta Base and Meridian, immediately west of the Uinta River and north of today's U. S. Highway Forty. It lies a distance of about three miles west of the Carbon Vein and approximately one hundred wagon miles from Price Station to which most of the early mined ore was shipped.

This vein of select ore has a strike of approximately north thirty-seven degrees and eighteen minutes west and averages eighteen to twenty-four inches in width. Because of its nearness to the Uinta River, there is considerably more vegetation in the area than around the veins already discussed; and for the same reason, there was a problem of water seepage into the mine shafts.

Today, in looking over this vein it is difficult to perceive the hum of active mining which once existed. Three old

⁶⁵"Raven Mining Company of Utah," Assessment of Mining Companies, S-Z, 1914, p. 208. Office of Utah State Tax Assessor.

tipples can still be seen, but all others have collapsed and fallen into the mine as did the shaft walls themselves.

The most important and almost the sole operating company on the Duchesne Vein was the Raven Mining Company which had been incorporated in Illinois in 1898 with a capital stock of \$100,000.⁶⁶ In 1910, the company incorporated in Utah under the title of the "Raven Mining Company of Utah" and with \$200,000 capital stock.⁶⁷ First president of the company was Charles F. Pfister of Milwaukee; largest stockholder was Judson F. Stone of Wilmette, Illinois; holding one share each were A. D. Ferron and Louis H. Farnsworth of Salt Lake City; and as secretary, later president and most important officer in the history of the company, was Lowell F. Lindley of Chicago. The principal place of business was Salt Lake City until 1949 when it was changed to Roosevelt, Utah.

The Raven Company, following a most unusual grant of special privilege by an Act of Congress, located, among many other hydrocarbon claims, the ten gilsonite claims on the Duchesne Vein mentioned above and worked these claims from 1904 to 1939. Soon after, in 1942, the company transferred operations to their newly acquired Pariette Mine. Some of the mining of the Duchesne Vein was done by lessees, but most was conducted by contractors

⁶⁶"The Minerals of Uintah Basin," The Vernal Express, December 20, 1907, p. 6.

⁶⁷"Raven Mining Company of Utah," Corporation Files, Office of Utah Secretary of State.

directly under the supervision of A. D. Ferron who had formerly been a U. S. Government Surveyor and Land Selector. Ferron was chosen as mine manager by president Lowell F. Lindley who, as stated above, was declared incompetent in 1949. The company, under new and energetic leadership of Bob Pinder and Fred Tedesco, changed its name to Standard Gilsonite Company in 1956; but still, has not returned to operate the Duchesne Mine.

Mining on this vein has been concentrated on the southeast end. The first of the fourteen major shafts upon the vein was opened during the winter of 1903-04 by contractors Will Fuller, Walt Corloss and Hyrum Rasmussen. Rasmussen reports⁶⁸ that during the first twenty days he earned about \$100 which was extremely good pay. There being no bunk house or bath house, these men used an unheated tent for changing their perspiring, unwashed bodies into icy clothes. Ore was hoisted to the surface in a bucket by a horse whim. Later the mine boasted of bathing facilities, a frame house, log house, stables, sheds, a blacksmith shop, a gasoline hoist engine and a gasoline dynamo.⁶⁹

Few serious accidents occurred at the Duchesne Mine. Usually those which did occur there, as in all other gilsonite mines, were caused by primitive methods, lack of safety devices and almost a total abandon of safety consciousness on the part

⁶⁸Statement by Hyrum Rasmussen, personal interview, June, 1958.

⁶⁹"Raven Mining Company of Utah," Assessment of Mining Companies, 1911, Office of Utah State Tax Assessor.

of the miners. An example of non-fatal accidents which could easily have been avoided was an incident of 1904 related by Hyrum Rasmussen who was operating the horse whim at the time and complaining to the miner below that he was overloading the hoist bucket which was apt to spill ore or rocks back into the shaft. The miner was further urged to stay out of the mine shaft until the bucket had been dumped. The warnings fell upon listless ears until a falling rock dropped sixty feet and hit the miner on the head, knocking him unconscious for some time.

In about 1933 and also through carelessness and lack of safety guards, a "Greek" employee fell into the mine shaft, landing upon and severely crushing his head.⁷⁰ The only other injury to his body was a broken thumb. The injured man was taken to Vernal in a freight truck where he died in the hospital shortly after extensive brain surgery had been performed.

The fourteen shafts of the Duchesne Mine vary from 100 to 700 feet in depth.

Approximately 15% of the Duchesne vein of Standard Gilsonite Company has been mined out to a depth of 700 feet or 7% to 1500 feet. No other mining has been done on the Duchesne vein except for two cars of ore that were taken from a pit near the north end of the property.

The Duchesne vein is considered to have an indicated tonnage of 1,231,000 tons remaining to a depth of 1500 feet, with an inferred tonnage of double that amount to a depth of 3000 feet. This ore is considered to be of the highest grade in the district.⁷¹

⁷⁰Statement by Margaret Franke, personal interview, June, 1958.

⁷¹R. G. Hailes, Report on the Uintahite Holdings of Standard Gilsonite Company, Uintah Basin, Utah (Salt Lake City: Standard Gilsonite Company, 1956), p. 7.

Judge J. T. McConnell, a "Southern Gentleman," said by some to be "from everywhere,"⁷² was for a time general superintendent of all the Raven Mining Company's properties in Utah. McConnell lived to be about a hundred years old, spending the last few years of his life in Provo. He rode over the Uinta Basin for years in a fancy buggy which impressed old timers as much as his "high tone" as a lawyer.

The Raven Mining Company's holding almost exhausted the possibility of further locations of valuable hydrocarbon claims on or near the Uintah Indian Reservation. Most of the remaining, known deposits of worth were located by Lindley's company which in 1902 was granted, by special Act of Congress, privilege of locating 100 mining claims on the Uintah Reservation. Plans were that the company would locate fifty elaterite claims, twenty-five gilsonite claims and twenty-five precious metal claims.⁷³ Ferron stated that here was only sixty-two of the 100 possible claims actually located.⁷⁴

As early as 1898, Major H. P. Myton, Indian Agent, had arranged for negotiations between the Raven representatives and the Uintah and White River Utes. As a result of the negotiations, the Utes decided to accept the Raven offer. Consequently, the Indians petitioned authorities in Washington for acceptance of

⁷²The Eastern Utah Advocate, December 5, 1901, p. 2.

⁷³Salt Lake Mining Review, VI, No. 4 (May 30, 1904), p.

⁷⁴The Vernal Express, July 21, 1906, p. 3.

the lease arrangements, anticipating considerable wealth in royalties for themselves and wages for Uinta Basin miners and freighters. It was optimistically believed that the Indians would "get for the elaterite deposits alone more than the Government was willing to pay for the whole Reservation;"⁷⁵ and still, the Indians would control their land.

Major Myton was given a verbal scorching in Washington by some officials for having helped arrange the conference in Denver of Indian chiefs and Raven officers, but he was viewed by the citizens of Price, Utah, as only having carried out his instructions as Indian Agent.⁷⁶

As stated above, the privilege of locating 100 claims on the Uintah Reservation was granted the Raven Company by Congress. The sixty-two claims which were located under lease were, when the reservation opened in 1905, purchased by the Raven Company, again by congressional favor.

Petitions were once more circulated, but this time among the residents of Vernal and other neighboring towns of the reservation. The petitions were sent to Utah Senators, requesting that the Secretary of Interior restrict the Raven Mining Company in the area of their locations and that he be informed of known misdeeds of the Raven Company.⁷⁷ Nothing came of

⁷⁵Ibid., November 10, 1898, p. 1.

⁷⁶The Eastern Utah Advocate, December 19, 1901.

⁷⁷The Vernal Express, March 17, 1906, p. 2.

these petitions except an exhibition of the jealousies which always exist when privilege is granted.

Another company, the National Mining Company of Wisconsin, owned by Harry Payne, also secured from the Indians leases to market the hydrocarbons south of the Strawberry River;⁷⁸ but even though the company planned to spend \$100,000 immediately and pay twenty per cent of all ore sales to the Indians, the arrangements were never approved by Congress, leaving the Raven Company with the exclusive right to locate these deposits.

In 1893, five years before the Raven Company had been organized, the ubiquitous J. T. McConnell had secured a lease of some asphalt lands, not gilsonite, around the Uintah River for the American Asphalt Company. This was the same McConnell who, as Indian Farmer in 1889, had assisted John McAndrew, Agency Herder, in driving mineral trespassers out of the Uncompahgre Reservation.⁷⁹ The 5,000 acre lease which McConnell arranged for the American Asphalt Company was cancelled in 1897, however. The lessees had failed to meet the terms of the lease.⁸⁰

There were, in 1934, a few other leases granted for working hydrocarbon claims on the northern edge of the reduced

⁷⁸Ibid., August 18, 1898, p. 1.

⁷⁹T. A. Byrnes (Indian Agent), "Report of Uintah and Ouray Agency," dated September 1, 1889; House Executive Documents XII, 51st Congress, 1st Session (1889-1890), (Washington: U. S. Government Printing Office, 1890), p. 281.

⁸⁰"Lease of Asphalt Beds," The Vernal Express, December 2, 1897, p. 1.

Uintah Reservation.⁸¹ Some prospectors worked claims under these leases on a very limited basis, paying the Indians upon whose allotments the deposits were situated one dollar per ton of ore actually shipped.

The leases to the Raven Company were never so profitable as the Indians had hoped. What the company accomplished by monopolizing the possible claims in the Uintah Reservation was to turn all eyes to the gilsonite deposits on the Uncompahgre Reservation which remained unopened.

Until the Duchesne Mine was opened, the Raven Company bought their gilsonite on the open market; but many years earlier, they had been shipping elaterite from their Uinta Basin mines. Both the elaterite and gilsonite ore were used in the Raven's Chicago factory to manufacture hard rubber goods, varnishes and paints.⁸² The Chicago factory burned in 1906, and great hope and enthusiasm developed among the Uinta residents as they contemplated a new factory being built near the mouth of Strawberry Canyon, center of the company's hydrocarbon holdings. Ferron even made explicit his hopes on this matter.⁸³ Later, Ferron said that plans were drawn up for the reduction plant which would employ 600 men; and that it would be built as soon as the Moffatt Railroad Company commenced grading its line

⁸¹E. W. Harmer, "Gilsonite Mining in Utah Expands," The Mining Journal (Arizona), XXIII, No. 7 (August 30, 1939), p. 7.

⁸²Salt Lake Mining Review, VI, No. 4, (May 30, 1904), p. 21.

⁸³The Vernal Express, July 21, 1906, p. 3.

along the Strawberry River.⁸⁴ Like the many proposed railroads through the Uinta Basin, the local factory was only a dream. Raven rebuilt in Chicago.

The Raven Mining Company did as much work with their elaterite holdings as with their gilsonite for many years. Elaterite, which was discovered on the Uintah Reservation in 1889, is a hydrocarbon closely related to gilsonite in its characteristics and uses, but which has always sold at a little higher price than gilsonite. The Raven Company had elaterite workings in Indian Canyon, on the Strawberry River, Current Creek, Willow Creek, and other locations; but their principal elaterite mine was in Avintaquin Canyon, called the "Vinta Quint Mine," from which 3,000 tons were shipped in 1906 with an estimated value of \$195,000.⁸⁵ Here, too, accidents took place. A near tragedy occurred when John Strang, Jerry Murray and Strang's little boy, Jay, were riding an empty car down the mine's 700-foot tramway. The brakeman lost control, and the car went whirling to the bottom of the tram with a terrific jolt, throwing the passengers from the car. ". . . It is a wonder they were not all killed."⁸⁶

Rock M. Pope, a Vernal attorney, was an energetic field man for the Raven Company until he had a "falling out" with them

⁸⁴Salt Lake Mining Review, X, No. 15 (November 15, 1908), p. 33.

⁸⁵"The Minerals of Uinta Basin," The Vernal Express, December 20, 1907, p. 6.

⁸⁶"Theodore Thrums," The Vernal Express, March 23, 1907, p. 3.

and associated himself with J. C. Ayer, the patent medicine manufacturer of Boston, for the purpose of "opposing the Raven Mining Company"⁸⁷ in their elaterite business.

VII. MISCELLANEOUS OPERATIONS ON THE DUCHESNE VEIN

On the Duchesne Vein and to the southeast of the ten Raven claims, C. J. Neal of Salt Lake City, in about 1924, located after much difficult litigation a claim and a half--the Essie A and Neal Extension respectively--on land that was formerly the Duchesne Military Reservation. Neal organized the Diamond Gilsonite Company by which these claims were worked under the name of the "Little Black Diamond Mine" until about 1931 at which time "all of the property and assets of the above named company were sold to the Utah Gilsonite Company. . . ." ⁸⁸ The Little Black Diamond was sold in 1955 to Gordon S. Ziegler along with all other holdings of the Utah Gilsonite Company.

In 1933 and under the direction of John D. Fisher, Albert Shaw and Arthur L. Crawford, the Western Gilsonite and Elaterite Company was incorporated in Utah for the principal purpose of mining gilsonite from the Duchesne Vein, still farther to the southeast than the Little Black Diamond Mine. The company's property consisted of the Arrowchis Gilsonite

⁸⁷Salt Lake Mining Review, VIII, No. 10 (August 30, 1906), p. 38.

⁸⁸"Black Diamond Gilsonite Company," Assessment of Mining Companies, 1931, Office of Utah State Tax Assessor.

Lease containing 1,050 linear feet of the diminishing Duchesne Vein. Western Gilsonite operated on a sublease from A. E. Moore with a provision for purchase of the lease by payment of \$10,000 at the rate of one dollar per ton of ore mined. In addition, Western was to pay a royalty of one dollar per ton to the Uintah Indian Agency for the benefit of the Indian Arrowchis who owned the allotment. Another lease, the Stacy Reed, contiguous to and southeast of the Arrowchis, was also operated for a few years, but no significant mining was done on either of these leases.

After the opening of the gilsonite lands on the Uncompagre Reservation in 1903, the center of gilsonite mining shifted eastward to the White River area.

CHAPTER IV

OPENING OF THE UNCOMPAHGRE INDIAN RESERVATION AND THE WHITE RIVER GILSONITE VEINS

I. DISCOVERY OF VEINS AND EARLY LOCATORS

In 1888, the year that the Gilson Asphaltum Company of Missouri began mining on the Carbon Vein, gilsonite in unusually wide veins was discovered and claims were located just north of the White River and west of the Utah-Colorado border--between Wagon Hound Gulch and Coyote Basin. Here cowboys on the annual AH&K Roundup¹ discovered the largest of all known gilsonite veins--the Cowboy--and after some threats of gunplay² with "a bunch of toughs" from Price who felt the discovery should be theirs, proceeded to locate claims upon the vein. The AH&K cowboys present were Keith Hatch, Joe Luxon, Sinclair Royle, Jimmy Norton, John McAndrews, Tom Kennedy, Arch Richardson, Dave Richardson, Hyrum Meeks, young Pardon Dodds, Joe Hatch, and Charlie Hoel. Each cowboy, except Charlie Hoel, located a claim for himself. Charlie, being only eighteen years old, was disqualified from locating. Also in 1888, claims were made on the Cowboy Lode by Wren and James McNaughton, R. E. Norvell,³ A. G.

¹"AH" was the Abram Hatch outfit. "K" was the brand of Hyrum Meeks.

²Statement by Charles Hoel, personal interview, July, 1952.

³Spelling taken from Vernal Land Office's records of locations. Elsewhere spelled "Norvel," "Norvall," and "Norval."

and Isaac Johnson, S. M. Browne, Stephen A. Dole, Johnathan Royle, William Whitbeck, and Abram Hatch.

Between the summer of 1888 and the summer of 1890, many other veins were discovered both north and south of the White River. The major veins north of the river were the Big Bonanza or the Independent, Little Bonanza, Tabor, Uintah, Chipeta, Little Chipeta, and Wagon Hound; and south of the river were the Harrison, Alabama, Pride-of-the-West, Rainbow, Ute, and Black Dragon. Some of the earliest locators in this gilsonite wilderness were George Billings, David Bingham, James and W. P. Colthorp, Joseph McCaslin, S. D. and Byron Colton, G. W. Basor, James Hacking, Lycurgus Johnson, J. L. Norvell, John M. Walsh, Alf Thompson, G. C. Hewitt, J. J. Nazerman, James and Benjamin Rector, Henry M. Ford, Reuben Collett, Robert Bradley, J. B. Blankenship, Jesse Hainline, Robert Bodily, Albert Hatch, Frank McCafferty, A. A. Harris, Robert Hardaway, A. C. Cramer, and Charlie Hill. Some of these men were cowboys, but more of them were merchants and farmers from Vernal and nearby towns. By the Fall of 1890, most of today's known gilsonite veins of value in the White River country had been completely covered with lode claims. Many were covered several claims deep.

II. PROSPECTIVE OPENING OF THE RESERVATION

During the 1890's, it appeared to residents of the Uinta Basin that the day for reaping staggering wealth from gilsonite was at hand. The discoveries in the White River country

forecast possibilities undreamed by the operators of the St. Louis, Black Diamond or Pariette Mines. All were convinced that for the purpose of developing gilsonite some railroad company would immediately thrust a line through the Uinta Basin improving the general economy; and the editor of The Vernal Express not only announced the ore deposits to be the richest of their kind in the world, but went so far as to say that by comparison with the newly found gilsonite "the discoveries of gold in the Klondyke region seems insignificant."⁴

The most formidable deterrent to these exuberant hopes was not the lack of a railroad, though this was a serious need; but rather it was restriction by federal laws which persisted, in part, because of conflicting interest in the Uinta Basin. All of the veins in the White River area, which, incidentally, are enclosed within a very few townships--Townships Nine through Twelve south, ranges Twenty-two through Twenty-five east, Salt Lake Base and Meridian--were situated on the Uncompahgre Reservation, no part of which was opened for the exploitation of gilsonite until 1903, faith, tears, name calling, threats and conniving notwithstanding.

Those who favored an immediate opening of the Uncompahgre were obviously looking to the development of the mineral resources, principally gilsonite. Few homesteaders found the desolate and waterless region attractive. In an area of such barren

⁴"Utah's Asphaltum Beds," The Vernal Express, January 6, 1898, p.1.

wastes it took a "practical" man to "discern beneath the unpropitious exterior a mine of wealth."⁵ There were many "practical" men, however, who saw that directly, or indirectly, the entire Uinta Basin area would profit by a new and thriving industry, and they cried in chorus for an undelayed opening, shouting scornfully at any official who advocated caution or restraint. When Hoke Smith, Secretary of the Interior, left office in 1896 without having opened the Uncompahgre, some Uinta residents were jubilant about his departure. They were sure that a new secretary, regardless of who he was, would take quick action to satisfy their wishes "if the proper pressure were brought to bear upon him";⁶ and as for the retiring secretary, they said with disgust that "it would be hard to find another . . . like Hoke Smith."

It was soon learned that a new secretary was not the answer to the problems of the Uncompahgre. It only became more clear that all the interests of the white man were not congruent; and then, too, it was seen that there were the Indians to be considered. It seemed that time added complexity to the knotty situation. New questions arose as time went on, and some of those which had to be answered before a solution could be reached were: Should the minerals or any part of them be reserved? If not, should the mineral locators prior to the

⁵Ibid.

⁶"Locate Asphaltum," The Vernal Express, September 10, 1896, p. 1.

opening be recognized, or should the first locators after the opening be recognized? Should lands be sold or should they be leased? If sold, should they be auctioned, or sold to the first applicants? Should Indians be forced to take allotments in severalty? If so, how large should the allotments be, and what should be the means of selecting these allotments? Also, should the allotments be contiguous, or scattered over the choicest land? Etc. ad infinitum.

With The Strip having been removed from the Uintah Reservation as a precedent, many mining men felt that a similar arrangement could be made for changing boundary lines to exclude the heart of the White River gilsonite from the Uncompahgre Reservation; and certainly, no one could accomplish this feat quite so well as an experienced man from an experienced company. It was only natural then for the first locators to turn to an active field officer of the Gilson Asphaltum Company for assistance in obtaining the desired congressional action. It was C. O. Baxter who was approached and who accepted the responsibility of leadership in the project of opening another strip to entry. According to Charlie Hoel,⁷ a government rider who was policing the reservation to prevent illegal mining, Baxter offered his influence in Washington as aid to first locators if in return they would give him a third of each lode claim, or pay him its equivalent cash value. Hoel reported that after receiving pay,

⁷Statement by Charles Hoel, personal interview, July, 1952.

Baxter used every effort to prevent the opening of any of the gilsonite lands. If this is true, then Baxter was working precisely in his own interest; because he would not only receive claims as payment for his services; but what is even more important, he would have time to make locations of his own and to buy claims from early locators before the reservation opened. Gilson Asphaltum Company could secure a monopoly in the new gilsonite fields at a much lower cost prior to an opening of the reservation and the commencement of mining on the claims. He would naturally fight also for recognition of prior locators, that is, locators within certain date limits; and this he did. It is possible that the Gilson Asphaltum Company and C. O. Baxter were the objects of reference in a vague statement made in 1900 by Herbert Tyzack who said that "it is believed by many that there have been secret forces at work to deter the action of Congress until such time as certain interests could be subserved."⁸

One thing is certain: whether by accident or plan, the reservation was finally opened at the time and in the manner which benefitted Baxter and the Gilson Asphaltum Company most. To Baxter's credit, let it be said that he was meticulous in acquiring legitimate, non-controversial claims. Again, Charlie Hoel reported that if there were a dozen claimants for a single

⁸Herbert Tyzack, "Utah's Gilsonite Mines," Salt Lake Mining Review, II, No. 17 (December 15, 1900), p. 13

lode claim, Baxter would pay each for release of the claim. It is averred that the Gilson Asphaltum Company of New Jersey, which not only took over the holdings of the Missouri company by the same name but also the services of C. O. Baxter, paid \$275,000 for various gilsonite claims by 1902.⁹

When Baxter failed to get a strip released from the reservation, four of the first locators on the Cowboy Vein persuaded Congress to pass a Bill restoring to public domain a twelve-mile strip containing the Cowboy and Bonanza Veins; but the Bill was vetoed by President Benjamin Harrison, "because of representations made to him by eastern asphaltum companies that it was an attempt to grab a large amount of mineral land without consideration."¹⁰

First locators desired a hasty opening of the Uncompahgre with recognition of prior locators and unrestricted use of the mineral deposits. Postponing the opening worked to their disadvantage, since most of them stood a chance to lose their claims during a long wait. The fact is that nearly all of the original locators lost out or sold out at low prices before the opening in 1903. Utah Senators supported the recognition of first locators, but many federal officials, including Hoke Smith, wanted to auction the mineral claims to the highest

⁹Herbert F. Kretchman, The Story of Gilsonite (Salt Lake City: American Gilsonite Company, 1957), p. 30.

¹⁰"Locate Asphaltum Lands," Salt Lake Tribune as cited in The Vernal Express, September 10, 1896, p. 1. Also, see: "Report of Uintah and Ouray Agency by Robert Waugh, Indian Agent," dated August 20, 1890, House Executive Documents, XII, 51st Congress, 2d Session (1890-1891), p. 215.

bidder which would increase federal profits on lands surrendered and deny early locators who had unlawfully entered the reservation. In 1895, the Secretary of Interior presented Congress with a strong plea for the sale of gilsonite lands by auction:

If they are open to entry in the ordinary way a few persons will obtain them at practically no cost, and shortly thereafter they will become the property of large companies engaged in using this mineral. I believe the true policy should be for the Government to sell these deposits to the highest bidders, or else to lease them. If they are disposed of under existing law, a few thousand dollars will be picked up by the enterprising men who first go upon them, and then enormous profits, which at least in part should go into the Treasury of the Government, will be made by the companies organized to operate them.¹¹

After the United States Geological Survey Report by Eldridge¹² in 1897, some officials, realizing the vast extent of the gilsonite deposits and the potential wealth involved, argued for even a more lucrative plan than sale by auction. Some felt that the gilsonite should be worked on a lease or royalty arrangement which would render the maximum return in revenue. Even some potential gilsonite companies in the east agreed with the idea of leasing, but for different reasons. They were too late to be first locators on any gilsonite deposits and too unfamiliar with the competitive personnel in the field to make effective purchases. In Washington they were at

¹¹"Report of the Secretary of Interior," House Documents, XIV, 54th Congress, 1st Session (1895-1896), p. 10.

¹²G. H. Eldridge, "The Asphalt and Bituminous-rock Deposits of the United States," United States Geological Survey, Twenty-Second Annual Report, Part I (Washington: Government Printing Office, 1901), pp. 330-355.

home and could probably obtain profitable lease arrangements.

It seems that each argument had its merit and its obvious purpose. Residents of the Uinta Basin who were not directly affected by the heated conflict felt that the opening of the Asphaltum lands "no matter how" was "a matter of vital importance to Uintah County and to the State of Utah."¹³ Diametrically apposed in opinion were the Indians and personnel of the Indian Service. Indian Agents were persistent and verbal in asserting that the primary concern in the whole affair should be the welfare of the Indians who would be so seriously affected, but this contention seemed to annoy more than it convinced.

III. INDIAN UNREST AND PROTESTS

In compliance with an Act of Congress, passed in 1894,¹⁴ James Randlett, Indian Agent for the combined Uintah and Ouray Agencies, received instructions in 1895 from the Commissioner of Indian Affairs to begin making land allotments to the Uncompahgres with the understanding that all unallotted lands would be opened to white settlement.¹⁵ A similar plan, announced in 1887, had been quickly abandoned. By the program of making allotments in severalty, it was hoped that Indians, under the guidance of expert farmers, would discontinue their migratory

¹³The Vernal Express, May 13, 1897, p. 1.

¹⁴U. S. Statutes at Large, Vol. 28, Chap. 290; (See p. 337), 53 Congress, 2d Session.

¹⁵Edward Everett Dale, Indians of the Southwest (Norman, Oklahoma: University of Oklahoma Press, 1949), p. 141.

hunting and take up a new sedentary, industrious existence based on agriculture, acquiring in the process other characteristics essential for integration into the American community.

The Indians were angered at the new instructions and beligerently refused to accept the allotments or to pay the \$1.25 per acre required of them. For fifteen years afterward they maintained a constant threat of hostility toward the whites. They loved to roam, hunt and run livestock "without being hampered by land section corners or other land subdivisions."¹⁶ The Secretary of Interior, in his 1896 report to Congress,¹⁷ admitted the failure of the allotment program, complaining that there was not enough farm land for the Indians.

In June of 1897, following many demands from federal officials to the effect that the valuable minerals of the Uncompahgre Reservation be made available to the public, Congress passed an Act requiring all allotments in severalty to be made by April 1, 1898, and providing that all lands not allotted be opened to settlement. A strange provision of the Act reserved title to all of the "gilsonite, asphalt, or other like substances . . ." while gilsonite was the primary cause of haste in opening the reservation, the mineral was now being reserved; and only one reason seems admissible: federal authorities were undecided on their methods for disposing of the gilsonite.

¹⁶Wesley Carr Calef, Land Associations and Occupance Problems in the Uintah Country (Chicago: University of Chicago Press, 1948), p. 159.

¹⁷"Report of the Secretary of Interior," op. cit.

With the announcement of the new allotment program came a rash of protests. Indian resentment reached a new high and Agent Randlett contended that the Act was "the result of four years' discussion in Congress originating through the schemes of parties seeking possession of the valuable asphaltum deposits. . . ."18 Further, in defense of his dependent Indians, he said:

It is regretted by all interested in the welfare of these Indians that this result was reached without making provisions for locating these Indians upon homesteads as promised in the treaty made with them in 1860, and it is hoped that the matter will be reconsidered by Congress separated from the interests of the rich asphaltum sharks, whose schemes have brought nothing good to themselves and only fruited in unrest and anguish for those wretchedly poor, long neglected legal wards of the Government.19

The Indian Commission delayed. This brought forth excited and mixed reactions from disputants in the controversy; but beginning in 1902, allotments were made. The program fell far short of its anticipated success. The Indians didn't have the tools, knowledge, or desire to become progressive farmers, so many of them continued to roam. It is interesting to note that in 1934 there was a complete reversal of this Indian policy, attempting then to recapture the older Indian culture and group solidarity found in the tribe with communal property.

¹⁸James F. Randlett, (Acting Indian Agent), "Report of Uintah and Ouray Agency," dated June 30, 1897, House Documents, XIII, No. 5, 55th U. S. Congress, 2d Session (1897-1898), (Washington: U. S. Government Printing Office, 1897), p. 286.

¹⁹Ibid.

The Indians had grievances other than the severalty action. The United States had many times violated promises and changed agreements while American citizens of the West trespassed continually and treated the Indians without regard, often with cruelty. The Utes had been despicably ambused, murdered and robbed while on their trek into Colorado in 1885. They were cheated in their commercial dealings with the white man; they had been promised their reservation "forever" only to see it prospected and grazed by the white man; and now, they were asked to take a small allotment of arid land and to live upon it like the white man. Tension was mounting, and the situation came almost to the breaking point in November of 1897 when twenty-five game wardens and deputy wardens deliberately killed two Indian bucks and wounded two squaws in the White River country just east of the Utah-Colorado line.²⁰ Indian warriors cleared their squaws and children out of the way and began war dances on Diamond Mountain. They followed up with raids on sheep and intimidation of outlying ranchers. With this war fever, little annoyances became of great importance. For example, Indian cattle falling into unauthorized assessment holes on gilsonite veins and the trespassing of prospectors became intolerable. The forecast "Indian signs no good for the future"²¹ was a conservative observation.

²⁰"Killing the Utes," The Vernal Express, November 4, 1897, p. 1.

²¹Ibid.

There were other clashes between the Indians and Whites in 1897. Another was related by William Cook²² who said that Jim Olsen was camped on Pigeon Water Flat, between Lake Fork and Rock Creek, when an Indian named "Mountain Sheep" ordered him to move out of the area. Olsen answered by striking Mountain Sheep across the head with a tent pole, thinking the blow would persuade him to abandon his request and to leave himself; but Mountain Sheep got up and approached Olsen a second time, whereupon Olsen shot him three times. All of the sheep herders for miles around became so frightened of probable reprisals for this murder that they left their herds and fled in haste to Fort Duchesne and Vernal. One herder, Harry Grey, walked on foot the entire distance to Fort Duchesne, making most of his mileage right in the middle of Rock Creek's stream bed to avoid detection. It took the whole Fort Duchesne garrison to quiet the Indians down and restore order; and separation corrals had to be built at Pigeon Water, because the Indians had run several large herds of sheep into one herd.

In the same issue which announced the sinking of the Battleship Maine in Havana Harbor, The Vernal Express revealed the Indian attitude toward mineral locations on their reservation:

N. C. Hunting and David Bennett came in from the gilsonite lands on the White River, Monday last and report they were ordered off by the Indians. The order was

²²Statement by William Cook, personal interview, August, 1958.

strictly obeyed, the men not even stopping to put up monuments. The whole reservation has been vacated by the Whites. The Indians have acted sullen ever since the Whites began to put up location notices and have gathered them up by the hundreds and carried them off. One reporter was writing on the counter at Ouray, when an angry Indian snatched the paper and walked away. If Uncle Sam calls the troops from Fort Duchesne to help teach Spain a lesson, their places would most assuredly have to be filled with new recruits.²³

The troops were taken from Fort Duchesne to the Philippines, but replacement units were brought in to guard against violence in the Uinta Basin. Then Secretary Abbot heightened Indian ill will by proposing that Indian severalty allotments be contiguous. To make things worse, local papers phrased the plan in prejudiced terms, saying that "instead of allowing each Red man to select just where he . . . will make his residence . . . the Indians should be enumerated and when it has been ascertained just how many acres they are entitled to, . . . have it given to them in bulk, and then let the Red man divide it up among themselves."²⁴ The report further stated that this plan "would be a means of preventing clashes between the two races" which was admitted to be then "of much too frequent occurrence." As explanation of the proposal continued, a genuine contempt was revealed. It was said that the plan would be "far more desirable for the white settler, who would not be surrounded on all sides by the Indians." Also, the Indians--meaning Chiefs

²³The Vernal Express, April 14, 1898, p. 1.

²⁴"Secretary Abbott's Plan," Salt Lake Tribune as cited by The Vernal Express, October 27, 1898, p. 1.

Chaveneaux, McCook, Colorow and Atchee--were "stubborn" in refusing to negotiate on the issue.

The allotments were not made in contiguity; as time wore on, Indian opposition weakened; and a fairly peaceful settlement was made. The Indians got the choicest agricultural lands and won a dispute over water priority rights; but even in 1907 when Fort Duchesne was ordered abandoned, a very lengthy and audible protest was sounded by settlers who still were uneasy about the Indians.²⁵ The order was revoked, and the garrison was maintained a few more years.

IV. THE ACT OF 1903

By 1903, the Uncompahgre allotments had been completed and authorities in Washington had decided a means of handling the remainder of the reservation. On March 3, 1903, Congress enacted a program²⁶ which opened to settlement all sections which did not contain asphalt, gilsonite, elaterite or other like substances. These minerals, most of which was gilsonite, could only be claimed if four conditions were met: (1) they were located within odd-numbered sections, (2) they had been located and locations properly recorded prior to 1891, (3) the location was the first of such locations prior to 1891, and (4) a new location be made within ninety days following the

²⁵The Vernal Express, March 30, 1907, p. 2.

²⁶U. S. Statutes at Large, Vol. 32, Chap. 994; 57th Congress, 2d Session, (See p. 998).

opening. Gilsonite in even-numbered sections was to be sold in a public sale, but specific provisions for execution of the sale were not made.

V. ARGUMENTS AS TO RIGHTFUL OWNERSHIP

Many valuable gilsonite deposits lay within the even-numbered sections, but none were sold until 1906. Gilson Asphaltum Company of New Jersey had acquired claim to most of the gilsonite within the odd-numbered sections by having purchased claims of first locators; but even so, there were many quarrels among locators, both before and after the official opening, some of which became heated and tediously complex. On most lode claims there was considerable contention as to who had been the earliest legitimate locator. There had always been a question as to the legality of doing assessment work on an Indian reservation, or even locating for that matter. Then, too, it was always difficult in a desolate wilderness to pinpoint locations, especially with Indians, Indian agency employees and competing locators repeatedly destroying markers and monuments.

As early as 1889, T. A. Byrnes, Indian Agent, in reporting the discovery of gilsonite on the Uncompahgre said that he required the removal of trespassers and the mineral markers:

During the past year a number of trespassers crossed the eastern line of this reservation and located mining claims of this mineral [gilsonite], and in February last I sent the police force in charge of Mr. J. T. McConnell, Uintah agency farmer, and Mr. John McAndrews, agency herder to that portion of the reservation and drove out the intruders,

destroying their stakes, houses, fences, etc.²⁷

Charlie Hoel, through the recommendation of John McAndrews, secured from the Indian Agent employment as mineral policeman in 1890 and again in 1902. His duties were to fill assessment holes which could cause injury to Indian cattle, and to destroy location monuments and notices. According to laws governing the Uncompahgre, all locations were violations; but the government waived in its enforcement of the rules. Some years the agents policed the reservation conscientiously, and other years they became very lax, showing little or no concern about wandering miners who thrived under a laissez faire system. Never, however, were locators allowed to ship ore off the reservation when the shipments were known by the Indian Agent. Hoel said that location markers and monuments were often piled up so thick that you could hardly see the claim: "some claims probably had fifty names on them prior to 1891."²⁸ In 1898, the editor of the Vernal paper revealed a similar situation: "nearly every foot of asphalt land has been dotted with monuments from one to three deep. . . ."²⁹

With such a fluctuating policy governing the Uncompahgre

²⁷T. A. Byrnes, (Indian Agent), "Report of Uintah and Ouray Agency," dated September 1, 1889, House Executive Documents, XII, 51st U.S. Congress, 1st Session (1889-1890), (Washington: U. S. Government Printing Office, 1890), p. 281.

²⁸Statement by Charles Hoel, personal interview, July, 1952.

²⁹The Vernal Express, April 7, 1898, p. 1.

gilsonite, onlookers became confused. "Sooners" were ejected, and within a few months well-defined claims were located again. On one day in August, 1896, fifty-five gilsonite claims were recorded in the Vernal land office by forty-one locators. Vernal residents, caught in the continuing depression started by the Panic of 1893, stoically observed that the gilsonite "excitement was needed . . . to break the dull monotony of the hard times."³⁰

Some arguments of the contenders were so amusing that they may very well have helped the uninvolved observers escape their doldrums. For example, some of the locators, when threatened with expulsion from the reservation, pleaded "good faith," saying their claims should be recognized since they were made in the earnest belief that they were off the reservation--being located with good intent, they should be accepted as valid. The voice of the people answered quickly: "We are afraid their good faith will be something like the Red Men who planted gun powder. Their good faith made no difference with the results, nor will the faith of prior locators change the laws of the reservation."³¹ It was common knowledge that the locators were thoroughly acquainted with the country, and that some hired surveyors to determine the exact reservation boundary lines. The cowboys who in 1888 located the first claim on the Cowboy Vein realized that they were near the Utah-Colorado line, but

³⁰"What's Up?" The Vernal Express, August 27, 1896, p. 1.

³¹The Vernal Express, April 7, 1898, p. 1.

probably inside Utah which would be on the reservation; therefore, Keith Hatch, having priority, took the eastern most claim, hoping to escape the restrictions of the reservation. All the other cowboys were sure that they were on the reservation.

Another argument was presented by Senator Arthur Brown who held that the Uncompahgre was not a reservation at all.³² His premise was that President Arthur exceeded his executive authority when he withdrew lands from settlement and set them aside as a reservation--he usurped a congressional prerogative. Ridiculous as this argument was, coming after long established precedence, it should be noted that an Act of Congress³³ followed the president's order, confirming the reservation. Nevertheless, Senator Brown had a following among those who wanted justification for locating or continuing assessment work. Utah's Governor and Secretary of State, upon the strength of Senator Brown's argument, employed another state official to enter the reservation and locate lands, drawing fire from local citizenry which labeled the action a violation of federal laws and as "bad form";³⁴ and countered with the ad hominum argument that "good lawyers" are of the opinion that those who were first to locate after the opening of the reservation would be

³²"The Uncompahgre Locations," Intermountain Mining Review as cited by The Vernal Express, September 16, 1896, p. 4.

³³U. S. Statutes at Large, Vol. 21, Chap. 223; 4th Congress, 2d Session.

³⁴"The Uncompahgre Locations," Intermountain Mining Review as cited by The Vernal Express, September 16, 1896, p. 4.

the legitimate claimants. It was further stated that:

It would be interesting to know what . . . Agent Randlett was doing while the locations were being made-- whether he was asleep or was simply winking the other eye. He has always been regarded as a terror to trespassers and law-breakers, and it is reported that when he was informed of what had been done he ordered out the colored cavalry to destroy the location notices.³⁵

VI. STRUGGLE FOR CONTROL

The fight for the Uncompahgre gilsonite involved hundreds of local people and several large corporations, among which were the Raven Mining Company, a Chicago corporation already operating by special privilege on the Uintah Reservation; the American Asphalt Association, incorporated in Missouri in 1902; and the Gilson Asphaltum Company of New Jersey, incorporated in 1900, whose forerunner, the Gilson Asphaltum Company of Missouri, had long operated the St. Louis Mine. There were many others; but until 1920, the greatest struggle for control was between the American Asphalt Association and the Gilson Asphaltum Company, with the latter company always maintaining a comfortable upper-hand. Probably the three men most prominent in the field during this tense battle were J. T. McConnell of the Raven Company, S. P. Barron of the American, and C. O. Baxter of the Gilson. S. P. Barron left the American Company in 1922, and formed his own, the Utah Gilsonite Company. Speaking of the virtual monopoly held by the Gilson Asphaltum Company, Bert Seaboldt said: "It

³⁵Ibid.

would take too much writing to detail all the fights . . . enough to say we [the Gilson Asphaltum Company] finally got possession of all the so-called Gilsonite. . . ."36

It was a frequent event for exchanges and deals to be made involving five to twenty thousand dollars, sums which shortened the breath of Uinta Basin people who were, in 1900, still living on the frontier of western America; and Vernal felt "the stimulus of the gilsonite boom."³⁷ The County Recorder was "fairly swamped with location notices . . .," and indications pointed to "considerable litigation resulting from jumping in the White River country."³⁸

Some differences were settled by litigation, some by fist fights, and others by threats of "gun play." A good example of the latter actually occurred on the Uintah Reservation, but which was similar to incidents on the Uncompahgre. Hyrum Rasmussen related³⁹ that about a hundred men gathered on elaterite veins in Avintaquin Canyon to locate the same deposit when the reservation opened in 1905. Many of the men were carrying guns including Will Sharrer and young Pardon Dodds. Violence and bloodshed were averted when it was decided to post notices

³⁶Letter from Bert Seiboldt to A. L. Crawford, May 20, 1946.

³⁷Herbert Tyzack, "Hydro-Carbons of Uintah County," Salt Lake Mining Review, II, No. 19 (January 15, 1901), p. 11.

³⁸Ibid.

³⁹Statement by Hyrum Rasmussen, personal interview, June, 1958.

simultaneously and then to race for the land office. The ore deposit appeared to be one of the richest ever found; but Hyrum Rasmussen and Myron Roberts, who stayed to mine the ore, had it all dug out in thirty days. They had all risked their lives for only a "pocket" of ore.

As agents for the big companies moved into the gilsonite lands with large amounts of capital to support their bargaining, it was quite unanimously believed that there was in sight "the dawn of prosperity for Uintah County";⁴⁰ but also, there arose fears of these corporations as expressed frequently by the use of terms such as "syndicate," "combine," "combination," and "trust." "Syndicate" seemed the favorite expression; and in 1897, there were anti-trust proposals made in Congress directed at prevention of monopoly in the gilsonite industry. A "monopoly" was defined as a combination which could limit production or raise the price of asphaltum; but as the problem was talked out, it became clear that in order to prevent a monopoly from developing the government would "have to dictate the output and also the price and to whom sold which it will hardly undertake to do."⁴¹ The Gilson Asphaltum Company obtained and kept a monopoly, though their sister company, the Uintah Railway, was sued successfully on at least one occasion by the American Asphalt Association which held that preferential rates on the

⁴⁰"The House Passes the Cannon Amendment," The Vernal Express, March 4, 1897, p. 1.

⁴¹The Vernal Express, May 13, 1897, p. 1.

Uintah Railroad controlled the output of operators in the field.

VII. EXECUTION OF THE ACT OF 1903

In carrying out the Act of 1903, President Theodore Roosevelt, in 1906, proclaimed a sale of gilsonite lands in even-numbered sections of the former Uncompahgre Reservation. The even-sections were to be surveyed, bids to be accepted and sale of the quarter-quarter sections to be made to the highest bidders. All lands not sold in such a manner by August of 1910 were to be reserved. A great many forty-acre tracts were sold under these provisions with a minimum price set at five dollars per acre. In checking over successful bidders, it is noted that most purchases were made by men in St. Louis, Chicago, and New York. To some ridiculously low bids went part of the famous Bonanza Vein. The Gilson Company only paid \$126 per acre for the area containing the remainder of that vein.

Seventy-five forty-acre tracts were sold in September, 1906,⁴² with an interesting feature noticeable about the bidding: many of the bids by representatives of the Gilson Asphaltum Company won over competitive bids by a margin of one dollar. Whereas the inexperienced bidder might bid twenty-five, fifty or seventy-five dollars per acre, the men from Missouri would bid twenty-six, fifty-one, and seventy-six dollars, etc. In

⁴²"Gilsonite Lands Sold," The Vernal Express, September 22, 1906, p. 1.

December, seventy-eight more quarter-quarter sections were sold;⁴³ and as before, they went to the highest bidders. While American Asphalt Association employed one bidder--Robert Walsh--in the field, the Gilson Asphaltum Company employed six--James L. Brusstar, Joseph Royer, Ernest Searing, Ira Atkinson, Edgar Boles, and J. Lee Allen.

After these sales, very little land was sold by 1910 at which time sales were entirely discontinued as ordered by the Act of 1903; and to this day, there have been no official reopenings of unsold gilsonite lands. In 1916, there was a general optimism concerning the sale of the remaining deposits. In fact, an immediate settlement of the "gilsonite question" was predicted and a "wild scramble" expected.⁴⁴ The anticipated sale failed to take place; and in 1926, President Coolidge by Executive Order⁴⁵ reiterated the withdrawal of gilsonite lands unsold by 1910. The order, in aid of legislation, continued the prohibition of settlement, location, sale or entry of lands containing "asphalt, gilsonite, elaterite and other like substances."

In 1932, a very determined and direct attempt was made by Don B. Colton, federal congressman from the Uinta Basin, to

⁴³"Sale of Mineral Lands," The Vernal Express, December 1, 1906, p. 4.

⁴⁴The Vernal Express, April 28, 1916.

⁴⁵Executive Order No. 4371, January 21, 1926.

open the undeveloped gilsonite lands by means of a leasing Bill⁴⁶ comparable to the Mineral Leasing Act. The Bill failed to pass; and consequently, much gilsonite land is held in reserve by the federal government today.

There seem to be at least two legitimate challenges or questions to the present policy of holding these lands in continued federal reserve.⁴⁷ First, shouldn't school sections of the reserved lands come under state control? Second, isn't oil enough related to asphalt, gilsonite, and elaterite to be called a "like substance"? The implication of the latter question is that the development of oil in the reserved regions is a violation of federal legislation. Official federal interpretation of the Mineral Reserve Act of 1903, which has waived in the past, holds at present that all unsold sections are reserved and, in contradiction of fact, that oil is not a "like substance."

⁴⁶U. S. House of Representatives, Bill 8973, 72d Congress, 1st Session, February 8, 1932.

⁴⁷For a very excellent discussion of laws, executive orders, and interpretations of legal acts affecting the use of minerals on the Uncompahgre see: Mary Jane Due, "The Uncompahgre Indian Reservation and Oil Shale," (unpublished paper). Miss Due is an Adjudicator for the Bureau of Land Management, 444 Federal Building, Salt Lake City, Utah.

CHAPTER V

OPERATIONS OF THE GILSON ASPHALTUM COMPANY SOUTH OF THE WHITE RIVER

I. GILSON ASPHALTUM COMPANY OF NEW JERSEY

In 1903, when the odd-numbered sections of the Uncompahgre were opened with recognition of first locators among those who located prior to 1891, the Gilson Asphaltum Company of New Jersey claimed far more gilsonite than all other claimants combined and stood ready to shift its operations from the St. Louis and Black Diamond Mines to the Uncompahgre country and to initiate a highly accelerated program of mining.

The Gilson Asphaltum Company which was incorporated in New Jersey in 1900, was made a subsidiary of the General Asphalt Company in 1903. The story of the latter company is rather vague because it was a part of the vast, complex, asphalt empire of Amzi Lorenzo Barber who had become involved in the paving industry as early as 1878, acquiring large asphalt holdings in Trinidad, Cuba, and the United States. One writer said that "in the maze of conflicting statements by various interests and in the absence of any authorized responsible publicity, it is difficult, if not impossible, to ascertain the real sequence of developments."¹ A few things are known, however, which will

¹Amzi Lorenzo Barber, Dictionary of American Biography, I (New York: Charles Scribner & Sons, 1928), p. 586.

give some understanding and continuity to the story. By 1896, though thirty companies were operating in the field, Barber had laid over one-half of all the pavement in America.² Early in 1901, Barber disposed of his personal holdings and allowed two great combines--the Asphalt Company of America and the National Asphalt Company--to go into receivership. "There were charges and recriminations as to the profits made by the transfer of various stocks. . . ." ³ Barber retired, but the Barber Asphalt Paving Company continued as a major operating branch of the newly formed General Asphalt Company and as a sister company of the Gilson Asphaltum Company of New Jersey and of the newly organized Uintah Railway Company which played important roles in the gilsonite industry. The General Asphalt Company was in reality a holding company which, in the asphalt industry, became known as "The Trust." Some of the other subsidiaries of The Trust were:⁴ The Trinidad Lake Petroleum Company, The Petroleum Development Company, The Bermudez Company, Bertrin Petroleum Company, Venezuela Royalty Contract Company, Iroquois Electric Refrigeration Company, and Trinidad Lake Asphalt, Ltd. According to one authority, The Trust was, in 1908, backed by a capital of \$32,000,000.⁵

²Ibid.

³Ibid.

⁴John Moody, Moody's Industrials, 1928, pp. 1281-1282.

⁵The Vernal Express, December 4, 1908, p. 1.

Since the General Asphalt Company, or The Trust, and all its subsidiaries were the outgrowth of what was once the holdings of A. L. Barber and since The Trust maintained its principal office at Barber, Perth Amboy, New Jersey, it became common for people in the gilsonite country to refer to The Trust and/or each of its subsidiaries as the "Barber Company." So, the Gilson Asphaltum Company was sometimes referred to as the "Barber Asphaltum Company;" and likewise, but less frequently, the Uintah Railway Company was called the "Barber Railway Company." Indeed, General Asphalt Company changed its name to "The Barber Company, Incorporated" in 1938 and to "Barber Asphalt Corporation" in 1942.⁶

While the General Asphalt Company was directed entirely by men from Philadelphia, the Gilson Asphaltum Company of New Jersey, the company of major concern in this chapter, was directed by men in New York City.⁷ Samuel B. Lawrence was the first president and John B. Summerfield the vice-president. Vernal, Utah, was designated as the principal place of business; and the primary interest of the Gilson Asphaltum Company of New Jersey was the development of the gilsonite holdings acquired in 1900 from the former Gilson Asphaltum Company of Missouri and, in addition, those claims they had recently located or

⁶"Barber Asphalt Company," Corporation Files, Office of Utah Secretary of State.

⁷"Gilson Asphaltum Company," Corporation Files, Office of Utah Secretary of State.

obtained from first locators on the Uncompahgre Indian Reservation. The activities of the Gilson Asphaltum Company were the most extensive of all gilsonite companies until it was dissolved in December of 1936. Its operations were then carried on directly by its former holding company--The General Asphalt Company. In 1946, four years after General Asphalt Company had changed its name to "Barber Asphalt Corporation," it withdrew from business in Utah, forming a new company as successor in the gilsonite operations. The new company, the American Gilsonite Company, was and is half owned by the Barber Asphalt Corporation and half by Standard Oil of California. With the American Gilsonite Company came a complete revolution in gilsonite mining and processing. The principal story of the gilsonite industry could be told through the succession of companies discussed above. To reiterate concisely, this sequence of companies and the year that each actually began operating in Utah follows: Gilson Asphaltum Company of Missouri, 1888; Gilson Asphaltum Company of New Jersey, 1900; General Asphalt Company, 1936; The Barber Company, Incorporated, 1938; Barber Asphalt Corporation, 1942; and American Gilsonite Company, 1946.

II. BLACK DRAGON VEIN

Transportation had always been the biggest part of the marketing cost of gilsonite. So, when most of the Uncompahgre gilsonite was opened to exploitation in 1903, the Gilson Asphaltum Company of New Jersey, which controlled most of the

major veins, wisely selected for immediate development the vein nearest the Book Cliffs and the D&RGW Railroad. Their aim was not merely to shorten the wagon haul. The mother company, or General Asphalt Company, had planned on a grand scale: a narrow-gauge railroad would be built from the Black Dragon Vein to the D&RGW line, crossing the Book Cliff barrier; a system of toll roads would connect Dragon with Vernal and Fort Duchesne; over these roads would travel the company's freight wagons and stage coaches on daily schedules; a government mail contract for most towns in the Uinta Basin would be secured; and, in addition to the Black Dragon Mine, a gilsonite mine would be opened on a large vein between Vernal and Dragon to assure a back-haul of ore for any empty freight wagons returning from Vernal or Fort Duchesne to Dragon. These were fantastic plans in the Uinta country which still had all the characteristics of the American frontier. The Basinites stood agog as The Trust went to work; but within twenty-four months, the entire program was put into effect. To execute the complete system of communication--railway, toll roads, stage lines, freight lines, telephone and telegraph lines--The Trust organized The Uintah Railway Company and the Uintah Toll Road Company, whose activities were so extensive and important that they will be detailed in Chapter VII below.

Ore production did not wait for the construction of the Uintah Railway which was completed in September of 1904. Instead, miners were put to work on the Black Beauty Claim

situated on the southeastern end of the Black Dragon Vein in the spring of 1903. Ore from this mine, which was known as the "Black Dragon Mine," was not only stockpiled for the arrival of the railroad, but some was shipped by freight wagons over the Book Cliff into Fruita or Crevasse, Colorado, which were on the D&RGW Railroad. There seems to be some controversy as to whether the wagon road went directly over Baxter Pass, but that it went over the Book Cliffs west of Douglas Pass seems certainly evident from a 1906 want-ad for freighters published by the American Asphalt Association in which the distance from the Norvell Mine to Crevasse, Colorado, was advertised as fifty-eight miles--almost a direct line.⁸

Even though the Gilson Asphaltum Company began mining operations at the Black Dragon Mine immediately upon the announced opening of the Uncompahgre Reservation, it should be noted that its ore was not the first shipped out of that area south of the White River. About six direct miles to the northwest and on line with the Black Dragon Vein was located the Rainbow Vein on the southeastern end of which J. L. Norvell had located the East Norvell Claim in June of 1890. The exact year that operations began at the Norvell Mine is not known, but a well-built stone house was put up and the mine fairly well developed before the reservation was officially opened. Some operations on this remote vein had evidently escaped the watchful

⁸The Vernal Express, May 19, 1906, p. 2.

eye of the Indian Agent. Joshua Birchell, after an unprofitable attempt to open the Bandana Mine to the north of the White River, began legitimate mining at the Norvell in 1903.⁹ A few hundred tons of gilsonite were shipped from the Norvell Mine to Rifle and Fruita, Colorado. The route to Fruita was over the Book Cliffs as from the Black Dragon, described above; but the ore shipped to Rifle was hauled up the White River to Meeker, Colorado, and then southward up Dry Rifle Creek to Rifle. When the Uintah Railway opened for business in the fall of 1904, this mine, which had recently come under the supervision and part-ownership of the American Asphalt Association, had a large stock of gilsonite ready for rail shipment.

The Black Dragon Vein is a part of the biggest gilsonite vein system south of the White River, and is located approximately eighteen miles south of the river and just west of the Utah-Colorado Line--in Township 11 South, Range 25 East, Salt Lake Base and Meridian. On the surface this vein is visible for about four miles, following a course of approximately north forty-seven degrees west. Because the associated rock is made up of "alternating shales, massive sandstone and heavy beds of limestone, the Dragon Vein is not a clear-cut regular vein but is very pockety, especially the lower portion."¹⁰ Consequently,

⁹Statement by Charles Hoel, personal interview, July, 1952.

¹⁰Earl Douglass, "Final Report on the Gilsonite Holdings of the Gilson Asphaltum Company in Utah and Colorado," (unpublished report to the Gilson Asphaltum Company, 1928), p. 138.

while the vein averages four and one-half feet in width, it is very narrow in some places and as wide as fourteen feet in others. For over two miles the Black Dragon averages six feet in width, and the 1907 estimated tonnage available in this vein was 2,086,479 tons.¹¹ Most of the Black Dragon ore was "selects," but the vein was seriously broken in places with a troublesome amount of rock and debris distributed through the ore lode. As depth was reached, more "gophering" was necessary in the mining of the ore. The Black Dragon is really a part of a long vein or vein system which runs northwestward through the Rainbow Anticline for a distance of about twenty-five miles. Travelling northwestward, the Ute, Rainbow, and Pride-of-the-West Veins are on line with the Black Dragon and probably originally a part of the same vein which is now cut through by water-eroded canyons. Also, there has been some vertical faulting along this anticline. For example, the Ute Vein stands several hundred feet above the Rainbow and Black Dragon, which means--that having been exposed more to erosion--the Ute Vein is several hundred feet more shallow than its neighboring veins. The entire vein system is very limited in ore depth, since the Rainbow Anticline--once arched upwards--was seriously eroded. Depths comparable to the Culmer Vein can never be obtained along the Black Dragon or its sister veins. In 1928, the deepest workings on the Black Dragon Vein were on the Black Diamond Claim;

¹¹The Vernal Express, December 20, 1907, p. 6.

and these went to 750 feet, three-hundred feet below the lower tunnel.¹² In 1907, Marvin Workman, William Cook, Gromer Peacock, and Warren Peacock drove a test shaft down six-hundred feet from the surface of the Black Dragon, about two-hundred feet beneath the lower tunnel, where the ore ran out. In the bottom of the vein a bluish-green shale was found which resembled the oil shale scattered throughout the eastern part of the Uinta Basin.¹³

The Black Dragon Vein appeared on the surface to be a vein which would sustain mining operations on a large scale for a great number of years, justifying the construction of an expensive and difficult railroad over the Book Cliffs to the D&RGW Railroad. However, after working the Black Dragon Mine--the Black Beauty, Morning Star, Little Warrior, Black Diamond, and Cumberland Claims--for ten years, the Gilson Asphaltum Company completely discontinued operations there and shifted in 1912 to the Rainbow Vein, having run an extension of the Uintah Railroad from Dragon to the new mining camp in 1911. In 1914, the American Asphalt Association, chief competitor of the Gilson Company, leased the entire Black Dragon Vein and revived the operation of the Black Dragon Mine; but most of the work by the American Association was done to the northwest--on the Country Boy, Rising Sun, Harrison, Rector, Gray Eagle, and Republican

¹²Earl Douglass, op. cit., p. 137.

¹³Statement by William Cook, personal interview, August, 1958.

claims. The primary object of this chapter is to detail the activities on the Black Dragon and neighboring veins with an emphasis upon the growth and death of a mining community--Dragon, Utah.

III. BLACK DRAGON MINE

The Black Dragon Mine was opened in 1903, fifteen months before the completion of the Uintah Railway. It went into full swing in the fall of 1904 under the management of Superintendent Charles Hill, who was succeeded by a Mr. Watson. About 1907, a Mr. Summerville became mine superintendent until relieved in 1910 by William Blake who, in turn, was replaced by Homer Ford about the time operations began to shift to the Rainbow Mine in 1911.

The southeast end of the Black Dragon Vein, having been cut away by Dragon Canyon, is exposed to view. Beginning at the exposed end of the vein, a tunnel was driven back through the vein 300 to 400 feet below the crest of the hill and the vein surface; and overhead stoping with miners' picks brought the extricated gilsonite to the tunnel floor. The ore thus mined was always under foot and difficult to transport to the mouth of the tunnel, so a second tunnel was drifted through the vein twenty-five below the first and running back to the Cumberland Claim. In driving this tunnel, compressed-air guns--Sullivan Chippy Machines--were used extensively.¹⁴ The horizontal column

¹⁴Statement by William Cook, personal interview, August, 1958.

of ore separating the two tunnels was penetrated by vertical shafts which fanned out at the top and at the bottom of which was constructed ore hoppers or chutes. As ceiling height increased in the upper tunnel, loose-plank walkways were laid on successively higher levels of the mine wall-timbers. The falling ore was pushed into the chutes from which tramway cars in the lower tunnel were quickly and neatly loaded by briefly opening a chute's sliding door. The cars were then drawn by donkeys to the tunnel's mouth where the ore was dumped in a large storage bin. Most of the ore taken out of the Black Dragon Mine by the Gilson Asphaltum Company was loaded into Uintah Railway coal cars which were pushed right under the mine's ore bin on a spur running up the canyon to the mine from Dragon Junction. The loose ore was taken by the railway to Mack where, in the company's sacking plant, it was sacked to meet the requirements of various buyers. The American Asphalt Association, which operated the mine under lease between 1916 and 1920, sacked the ore before loading it on the railway cars. Shafts were driven down through the ore to the upper tunnel from the top of the hill, and other shafts were sunk beneath the lower tunnel as deep as 300 feet. Ore taken from the shafts below and above the tunnels was sacked for hoisting. In the case of shafts above the upper tunnel, it was necessary to hoist the sacked ore to the surface and then to haul it by horse- or mule-drawn wagons to the loading dumps at the mouth of the tunnel.

An average monthly production of gilsonite by means of

miners' picks and air-driven chipping moils, during periods of full operation, was between 2,000 and 3,000 tons. M. S. Markley, the mine's cashier, reported that the Black Dragon's output for 1907 would be about 26,000 tons.¹⁵ In 1909, a method of stoping the ore by steam was invented and used with great success for over two years. William Blake, who developed and patented the process, got his original idea by watching the sun's heat loosen the gilsonite near the mouth of the tunnel.¹⁶ William Blake and William Ramsey took a large chunk of ore to the shop where the application of steam caused the ore to fall apart. Long, perforated steam pipes were soon run through the upper tunnel a few feet below the ore ceiling. Not many minutes of steaming were required to bring tons of gilsonite down into the chutes below. As the ore came down and the ceiling raised, the steam pipes were raised to keep the steam close to the gilsonite. Production increased sharply by the steam method. Seventy-five or eighty tons of ore could be dropped in two hours of steaming.¹⁷ Also, by this process there was very little dust created in the mine, thus reducing the hazard of explosions. It is probable that the explosion which did occur in 1911 was another outbreak of the extensive fire and explosion of 1908, which will be discussed in detail below.

¹⁵The Vernal Express, September 27, 1907, p. 3.

¹⁶Statement by William Cook, personal interview, August, 1958.

¹⁷The Vernal Express, January 19, 1909, p. 6.

By November of 1907, the Black Dragon Mine's future was looking bright. The only strike in the mine's history had been successfully thwarted. Mine officials reported that the camp was free of "agitators and strike-breeders."¹⁸ Earlier that year, many had left the mine because of low wages and periodical shut-downs and had gone, as sarcastically reported, to "greener pastures beyond the next hill where good jobs, big pay and cheap living . . . [were] the general features of life."¹⁹ The camp's working force was soon up to full strength again, however, as many miners from closing western mines flocked into Dragon. There was talk of big doings. Rumors even had it that the Uintah Railway would soon be extended north of the White River to Bonanza. Wages for miners were three dollars for an eight-hour day,²⁰ but the miner was required to pay seventy-five cents per day for board and furnish his own tent. Electric lights and a sprinkling system were installed in the mine.²¹ Operating power was furnished by a 150-horsepower steam engine. The lights allowed miners to work without wearing head lamps, and the mine was sprinkled to prevent the terrifying explosions which had been experienced in early gilsonite mines.

Regardless of the sprinkling system, a devastating explosion occurred on February 12, 1908, killing two Greek miners

¹⁸Ibid., October 25, 1907, p. 1.

¹⁹Ibid., October 4, 1907, p. 1.

²⁰Ibid., September 22, 1906, p. 2.

²¹Ibid., October 25, 1907, p. 1.

and doing extensive damage to the mine.²² The time of the explosion was 1:10 a.m., just after the swing-shift miners had left the mine and a small late-shift crew had gone on duty. The two Greeks²³ who were killed were working about a quarter of a mile back in the tunnel when the mine dust was ignited, setting off a series of explosions which left the mine a raging furnace. Flames could be seen in Vernal, over sixty miles away; and mine timbers were thrown more than two thousand yards across Dragon Canyon. One of the miner's picks was found 700 feet from the mouth of the tunnel.

All statements with regard to cause, made during the first week following the explosion, indicated that the cause would remain speculative until careful investigation had been made. By February 21, however, T. W. O'Donnell, a lawyer assisting Mine Inspector Pettit, said that he thought one of the Greeks had been smoking.²⁴ No one had ever seen one of those two Greeks smoking. O'Donnell's suspicions rested on an "argument by association": a Greek foreman, not on duty at the time, had been known to have smoked in the mine. The electric lights were cleared of responsibility for the explosion by an equally

²²"Death and Disaster," The Vernal Express, February 14, 1908, p. 4; and "Dragon Explosion," The Vernal Express, February 21, 1908, p. 1.

²³Names of the two Greeks were torn out of the ragged file copy of The Vernal Express.

²⁴"Dragon Explosion," The Vernal Express, February 21, 1908, p. 1.

illogical argument: they were still burning after the third explosion.²⁵ Obviously, such a fact pointed only to the behavior of the explosions and not to their source. Dan McDonald submitted a much more convincing, though inconclusive, argument that electric sparks did not cause the explosion: George Stretepos, Greek interpreter, had once unsuccessfully tried to ignite gilsonite dust with electric sparks. The experiment of Stretepos was not exhaustive, however, because several flashes or inconsequential explosions were later observed to have been caused by electric sparks in other mines. It should be of some significance that the electric light system was removed from the mine,²⁶ and light was again provided by individual safety lamps worn on the miner's hat and powered by small wet-cell batteries. At any rate, the same argument which dismissed electric sparks as a cause by reason of the experiment of Stretepos would also dismiss smoking as a cause by reason of the fact that the known smoking of the Greek foreman had caused no explosion. Both arguments are ridiculous: either smoking or electric sparks could cause a gilsonite explosion.

By February 28, several men announced that they believed the explosion had been caused by dynamite detonated by former strikers.²⁷ Mine Inspector Pettit believed so. Mine

²⁵Ibid.

²⁶"Dragon Doings," The Vernal Express, January 19, 1909, p. 6.

²⁷"Was Dynamite Used," The Vernal Express, February 28, 1908, p. 1.

Superintendent Summerville went so far as to fix the exact location of the dynamite: 150 feet from the mouth of the tunnel. Evidence for this argument was that the 1907 strikers, who were dismissed from employment after conducting the only strike in the mine's history, had threatened to destroy the mine if operations were resumed. Summerville said the mine had been sprinkled just a few days before the explosion, William Blake said there was very little dust in the mine, and William Ramsey said some timbers appeared to have been shot by dynamite. These accusations were soon dropped, and no formal charges were made even though one man, who was reported to have made threats, was still in Dragon.²⁸

In April 1909, after fourteen months labor, the bodies of the two entombed miners were found,²⁹ exhumed, carried across Dragon Canyon to the cemetery, and reburied under crude crosses. The miners had apparently met instant death, and their bodies had been encased in melted ore which had re-solidified. Regardless of their certain death by the fire and explosions, the bodies had to be removed and given a proper burial. The custom was neither practical nor new, however. Many centuries ago the miners of Cornwall

. . . manifested a superstitious dread and faithful loyalty to each other in their strict rule that the body of a miner who had been killed in a drift must be dug out

²⁸ Ibid.

²⁹ The Vernal Express, April 16, 1909, p. 1.

at any cost and given a Christian burial before a stroke of work would be done elsewhere. . . .³⁰

Water pipes had been run back through the mine and the mine flooded to stop the blaze, but several years passed before the fire was entirely extinguished. Periodically and irregularly it would again burst forth in flames as it did, for example, in April of 1908³¹ and again in January of 1909.³² At the time the bodies of the miners were recovered it was announced that mining in the Black Dragon was being done by steam and that therefore there would be no further explosions.³³

After costly preparations were undertaken to recover the bodies of the Greek miners, in 1908, the Gilson Asphaltum Company sued Uintah County to recover \$3,599.12 in taxes which had been paid under protest. Total taxes paid to the County for 1907 were \$4,448.40. The company also demanded recovery costs and eight per cent interest on the so-called overpayment. Gilson Asphaltum figured their profits on the basis of two dollars per ton of ore mined which was the actual difference between production costs and selling price. The company accused the County Commissioners, which had acted as a board of equalization, of having "fraudulently, capriciously, and arbitrarily"

³⁰Charles H. Shinn, Mining Camps (New York: Alfred A. Knopf, 1948), p. 29.

³¹"Dragon Items," The Vernal Express, April 15, 1908, p. 7.

³²The Vernal Express, January 15, 1909, p. 5.

³³Ibid., April 16, 1909, p. 1.

raised the assessment.³⁴ John C. Bates, County Commissioner, figured differently. He said the company was trying to dodge taxes and could have sold their gilsonite for more money but made a practice of selling most of it at two dollars over cost to the General Asphalt Company--the Barber holding company in New Jersey³⁵--this practice being a trick to make the profits of the Gilson Asphaltum Company appear small, and consequently, the taxes paid to Uintah County unjustly low, the major profit being absorbed by the mother company. Bates' challenge for Gilson Asphaltum Company and the General Asphalt Company to show their books fell on deaf ears, but the County kept the taxes they had collected.

The expensive explosion had not been the only cause for Gilson Asphaltum's attempt to recover taxes. An earlier and more important motive for reducing selling prices was to put a financial squeeze on her principal competitor, the American Asphalt Association. It all began by Gilson Asphaltum's sister company, the Uintah Railway Company, raising the Dragon-to-Mack freight rates from eight to ten dollars per ton. In 1907, after an unsuccessful attempt to get the federal courts to hear their case, the American Asphalt Association went before the Interstate Commerce Commission where they obtained an order requiring the Uintah Railway to reduce the rates to eight dollars

³⁴"Suit Against County," The Vernal Express, May 15, 1908, p. 1.

³⁵Ibid.

per ton. The reduction did the American Association very little good, however; because at the time the railway rates were reduced, the Gilson Asphaltum Company cut their selling price on gilsonite a corresponding two dollars, leaving the American Association with the identical and uncomfortable narrow margin between costs and selling price if they wished to remain competitive. The Gilson Asphaltum Company's cut did more than injure the American Association: it handed profits up the line to its mother company, the General Asphalt Company; and having cut the price, they then, as explained above, attempted to recover taxes paid to Uintah County.

The fight against the American Association did not end with the above changes in rates and prices, for the Gilson Asphaltum Company then proceeded to sue the American Asphalt Association to recover two-thirds of the gross profits made by the latter company at the Norvell Mine, twelve miles northwest of Dragon, which was owned jointly by the two companies--two-thirds by the Gilson Asphaltum Company--and operated solely, since 1903, by the American Asphalt Association.³⁶ Eventually, a compromise was reached on the issue; but the Gilson Asphaltum Company remained relentless in its efforts to maintain its dominant role in the production of gilsonite.

Even with frequent sprinkling of the Black Dragon Mine and use of steam in the stoping operations, another serious

³⁶"The Asphalt Suit," The Vernal Express, December 4, 1908, p. 1.

explosion occurred in 1911. No one was killed, but mine damage was disheartening. According to William Cook,³⁷ the explosion swept the mine clean, shooting mine timbers over Dragon Canyon, the next hill and almost to Whiskey Creek--a distance of more than a mile. The explosion was followed by a steady hum during which all the smoke which had gushed from the mine was sucked back into the mine. Then, within an hour, a second explosion rocked the surrounding countryside. Damage to the mine was sufficient to persuade Gilson Asphaltum Company to begin shifting operations to the Rainbow Mine, twelve and a half miles to the northwest, which became the major source of gilsonite for the company until 1935 when a subsequent shift in operations centered the company's mining activities at the Bonanza Mine, north of the White River.

After it was abandoned in favor of the Rainbow Mine, the Black Dragon Mine was leased, as were other mines along the same vein, to the American Asphalt Association which worked the old tunnels, shafts, and stopes for about four years, beginning in 1916.

IV. COUNTRY BOY, TEMPLE, AND THIMBLE ROCK MINES

The Country Boy Mine, on the Black Dragon Vein, was operated contemporaneously with the Black Dragon Mine by the Gilson Asphaltum Company; and operations in the Country Boy

³⁷Statement by William Cook, personal interview, August, 1958.

were discontinued when work ceased in the Black Dragon. Men and equipment from both mines being moved simultaneously to Rainbow Mine. The Country Boy had been opened in 1908 by Charles and Samuel Hoel, contractors. The ore from the Country Boy was hauled back to Dragon by wagon, a distance of two and one-half miles. Later, when the American Asphalt Association operated the mine under lease, a railway siding was installed at the mouth of Country Boy Canyon, reducing the wagon haul to a mile and one-half down hill. No production records are available on the ore mined at the Country Boy; but with exception of occasional shut-downs, the Country Boy Mine kept several freight outfits making two or three round-trips to the Dragon railhead daily. For four years after the 1908 explosion in the Black Dragon Mine, the Country Boy was the principal source of gilsonite for the Gilson Asphaltum Company; and from the County tax assessments of the mine in 1924, when the mine was managed by the American Asphalt Association, it is learned that the Country Boy was that company's biggest producer.³⁸

Near the southeast end of the Rainbow Vein was located the Temple Claim and Mine which, in 1910, was opened by William Ramsey and Charles Dennis, also contractors for the Gilson Asphaltum Company. This mine was operated in conjunction with the Black Dragon and Country Boy Mines rather than with the Rainbow Mine, though it was situated on the same vein as the Rainbow

³⁸The Vernal Express, January 18, 1924, p. 1.

Mine. By the time the Rainbow Mine got into full swing, in 1913, the Temple Mine closed down. During the short time it was being mined, the Temple Mine, situated between the Norvell and the Thimble Rock, was an exceptionally fine producer.

In 1911, Ramsey and Dennis moved one more claim to the northwest and opened the Thimble Rock Mine, again for the Gilson Asphaltum Company which owned all the Rainbow vein except for one-third of the East Norvell Claim. While the adjacent Turtle Claim to the northwest was badly broken up, full of debris and rock horses, the Thimble Rock and Temple Claims were producers of select ore,³⁹ though it is true that the vein was split into three veins on both the Temple and East Norvell Claims with the principal vein being the northern vein on the Temple and the southern vein on the East Norvell. The depth of the ore veins at the point of these two claims was only about 250 feet; and therefore, the ore in both mines was practically exhausted within three years. Douglass listed both as having very little workable ore left.⁴⁰

Twenty-five or more four-horse and six-horse teams were kept busy hauling gilsonite from these three mines to Dragon. As these mines--the Thimble Rock and Temple owned and directed by the Gilson Asphaltum Company and the Norvell operated by the American Asphalt Association and owned jointly by both companies

³⁹Earl Douglass, op. cit., p. 91.

⁴⁰Ibid.

--were so close together, freighters considered them almost as one mine, especially the Temple and Norvell. Some of the principal freighters from these mines were S. W. Teague, "Hod" Ruple, John Caldwell, Robert Allred, James Sabey, and John Purdy.

V. DRAGON, UTAH

The Black Dragon Mine began a booming operation in the fall of 1904, when the Uintah Railway Company completed its line from the D&RGW Railway at Mack to Dragon. The town of Dragon was built at the junction of Dragon Canyon and Evacuation Canyon. The Black Dragon Mine lay southwest up Dragon Canyon more than a mile. The mine claimed a town of its own usually known as "Dragon Camp." A spur of the railroad was run from Dragon Junction up to the mine where ore, which had been sacked and stockpiled, was loaded on flat cars for immediate shipment. As long as the mine's ore production was satisfactory, which looked at first as if to be many decades, the Uintah Railway and the town of Dragon would be alive with activity. The peak of Dragon's activity was probably reached between 1908 and 1911; but by 1913, the Gilson Asphaltum Company had shifted operations to the Rainbow Vein. The town of Dragon, however, saw active life for twenty-two more years, kept alive by the new mining to the northwest along the Black Dragon, Rainbow, and Harrison Veins. Especially productive were the Rainbow, Rector, and Country Boy Mines. After 1935, nearly all mining

south of the White River slowed down. By 1936, the Uintah Railway was petitioning for permission to abandon services; and by 1939, railway service was completely discontinued, and the rails and ties were torn up. With the disappearance of the railroad went Dragon, which had served well over thirty years as a terminus of the first and only railroad ever to have penetrated Utah's Uinta Basin. This railroad and its northern terminals--Dragon, Watson, and Rainbow--had been completely dependent upon the production of gilsonite which, like all mineral deposits, eventually left hopes and facilities crumbling.

Today one can drive southward from Bonanza, across the White River, to Evacuation Canyon and, following that canyon southeastward, on the wagon and auto roads of earlier mining days until he reaches the townsite of Dragon. Standing there at the former Dragon Junction or at the mouth of the gaping Black Dragon Mine, it is difficult to imagine the busy, hopeful pace of life that once existed there. Eventual change and decay seem ever to have been the fate of mining regions, and Dragon certainly was no exception. In fact, Dragon is a ghost town with hardly a trace or a ghost left to mark its one-time reality.

Fifty years ago, amid school bells and train whistles, Dragon was in her heyday. Two thousand to 3,000 tons of ore were dug out of the Black Dragon Mine each month; the Uintah Railway brought in and took out of Dragon each day a freight train and a passenger train; stages and regularly scheduled freight wagons of the Uintah Toll Road Company arrived from and

departed to Fort Duchesne and Vernal daily; the Cottage Hotel and Restaurant did a promising business as did the stores, saloons, and feed yards; many notable people enroute to or from the Uinta Basin lent excitement by their visits to the town; children were born and some people died and were buried at Dragon. Some who lived there were transients looking for a quick fortune, and most of these left in bitterness or disappointment. Some found sufficient comfort and happiness there to be willing to make Dragon their home. Many who lived in the Uinta Basin went to Dragon because miners were paid in cash, and cash money was scarce. They only expected to work a few years to earn enough to buy a home, to homestead a place on the former Uintah Indian Reservation, or to set themselves up in some business in one of the fast growing towns in the Uinta Basin. In other words, Dragon was a noisy, excited, little town very characteristic of other frontier towns in which all the residents experienced some joy, anxiety, and pain. Life there was seldom tranquil, but it was usually optimistic and pleasant.

Dragon Camp, during its first years of existence, was composed mostly of tents. The company refused to build houses for the miners and threatened with release any miner who dared so much as to waste precious water by taking a bath. After a few years, many miners built their own houses or at least constructed wooden floors and sides for their tents. By the end of 1908, the company, in addition to its dynamo and other power

equipment, had installed a boiler house which boasted a 150-horsepower boiler with commodious shower rooms in the basement⁴¹ for the express use of miners. There were ore loading bins for loading loose ore into railway coal cars. There were corrals and stables and a baseball diamond. Not far from Camp was the company's own rock crusher making cement for the concrete boiler house and for concreting the walls of the lower tunnel being driven back through the mine. To the southeast of camp, on the northern slopes of Baxter Pass, the company maintained a sawmill for securing necessary mine timbers. In 1910, Mr. Marchant moved his whole family up to the sawmill where he worked in the timber while his wife cooked for the timbermen.⁴² Also, right at the Dragon Camp was located a blacksmith shop, a store, a large boarding house, and a bunk house.

The boarding house did double duty for social events: dances, parties, religious services, kangaroo courts, and cracker-barrel congresses were held there. The boarding house proprietor was an important citizen in the community. When Mrs. Sorenson, who managed the place, acquired a new buggy, harness and fellow, she became Dragon's number one news item.⁴³ As was customary for special occasions, the Thanksgiving dance, in 1907, was held at the boarding house; and John Jensen,

⁴¹The Vernal Express, September 11, 1908, p. 3; and Ibid., December 6, 1907, p. 1.

⁴²Ibid., May 20, 1910, p. 2.

⁴³Ibid., July 2, 1909, p. 2.

Dragon Correspondent for The Vernal Express, reported the remarkable fact that no whiskey was consumed at the dance. Jensen said that there were "strict moral rules laid down by the officers of the camp,"⁴⁴ and claimed further that the camp was clean, attractive, sanitary, and provided a public school for the children.

Dragon's elementary school building was constructed halfway between Dragon Junction and Dragon Camp as a compromise between the residents of the two areas. In October of 1907, Utah's compulsory school law became effective. Children between the ages of eight and sixteen were required to attend at least thirty weeks of school a year or assign good reason for delinquency. Dragon officials prepared to comply with the law by putting up a tent at Dragon Junction, buying a supply of textbooks and arranging for J. W. Olsen of Naples to be the first schoolmaster.⁴⁵ The people of Dragon Camp called an immediate congress at the grocery store where the most eminent representatives decided to protest the long walk required of the camp's twenty school children.⁴⁶ Their suggestion to put up a tent on the sunny side of the canyon at a point halfway between the towns was eventually carried out. Later the tent was replaced by a

⁴⁴Ibid., December 6, 1907, p. 1.

⁴⁵Ibid., November 8, 1907, p. 3; and Ibid., November 22, 1907, p. 2.

⁴⁶Ibid., November 8, 1907, p. 1.

well-constructed frame building with a flag staff and bell tower.⁴⁷ This twenty by thirty-eight foot school room relieved the boarding house and stores of some social events and religious services. Dances and parties were often held there. Dragon Union Sunday School used it for its weekly services, and many travelling ecclesiastical men held special meetings there as they made their usual Dragon stopover. For example, Reverend Harper of Fruita, Colorado, held several services in the school building as in June of 1909;⁴⁸ and the illustrious Reverend Spaulding, who had previously preached in Westminster Abbey, spoke in the school house in February of 1910.⁴⁹

Tank cars hauled culinary water from Columbine, near Baxter Pass, to Dragon Junction and Dragon Camp. Each house and tent was equipped with a water barrel which was filled frequently from the water car. Old-timers from Dragon still recall the day the water car ran away, spilling water all the way to the junction. To supplement this costly supply, rain water was caught from the house roofs in barrels. Most laundry was done on a scrubbing board; but by 1920, a few gasoline washing machines were seen in camp. Dragon Camp, Dragon Junction, and the Uintah Railway each had their own ice house in which winter ice was stored in sawdust or gilsonite flakes for summer use.

⁴⁷Ibid., September 11, 1908, p. 3.

⁴⁸Ibid., June 25, 1909, p. 6.

⁴⁹Ibid., February 25, 1910, p. 1.

Nearly every resident had his own small subterranean vegetable and fruit cellar and his own outdoor toilet. Houses were heated and cooking was done most frequently by a wood-burning stove in which the ubiquitous cedar was burned. A few families had gasoline stoves in addition to the wood stoves. At first, coal-oil lamps were the common type of night light; but as years went by, more and more people possessed gasoline lamps which gave off brilliant light through their mantles. Most of the inhabitants lived comfortably and warm even during winter months, though luxuries were practically unknown.

Dragon proper was located on the flat area at the mouth of Dragon Canyon, on the west side of Evacuation Canyon. This was the town called "Dragon" by all except the inhabitants of Dragon Camp who referred to it as "Dragon Junction." Most of the residents of Dragon lived in log or frame houses; but, as at the mine, some lived in tents and with about the same conveniences except that they were a mile closer to most stores, the railway and stage lines. By 1909, it sported a twenty-room hotel, the Cottage Hotel, which was equipped with hot and cold running water, a modern restaurant, and steam heat. It was a sister hotel to the one built at the other end of the Uintah Railway, in Mack. Next to the hotel was a small hospital,⁵⁰ usually staffed by one doctor. Around the Uintah Railway's main line were located that company's offices, warehouses,

⁵⁰Ibid., May 22, 1908, p. 4.

freight docks, and switching yards; offices of the Gilson Asphaltum Company; and sheep and cattle corrals. In the switching yard, an engine or two, a few flat cars loaded with sacked gilsonite, coal cars loaded with loose gilsonite going out or coal coming in, a few empty cattle cars, and a coach or two could always be seen moving about.

The town's activities seemed to center around a few stores and saloons. Henry Lee did a prosperous business both with a store and a saloon. At first, he had only a dry goods store; but later, he built a grocery store as well.⁵¹ His saloon was usually quiet and orderly though it provided a good deal of entertainment to Dragon miners and railroaders, both in its barroom and its gaming room which featured pool, dice, roulette, and cards. As early as 1906, Lee reported his saloon business to be very good,⁵² and it picked up as time went on.

Fruita Mercantile Company built a store in Dragon which they sold to Colthorp Brothers in 1909.⁵³ G. C. Stout, the former manager, was taken back to the company's store in Fruita; and George Finnicum was sent from the Fruita Store to Dragon to manage Colthorp's newly acquired store. George Finnicum and his son, Dorr, like Henry Lee, became as much a part of Dragon as the railway or the mines. Finnicum later managed a store which J. H. MacGuire purchased from A. C. Emert. The store

⁵¹Ibid., April 1, 1910, p. 2.

⁵²Ibid., May 19, 1906, p. 3.

⁵³Ibid., February 12, 1909, p. 1.

burned to the ground in 1916, causing a heavy loss to Mac-Guire.⁵⁴ In back of their store, Colthorp Brothers built a large warehouse⁵⁵ for storing hay, hardware, and dry goods.

Another store which did a prosperous business in Dragon was that of George Billings which was managed by John Jensen who met with accidental death as told below. Billings' Store had a spacious cellar in which was kept fresh fruits and vegetables. George Slaugh, who had a farm on the Green River just below Jensen, attempted to keep Billings' cellar loaded with his vegetables and famous melons.⁵⁶

Another saloon of Dragon renown was that owned by Mr. Odem. It, too, had game rooms; and its patrons seemed to acquire a reputation for a little more disorderly conduct than those of the Lee Saloon. Like Lee's, however, it prospered extremely well. The night that it burned down, all Dragon turned out to watch the blaze and help form a futile bucket-brigade. The fire left only a stone foundation on which a new saloon was quickly rebuilt at a cost of about \$500. The important thing was that both Odem's money and cellar of liquor were rescued before the building was razed.⁵⁷ Near Odem's Saloon, Nora Christensen, and Minnie Thomas ran a third saloon which was known as the "Lower Saloon." Like the others, the Lower Saloon did an active and lucrative business.

⁵⁴Ibid., February 11, 1916, p. 1.

⁵⁵Ibid., March 9, 1909, p. 8. ⁵⁶Ibid., October 4, 1907, p. 1.

⁵⁷Ibid., February 18, 1910, p. 2.

John Oliver ran a feed yard at Dragon, and almost every weekly account of Dragon news tells of freighters hauling bailed hay into Dragon from Rangely, Colorado, and carrying groceries and other supplies back to Rangely. Some of these freighters frequently mentioned were Messrs. Hahn, Wilson, Rector, and Carmen.⁵⁸

The American Asphalt Association, competitor and later a lessee of much of Gilson Asphaltum Company's property, built big corrals and stables at Dragon,⁵⁹ and established a large herd of mules there which were used as draft animals between gilsonite mines and the railroad. Twenty-three mules were unloaded by the railway at one time, in 1910.⁶⁰ Max Smith, general manager of the American Company, which was operating the Norvell Mine at the time, made Dragon his residence; and consequently, his activities are recorded in nearly all news reports leaving Dragon.

Dragon had one thing that most mining towns could never have claimed: a free, public library.⁶¹ T. M. McNeil was the librarian, and Superintendent M. W. Cooley's wife was the principal patron. It is true that the library only had a few more than 300 volumes, but these were made available to any employee

⁵⁸For example: Ibid., January 28, 1910, p. 1; February 18, 1910, p. 2; May 6, 1910, p. 3.

⁵⁹Ibid., March 11, 1910, p. 1.

⁶⁰Ibid., March 25, 1910, p. 5.

⁶¹Ibid., April 15, 1910, p. 1.

at Dragon and environs or along the line of the Uintah Railway. Many sheep herders, cattlemen, and miners took advantage of this opportunity to read. Another amazing opportunity of the Dragon community was the viewing of an occasional moving picture as early as 1910.⁶² Since Dragon was on the main line of freight and mail into the Uinta Basin, movies could be held over for one night. At first, these silent films were shown in one of the local business houses, but later a corrugated-steel building was erected behind Finnicum's Store for the express purpose of playing movies.

As at Dragon Camp, the town of Dragon found many occasions convenient for holding dances, usually in one of the stores. The completion of a building, observation of a national holiday, or farewell party to an old friend were all good reasons for dances. For example, soon after the new store of Billings and Son was completed, a farewell party was held for Hyrum Woodward and wife who were leaving town. The whole town's population was present to dance, eat ice cream, and listen to the home town musicians.⁶³

A Mr. Wolfe, an engineer at the mine who later went to Atchee to work, entertained a great many people with his phonograph which was reported, in 1908, to have been playing the "Republican Roast."⁶⁴ Miniature pugilists or fighting cocks

⁶²Ibid., May 6, 1910, p. 3.

⁶³Ibid., September 13, 1907, p. 1.

⁶⁴Ibid., May 22, 1908, p. 4.

were placed on the phonograph spindle, displaying, to the amusement of all, their fighting skill as the record turned. With the low fidelity produced by these wind-up machines, record noise, and poor speakers, the listener was often as much entertained by the clever show as by the music produced.

In about 1922, "Chater" Ryan, who preceeded Homer Phillips as timekeeper for the Gilson Asphaltum Company, thought he had not only found an immense source of pleasure for Dragonites when he purchased the first radio in town at a cost of \$800; but he was sure he could earn a fair profit by selling privileges to listen through one of the two pairs of ear-phones.⁶⁵ Ryan tuned and tuned his set, but his reception consisted mostly of static and high-pitched squeals. The concerts he meant to have heard were unidentifiable. Within a very few years, improved radios could be had at lower costs. Too, the new ones were much reduced in size. Ryan's was as large as an eight cubic-foot refrigerator.

There is little question that the most important single activity for pleasure was the baseball game. The annual Independence Day outing at Columbine or Baxter Pass created as much excitement, but that event took place only one day each year. The mines up and down the Black Dragon and Rainbow system, regardless of ownership or management, each had their baseball team. Contests were frequent and hard-fought. A barrel of

⁶⁵Statement by Fuller Remington, personal interview, October, 1958.

beer was the customary prize for the winning team; and a local dignitary was usually chosen as umpire, Dr. Rosenberg himself umpiring more than once, as he did for a game between Black Dragon and the Country Boy in May of 1908, when it was reported that a "splendid time" was had by all.⁶⁶ On another occasion, when these same teams played and Black Dragon won the beer, it would be difficult to repeat that a good time was had by all, because a vicious fight ensued.⁶⁷ Hod Ruple, freighter from the Country Boy, exchanged head blows with Howard Robinson, Dragon blacksmith, using quart bottles of beer as weapons. Ruple got Robinson down and threatened to jab him with a broken bottle. William Cook pulled Ruple off Robinson only to be attacked himself by Joe Gurr. A fairly good foursome followed in which a few eyes were gouged and fingers bitten, apparently to the pleasure of the onlookers. Cook carries a crooked finger, as a scar, to this day. Ruple and Robinson must have enjoyed bad luck or rough-and-tumble fighting, for there are other accounts of their indulgence.

There is one thing that all ball games had without exception, whether beer or fights; and that was the ubiquitous black gnats--the plague of Dragon. Their sting was like that of a mosquito, and they would go right through the wire mesh of a screen door. During the warm months, the inhabitants of Dragon

⁶⁶The Vernal Express, May 15, 1908, p. 7.

⁶⁷Statement by William Cook, personal interview, August, 1958.

Canyon appeared as Moslem pilgrims with their fine black nets draped over their faces.⁶⁸

Independence Day was, for several years, celebrated at Columbine or Baxter Pass by all the residents and visitors in Dragon and Dragon Camp; the Country Boy, Temple, Thimble Rock, and Norvell mines; and many cattle and sheep men in the vicinity. Several days were spent in preparation for the big event, and then most everyone rode a railway coach to and from the gala outing. Moving everyone to the top of the Book Cliffs was difficult and expensive; and after the area's population center moved northwestward to Rainbow and Watson, Dragon became the place for celebrating the Fourth of July. The occasion always consisted of miscellaneous games and contests, a picnic lunch, a baseball game, fireworks and a dance.

Travel to Dragon, though improved each year, was not always convenient and safe. In 1925, Owen O'Fallen, who owned an automobile, made two trips from Rainbow to Dragon, transporting several of his friends to the annual Independence celebration. The auto ride itself was a thrilling experience for the passengers. On the second trip, the automobile became trapped in Five-Mile Canyon's unbridged "wash" which had been made slippery by a very light rain. It was decided to remain in the automobile until the rain stopped at which time the men would push

⁶⁸The Vernal Express, June 18, 1909, p. 2; and Ibid., July 2, 1909, p. 2.

the car out of the creek bed. Characteristically and without warning, a great wall of muddy water struck the car and almost overturned it. Water began to flow into the car among the passengers--Jerome Goodrich, his wife, and children--frightening eight-year-old Wesley Goodrich so that he jumped unnoticed from the car into the raging torrent. Mr. Goodrich climbed on top of the car and threw his other children to the bank. Wesley's body was found two weeks later and twenty miles from the point of drowning.⁶⁹ It seems that tragedy stalked the most happy of days.

Dragon was usually a peaceful settlement. Violence was quite rare, and rascality was scarcely heard of. However, there were times when, persuaded by a few intoxicating drinks, younger men in the community became pranksters. Once, "some drunken scamps" insulted a few women and even took a shot at them;⁷⁰ but this was unusual. Dragon at that time did not even have a Justice of the Peace which many felt, nevertheless, that it should have. John Jensen was asked to accept the office, but he refused on the grounds that he was too busy.⁷¹ On another occasion and for some contemptible reason, which was probably non-alcoholic, a large number of dogs were poisoned in 1909, raising the ire of the citizenry in general and of dog owners

⁶⁹Ibid., July 10, 1925, p. 1; and Ibid., July 17, 1925, p. 1.

⁷⁰Ibid., April 17, 1908, p. 7.

⁷¹Ibid.

in particular.⁷² On New Year's night in 1919, a belligerent group of five workmen broke into the bedroom of John Baumgaertle, who had previously been the superintendent of the Black Dragon Mine for the American Asphalt Association, and beat him over the head with a revolver butt.⁷³ Surprisingly enough, Mr. Baumgaertle was able to hustle his attackers out of the room and lock the door. While these acts were certainly malicious and violent, reports of such lawlessness are difficult to find.

An act definitely lawless and premeditated, but very common to all civilized communities, was John Levi's forgery of Joe Trujillo's signature to a check from Joshua Birchell.⁷⁴

Nora Rosenhauer cashed the \$45.50 check before Levi fled to Grand Junction, Colorado, from whence he was brought back to Vernal by Sheriff Preece for trial. Likewise, cattle rustling results from deliberate planning, and one Dragon resident resident received eighteen months in the penitentiary for stealing cattle from S. W. Teague,⁷⁵ a prominent Dragon freighter.

It is interesting to observe that some Dragon residents believed all their troubles were born of alcohol; and therefore proceeded to secure signatures on a petition to have the saloons

⁷²Ibid., March 19, 1909, p. 8.

⁷³Ibid., January 3, 1919, p. 1.

⁷⁴"Justice Wilson's Court," The Vernal Express, March 31, 1906, p. 1.

⁷⁵The Vernal Express, March 25, 1910, p. 5; and Ibid., April 1, 1910, p. 1.

closed. Fifty-seven heads of families signed the petition to the County Commissioners, complaining that drunken Indians were seen in the streets daily, that gambling devices were used in the saloons, and that "immoral persons" were connected with the saloons.⁷⁶ The saloon of Thomas & Rosenhauer seemed to be causing most of the stir, which was of short duration; because within a week, there was in circulation another petition which demanded that the saloons be left open.⁷⁷ It claimed that Henry Lee's saloon was a model place and was signed by seventy people at the Norvell and Dragon Mines. It is an utterly amazing fact that many who signed the first petition also signed the second. Needless to say, Dragon's saloon business did not suffer a decrease.

Illness and disease were not noticeably frequent in Dragon. Once in a while, however, an epidemic of measles⁷⁸ or colds⁷⁹ would sweep the camp, a few cases of chicken pox would be reported, and a rare case of smallpox⁸⁰ would occasionally break out. The most frequently occurring of serious diseases in this comparatively healthy community was pneumonia. Don Hill and Tom Garner were brought into Dragon for treatment when they

⁷⁶Ibid., July 3, 1908, p. 6.

⁷⁷Ibid., July 10, 1908, p. 1.

⁷⁸Ibid., May 15, 1908, p. 7; and April 30, 1909, p. 3.

⁷⁹Ibid., June 19, 1908, p. 4; and February 18, 1910, p. 2.

⁸⁰Ibid., April 1, 1910, p. 2.

caught pneumonia while camping out in the hills.⁸¹ When "Josh" Birchell's little daughter, Jenny, died of pneumonia, the entire camp was saddened,⁸² as they were later when the Bailey family buried a small son and a daughter within a few days time.⁸³ Over the hill northwestward, at the Country Boy Mine, Thomas Hale, a miner working for the Hoel brothers, died of pneumonia; and another miner with pneumonia was, at the same time, brought to the Dragon hospital for treatment.⁸⁴ Hale left no identification other than his name. No relatives or friends could be notified of his death; and naturally, he was buried in the Dragon cemetery. In February of 1907, Anthony Collett became ill with an extremely rare disease--spinal meningitis--and was dead within twenty-four hours.⁸⁵ In piecing together the story of Dragon Camp, one is impressed not with the sickness and death as detailed here, however; but with the relatively little sickness and disease which did occur in this frontier mining town.

Many deaths and serious injuries were caused by accidents and a few by violence; but again, considering Dragon in its temporal and geographical setting, it is remarkable that so few incidents of homicide occurred. Also, as a mining town,

⁸¹Ibid., January 28, 1910, p. 1.

⁸²Ibid., January 20, 1906, p. 2.

⁸³Ibid., April 10, 1910, p. 2.

⁸⁴Ibid., May 22, 1908, p. 4.

⁸⁵Statement by Fuller Remington, personal interview, October, 1958.

the great number of accidents were not alarming when one considers that neither labor nor management were made safety conscious by unions or legislation. There is an abundance of evidence pointing to widespread carelessness and lack of safety devices. Ted Carloss, in walking along a plank floor in the Dragon Mine on his way to work, stepped off into a twenty-five foot shaft through a hole left by the removal of a plank during the previous shift.⁸⁶ Carloss fell through an ore loading chute and landed on his head atop a tramway rail in the lower tunnel, fracturing his skull all around. He was taken to Dr. Herth in Vernal for treatment. Dr. Brownfield of Fruita came in by the Uintah Railway and stage to assist. The doctors decided against trepanning and simply trimmed small protruding portions of the brain. Carloss recovered completely.

By the end of August of 1907, Teancum Taylor had buried twenty-one of his children. The twenty-first was his son Reuben, who was killed by a free-swinging whim arm at the Cumberland Claim above Dragon. Reuben was driving the whim horses when the whim arm broke near the singletree, and the weight of the free-falling ore load drove the whim arm around at propeller speed. The arm or sweep broke Reuben's leg and knocked him to the ground the first time around. Reuben must have been stunned, for he attempted to stand up in the path of the whirling pole which effected a fatal blow to his head. Teancum Taylor,

⁸⁶The Vernal Express, December 8, 1906, p. 3.

himself, was in bed from an injury received near Dragon by a kicking horse. Reuben had promised the old man that he would "soon quit work at Dragon . . . and return" to him.⁸⁷ The tragic news of Reuben's death combined with Teancum's age and accident, and the additional news that another son, "Cap," had been lost in Wyoming for several weeks brought on his own death. Teancum, after whom Taylor Mountain was named, was one of the first settlers of Ashley Valley. Reuben was the third male child to be born in a pioneer home in that valley.

Many accidents were not associated with the mines. John Jorgenson lost the third finger on his left hand by amputation after having applied self treatment to a bad bruise.⁸⁸ A bandage soaked with carbolic acid was applied so tightly that the finger became shrunken and black. Dr. Garrett-O'Donnell, wife of lawyer Thomas O'Donnell, performed the operation in Vernal. A two-year-old Marchant boy lost a finger, also by amputation, subsequent to smashing it in the hounds of his father's wagon.⁸⁹ The same little boy, only a week later, was caught drinking lye but not in time to save him from bad mouth and tongue burns.⁹⁰ Another two-year-old boy, the son of Mr. Andrews, fell against a red hot heating stove, severely burning his hand.⁹¹ Mason

⁸⁷Ibid., August 16, 1907, p. 2.

⁸⁸Ibid., August 16, 1907, p. 3.

⁸⁹Ibid., May 6, 1910, p. 3.

⁹⁰Ibid., May 13, 1910, p. 1.

⁹¹Ibid., February 18, 1910, p. 2.

Caldwell's ankle was seriously injured when kicked by one of his horses while he was unhitching his team.⁹² Rolf Hoffman's little four-year-old son, Joe, caused a general fire alarm and shedding of tears when, with his matches, he burned his house to the ground with himself inside it.⁹³ In February of 1909, Dragon and the entire Ashley Valley were shocked by the untimely death of John Jensen, the forty-five year old Vernal Express correspondent in Dragon, who received his fatal injuries by a runaway team.⁹⁴ Mr. Jensen, who was managing George Billing's store in Dragon,⁹⁵ was making grocery deliveries in Dragon Camp. The team had been improperly hitched; and, becoming frightened, began to run, hurling Jensen from the wagon to the ground. The fall broke his leg and inflicted head injuries. Jensen, a bachelor and a native of Denmark, had once been shipwrecked on a cannibal island in the south Pacific, making a colorful escape only to meet such a common fate in Dragon.

William Bromley, a Black Dragon miner, spent some time in the hospital at Fruita, after receiving a gunshot wound in his neck. At the time of the accident, he was visiting his girlfriend, Dora Dennis, and her mother. Dora worked at the

⁹²Ibid., February 18, 1910, p. 2.

⁹³Ibid., June 11, 1920, p. 1.

⁹⁴Ibid., February 12, 1909, p. 1.

⁹⁵Ibid., August 16, 1907, p. 3.

boarding house and was just fooling around with the gun when it accidentally discharged.⁹⁶ Dora later married George Lyman, an engineer on the Uintah Railway, who was killed near Atchee in his third railway accident. There were many accidents on the Uintah Railway, some of which will be recounted in Chapter VII below.

As stated above, all fatalities were not accidental, though Dragon's reputation was not one for violence as had been The Strip's where the St. Louis Mine was situated. Former Dragon residents recall a violent interchange between two Country Boy miners who were working for John W. Price, contractor. One of these miners, Ray Trujillo, leaped upon Elfino Olgin and killed him with a knife⁹⁷ just after Olgin, who was threatening Trujillo, had been disarmed by bystanders. Olgin was buried in the Dragon cemetery, leaving a large family to mourn him. Trujillo crept out of camp in the night and disappeared. He was never brought to trial, and Olgin's family was never compensated for its loss.

In 1910, Mark Ward attempted to kill George Dagle after Dagle, a former stage driver and at that time a proprietor of a new Dragon saloon, fired Mark Ward as bartender.⁹⁸ Ward got drunk and spent Sunday and Monday in the saloon rolling dice.

⁹⁶Ibid., May 25, 1907, p. 3; and June 15, 1907, p. 1.

⁹⁷Ibid., May 7, 1926, p. 1.

⁹⁸Ibid., September 9, 1910, p. 1.

Feeling he had a grudge against Dagle, Ward finally drew a pistol and fired two wild shots, one of which pierced the bar and one the ceiling as a result of the quick interference of Henry Dagle, brother of George. As Henry Dagle and Ward wrestled, George Dagle grabbed the pistol and proceeded to soften Ward's head with it. After Lee McClelland, Deputy of Sheriff Pope, brought Ward into the Vernal jail and Ward sobered up, he declared he knew nothing of the affair, though he pled "guilty" at the trial.

One would imagine that Dragon, sheltered by canyon walls, would be a place of very little wind and cold; but the truth is that heavy wind storms would last for weeks in the spring,⁹⁹ carrying sand and "gravel" through the air for the displeasure of all. The temperature would drop far below zero on winter nights and rise above a hundred degrees in the summer's shade.¹⁰⁰ The country around Dragon was broken up by erosion, leaving much shale and bleak rock exposed to view. Besides the sagebrush, which covered nearly all gilsonite lands, Dragon was surrounded by cedar trees which provided an excellent supply of firewood. Rabbits, rattlesnakes, coyotes, and horned toads found the country to their liking; and once a mountain lion created an exciting conversational topic by coming down into camp and carrying off a little pig.¹⁰¹ In the spring of 1910,

⁹⁹Ibid., May 22, 1908, p. 4.

¹⁰⁰Ibid., July 2, 1909, p. 2.

¹⁰¹Ibid., September 13, 1907, p. 1.

C. O. Baxter and a hunting party from Colorado were searching the country around Dragon for bears.¹⁰² In such a wilderness setting, a town would be expected to have very little civic pride or concern about the cleanliness of yards and roads; but Superintendent Summerville placed gangs of laborers on the streets with rakes and shovels.¹⁰³ It took a week to clean the town up, and then each person was expected to keep his own premises clean.

Oil men, sheep men, cattlemen, and Indians were frequently in Dragon, because their camps were all around the Dragon area. There was an oil spring over on Whiskey Creek, just a few miles southeast of Dragon, where a good grade of oil oozed out of the ground like a spring of water. Miners and railroaders used lots of this oil to lubricate wheels and machinery. C. R. Scott was drilling for oil seven miles south of Dragon.¹⁰⁴ Several companies were drilling at Rangely, northeast of Dragon. Indians went up Evacuation Creek to Baxter Pass, over into Colorado, and returned each fall on a big hunt for buckskins,¹⁰⁵ trailing through Dragon on both legs of the hunt.

It was great country for sheep and cattle, especially near the Book Cliffs. Large herds were in the area with sheep predominating in number. Thousands of sheep were sheared each

¹⁰²Ibid., May 6, 1910, p. 3. ¹⁰³Ibid., November 8, 1907, p. 1.

¹⁰⁴Ibid., April 30, 1909, p. 3; and June 18, 1909, p. 2.

¹⁰⁵Ibid., November 8, 1907, p. 1.

year in the shearing corrals six miles north of Dragon, and all wool, sheep, and cattle shipped to market outside the Uinta Basin went out on the Uintah Railway. Huge stacks of sacked wool were piled along the tracks and in the warehouses in Dragon for shipment.¹⁰⁶ Some of the bigger shippers--such as Carter, Davis, Samuels, and Coplin--would stay right at Dragon to supervise the shipment of their wool or sheep.¹⁰⁷ The sheep men and cattlemen secured their supplies from Dragon, as did the oil men and Indians, swelling the business of local stores.

As part of a sheep war, 2,800 sheep were slaughtered in one night on the south side of Baxter Pass by a group of fifteen or twenty masked men.¹⁰⁸ This ruthless slaughter was executed with all the dramatic touches of the Wild West. The Uintah Railway's night train had just passed when the masked marauders cut the telegraph wires, which remained unrepaired for several days, and rushed the Taylor-Tawney-Clark camp, tying up the two herders and two visiting trappers. Then, completely at will, they destroyed the whole herd of unsheared sheep which were in the lambing season. Many deputies were sworn in, and possies began scouring the countryside for the offenders. Mr. Taylor of Grand Junction was the heaviest loser; and a drummer, coming into Dragon on the railway, reported that Taylor bought twenty-

¹⁰⁶Ibid., May 6, 1910, p. 3.

¹⁰⁷Ibid., June 26, 1908, p. 5; and June 18, 1909, p. 2.

¹⁰⁸Ibid., May 28, 1909, p. 1.

five rifles in Grand Junction with the determination of hunting down the raiders. Sheep and cattle wars did not begin or end with this incident. They continued for at least another decade in western Colorado, as indicated by frequent reference to wanton slaughtering of animals in local newspapers.¹⁰⁹

VI. RAINBOW AND WATSON

The Rainbow Vein, on line with the Pride-of-the-West to the northwest and the Black Dragon to the southeast, has a strike of north forty-seven degrees west and runs on the surface for about three miles. While it is from two to eight feet in width, averaging 5.72 feet,¹¹⁰ it is one of the most shallow of veins, averaging 246 feet. On the vein, running from southeast to northwest are the following claims: East Norvell, Temple, Thimble Rock, Turtle, Tennessee, Pigeon Toe, Barlow, Colorow, Augusteen, China Wall, Crow, and Park. The East Norvell (simply called "Norvell"), Temple, Thimble Rock, and China Wall were each referred to as separate and distinct mines; but the claims between the Thimble Rock and China Wall were considered part of the Rainbow Mine. It was to the Rainbow Mine that the Uintah Railroad was extended in 1911 and from it that the Gilson Asphaltum Company secured most of their gilsonite shipments between the years 1912 and 1935. The main rail line went right to the Tennessee Claim and a spur ran westward to the China

¹⁰⁹For example: Ibid., April 9, 1920, p. 1.

¹¹⁰Earl Douglass, op. cit., p. 112.

Wall.

Douglass said that the Rainbow Mine produced seventy-five per cent of the ore in the district, the Rainbow's accumulative production amounting to more than 300,000 tons by 1928.¹¹¹ With the Colorow as the dividing point, the northwest end of the vein contained no select ore, while the southwest portion was all select as in the Black Dragon Vein. The top of the Rainbow Vein having been eroded away with the top of the Rainbow Anticline, there is, as would be expected near the bottom of this shallow vein, much rock debris in places. The Turtle Claim was almost unworkable on this account, but the Tennessee, Pigeon Toe, Barlow, and Colorow produced select ore for at least twenty-six years. All the claims on the Rainbow Vein, the East Norvell, were owned and operated by the Gilson Asphaltum Company. The East Norvell, on which was situated the Norvell Mine, was a third owned and totally controlled by the American Asphalt Association.

To the northwest of Rainbow and on the fourteen-mile-long Pride-of-the-West Vein, Gilson Asphaltum Company operated the Brown Bear Mine on the Vernal and Chicago Claims.¹¹² The Brown Bear was worked in conjunction with the Rainbow Mine, but extensive mining failed to produce select ore. Roads could easily have been developed in that area, but the poor grade of ore did not warrant big cash outlays for improvements. The

¹¹¹Ibid., p. 91.

¹¹²Ibid., p. 112.

Brown Bear Mine and the Pride-of-the-West Vein just faded out of the company's operational plans a very few years after having been considered.

Early in the 1950's, Heber Hall reopened the Rainbow Mine under contract from the American Gilsonite Company, successor of the Gilson Asphaltum Company, but the mining done was very limited. For practical purposes, the Rainbow closed in 1938, with the shift of operations to the Bonanza Mine, and has remained closed. While operating, the Rainbow produced more ore and had a larger camp than the Black Dragon. The camp had an office building, warehouses, a blacksmith shop, bunk houses, a large boarding house, bath house, school building, store, theater, and a camp water supply with a large storage tank and pipes running into the houses.¹¹³ In 1920, a large amusement hall was built by the Gilson Asphaltum Company.¹¹⁴ The hall served for church services, dances, special parties, and funerals alike. Saloons were noticeably absent, Superintendent Homer Ford having arbitrarily but effectively ruled against them as he did against labor unions.

Like the Black Dragon Mine, Rainbow had its railway terminal town nearby. Three miles to the north of Rainbow was built the town of Watson which replaced Dragon as the principal

¹¹³Statement by Fuller Remington, personal interview, October, 1958.

¹¹⁴The Vernal Express, August 13, 1920, p. 1.

Uinta Basin terminus for freight and passengers, though the hotel, stores, saloons, corrals, feed yards, switch yards, warehouses, etc. continued activities at Dragon until 1938 when the Rainbow Mine completely gave way to the Bonanza and the railroad was jerked up from beneath both Watson and Dragon. The Uintah Toll Road Company's freight wagons and passenger stages or autos ran on regular round-trip schedules from Watson to Vernal and Fort Duchesne.

Watson had a small hotel and a large boarding house.

The hotel was used mostly by railway and stage passengers, and the boarding house was crowded by sheep men and railroad employees. E. E. Heaton was proprietor of a general store which carried groceries, dry goods, and hardware. There was no saloon in Watson and probably for the same reason that there was none at Rainbow. Most of the town's business was conducted near the railroad tracks. An enormous warehouse sheltered freight and wool to be shipped. One long siding was lined with gilsonite loading docks upon which sacks of ore were piled high. Since the ore from the Rainbow, China Wall, Brown Bear and Harrison Mines was shipped directly through to Mack, the ore awaiting shipment in Watson was mostly from the American Asphalt Association's Bandana and Little Bonanza Mines to the north of the White River. Also from the north came gilsonite from the Little Emma and Bonanza Mines of the Gilson Asphaltum Company. The Little Bonanza ore was hauled into Watson by some fifty mule teams. The mule corrals were at Watson as was the blacksmith

shop where Curtis and Milo Hadlock kept the mules shod. Near the Bonanza Mine and at Alhandra were sheep shearing pens from which wool was shipped to the Watson railhead. Also, Watson had its own shearing pens at which thousands of sheep were sheared each year, saving a long wagon haul to place the wool on the railroad.

From 1916 to 1925, it appeared that Watson was on the verge of a vast industrial development. Several oil companies had made land arrangements with the federal government for the use of large beds of oil shale near Watson, and announced detailed plans for constructing mammoth oil and gasoline reduction plants in Watson. The Crane Shale Oil Corporation announced that they controlled 2,000 acres of shale land and would erect a \$100,000 plant which would extract sixty gallons of oil, containing thirty per cent gasoline, per ton of shale and this at a cost of three dollars per ton.¹¹⁵ Ute Oil Company claimed they were going to build an \$800,000 mill at Watson,¹¹⁶ and Utah Shale and Oil Company promised to build a million dollar plant not far from Watson.¹¹⁷ Many other companies made similar plans and announcements, but in 1926, the federal government put an abrupt end to all plans for the reduction of oil shale by means of an Executive Order¹¹⁸ from President Coolidge which

¹¹⁵Ibid., November 30, 1917, p. 1.

¹¹⁶Ibid., May 10, 1918, p. 1.

¹¹⁷Ibid., December 28, 1917, p. 1.

¹¹⁸Executive Order No. 4371, January 21, 1926.

restated the withdrawal of all lands containing gilsonite "and other like substances" not sold by 1910 under provisions of the Act of 1903.

As it turned out, Watson was very much like its fore-runner and close neighbor--Dragon. The living conditions were similar with the exceptions that at Watson's mine--Rainbow--there was a camp water system. Also, Watson and Rainbow had fewer accidents and less violence than Dragon and Dragon Camp. When Joseph Dobson stuck a sack needle in his knee, that was news.¹¹⁹ There were a few of Uinta Basin's ubiquitous fist fights at Watson. The combatants didn't resort to the use of deadly weapons, however; and when a free-for-all broke out as on an occasion in 1916, the County Sheriff was telegraphed and the fighters were soon hauled into the Vernal jail to await a hearing before a judge.¹²⁰ One of the most exciting events in Watson occurred when lightning struck the Uintah Railway office and burned out the telegraph and telephone wires and set the cashier's desk on fire.¹²¹ The electrical bolt did little damage to property, because in the room adjoining the office lived Clerk Charles String who quickly extinguished the flames with a company extinguisher.

¹¹⁹The Vernal Express, February 15, 1918, p. 5.

¹²⁰Ibid., April 28, 1916, p. 1.

¹²¹Ibid., August 13, 1920, p. 1.

Watson, Dragon, and the Uintah Railway died with the Rainbow Mine, leaving almost total inactivity in the gilsonite mines south of the White River after 1938.

¹¹⁹ The Vernal Express, February 12, 1918, p. 2.

¹²⁰ Ibid., April 28, 1916, p. 1.

¹²¹ Ibid., August 13, 1920, p. 1.

¹²² Ibid., November 11, 1926, p. 1.

CHAPTER VI

BONANZA AND MISCELLANEOUS OPERATIONS ON THE UNCOMPAHGRE

I. BONANZA AND EUREKA MINES

In 1936, a year after the Bonanza Mine was reopened and more than a year before the Rainbow Mine was completely abandoned, the Gilson Asphaltum Company withdrew from operations in Utah; and in its stead, the General Asphalt Company, formerly known as "The Trust," assumed direct control of their Utah gilsonite holdings. General Asphalt Company then, in 1938, changed its name to "The Barber Company, Incorporated," and transferred all operations to the Bonanza Mine which lay fifteen miles north of Rainbow and four miles north of the White River. In 1942, the company's name was changed to "Barber Asphalt Corporation."

Instead of using the road northwest from Bonanza to Kennedy's Hole and Alhandra enroute to Vernal, a new Uintah County road, finished by 1930, now straightened out even more and called "Utah Road No. 45," went north to U. S. Highway Forty and then westward through Jensen to Vernal, a total distance of forty-eight miles. Western shipments of gilsonite were hauled by truck over this route, continuing westward on Highway Forty another 125 miles to the D&RGW railhead at Heber City, Utah. Eastern ore shipments were hauled by truck over the old Rangely road, north of the White River, to a point about half the distance to Rangely, then northward over a

newly developed road which joined Highway Forty near Artesia, Colorado, and then eastward on Highway Forty to the D&RGW Railroad at Craig, Colorado, a total distance of 115 miles. The road to the north of Bonanza was graveled, and later oiled; the one to Artesia was mostly shale; and Highway Forty was hard-surfaced, providing dependable roads for automobiles and gilsonite trucks to all points east and west of Bonanza. The ore hauling was done by Stanton's Trucking Company.

Through the Bonanza Anticline run several gilsonite veins. They are the Uintah, Chipeta, Little Chipeta, Wagon Hound, Tabor, Independent or Big Bonanza, Little Bonanza, and the Cowboy. Of these, the last two are most important at this point of discussion. The Bonanza Mine was and is located on the Little Bonanza Vein; and all of the ore going by slurry through the present, ultra-modern pump-and-pipe system to Gilsonite, Colorado, is mined from the Cowboy Vein.

So much confusion has grown up around the proper naming of three of these veins in the Bonanza Mine area that the subject is broached with reluctance. It seems, however, that the problem is now one of definition. Out of the seven odd names employed by various writers and recorders to designate the three veins in the region, the three used by Douglass have been chosen for use here. Running from the northwestern into the southeastern part of Township 9 South, Range 24 East, are two veins which converge at an acute angle into one vein about at the point of crossing into Township 9 South, Range 25 East.

Of the two nearly parallel veins, the northernmost or easternmost will be called the "Big Bonanza," elsewhere referred to as the "Independent," "East Bonanza," or "Bonanza." The southernmost or westernmost of the two veins shall be called the "Little Bonanza," referred to by some as the "West Bonanza," or "Bonanza." The single vein on the southeast end of the system shall be called the "Tabor," sometimes called the "Bonanza." The three veins follow courses deviating west from north as follows: Big Bonanza about sixty-one degrees, Little Bonanza about sixty-six degrees, and Tabor about fifty-six degrees, indicating that the Tabor does not continue on line with either of the other two.

Gilson Asphaltum Company and its successors maintained control of three and one-half miles of the Big Bonanza Vein, four and one-half miles of the Little Bonanza, and two and one-fourth miles of the Tabor, the linear miles of vein being measured in each case from the junction of the three veins. Of the three veins, the Little Bonanza has, until recently, been by far the most important. Some of the claims held by the Barber companies are: (1) running northwest on the Big Bonanza and beginning at the vein junction, the Red Bird, Walsh, Blue Jay, Frying Pan, Utah, Rangely Bell, Short Leg, Big Chief, Superior, Break of Day, Triumph, Cumberland; (2) running northwest on the Little Bonanza, the Washington, Tom Paine, McCaslin, Mary Mc, Ouray, Temperance, Foot Hill, Hill Top, and Cabinet; (3) running southeast on the Tabor and also beginning at the

vein junction, the Jackson, Stonewall, Yellowstone, Grey, Pink, Rose, and Black Beauty. A number of unnamed quarter-quarter sections on a continuation of the veins were and are also owned by the Barber companies.

The Tabor Vein is wide enough to work and lies in an easily accessible region; but nevertheless, has only been prospected to this date. Douglass recorded his doubts that the vein contained marketable ore,¹ but that was in 1928 when today's processes and uses were unknown. The Big Bonanza has been little more worked by the Barber companies than the Tabor and probably for the same reason. To the northwest of the Barber holdings on the Big Bonanza, the American Asphalt Association did work their Independence Mine from about 1929 to 1952 when they sold out to Gordon S. Ziegler Company which works it at the present time. The vein is fourteen feet wide in places and averages over ten feet in width. Douglass estimated the average depth to be 993 feet.² The ore is platy or pencilated except in the northwest end of the vein. The Little Bonanza Vein, usually designated by those who simply speak of "Bonanza," is the vein on which most mining activities in the area occurred until the recent development of the neighboring Cowboy Vein. The Little Bonanza has an average width of more

¹Earl Douglass, "Final Report on the Gilsonite Holdings of the Gilson Asphaltum Company in Utah and Colorado," (unpublished report to the Gilson Asphaltum Company, 1928), p. 41.

²Ibid., p. 62.

than nine feet and an average depth of more than 900 feet. The ore, while pencillated near the vein walls, was beautifully non-structured in the vein center. Gilson Asphaltum Company operated the Temperance Claim on the Little Bonanza Vein from 1904 to 1914,³ and revived operations on the Little Bonanza Vein in 1935. The operations, being known as the "Bonanza Mine," have remained continuously active to the present time. Again northwest of the Gilson Asphaltum Company's holding, as on the Big Bonanza Vein, an important mine was operated by the American Asphalt Association--the Little Bonanza Mine. The Little Bonanza Mine was a big producer from 1908 to 1917.

All of the veins in the Bonanza Anticline reach down to the Upper Green River Shales, being fed gilsonite from these as well as the Middle and Lower Uintah formations, all of the Tertiary Period. These strata have a dip of about two and one-half degrees westward, and the veins themselves vary no more than five degrees from a vertical line.⁴

Before focusing their ambitions on the Rainbow Vein in 1912, the Gilson Asphaltum Company had thought seriously of having the Uintah Railroad extended to Bonanza. It seems that a choice had to be made; and after Rainbow was chosen, Bonanza closed down, in 1914, not to be reopened until the Rainbow was,

³Ibid., p. 47.

⁴Herbert F. Kretchman, The Story of Gilsonite (Salt Lake City: American Gilsonite Company, 1957), p. 73.

in 1935, nearing an end to its economical production. When the transfer of operations was finally made from Rainbow to Bonanza, gilsonite mining was resumed at the Bonanza Mine by the use of the same tools and techniques traditionally employed in the industry--picks and shovels, shats and drifts to remove all ore below a level of fifty or sixty feet below the surface, ore hoisted in sacks or in buckets, each miner digging four or five tons per day, men using ladders to commute hundreds of feet between ore and surface, etc. During this period of age-old mining methods at the Bonanza, there was the usual rash of accidents causing injury and sometimes death. Both carelessness and the inadequacy of safety devices are observable. In 1938, Acel Walker lost a leg by amputation after it had been crushed by a sack of gilsonite which fell out of the hoisting cable's grasp as it was drawn up the shaft; in 1940, Leonard Cook received a broken back in a similar manner when a bundle of empty sacks, being lowered into the mine shaft, slipped out of the cable and fell a great distance upon him; and in 1942, William Postma, himself, slipped and fell down a shaft, receiving immediately fatal injuries.

Homer Ford, who supervised the reopening of the Bonanza Mine, miscalculated the future of gilsonite mining and resigned from his job, discouraged in part by the establishment of a C.I.O. local union at Bonanza. With or without a labor union, the future of the industry was not one of decline and decay. This primitive mining industry at Bonanza would be transformed

to one of dazzling modernization within twenty years. Ford was succeeded by L. D. Barry as superintendent of the mine.

By 1943, with the loss of miners to the military services and a stepped-up sales program, it became apparent that new mining techniques would have to be employed.⁵ The Barber Corporation initiated the use of conventional compressed-air drills, permissible explosives, and shrinkage methods in mining gilsonite. New shafts were sunk on the Little Bonanza and Cowboy Veins which were equipped with steel headframes, electric hoists, steel ore bins, skips and cages for ore and men.⁶

The Cowboy Vein, which was brought into the scope of the Barber Corporation's modernization program, lay three miles to the northeast of and approximately parallel to the Little Bonanza Vein. The Eureka Mine and Camp on the Cowboy Vein was about four miles from the Bonanza Camp and easily reached by a dirt road. This vein, too, ran across the Bonanza Anticline; but had its roots in the Mahogany shales of the Green River formation, deeper than the Bonanza veins. Notwithstanding the facts that the Cowboy was the first vein discovered on the Uncompahgre Indian Reservation, that it averaged over nine feet in width--as much as twenty-two feet in one place--and that it

⁵For a detailed discussion of mining operations at Bonanza in 1949, see: G. A. Carey and I. C. Roberts, The History, Occurrence, Mining, and Economics of Gilsonite, (unpublished Bachelor's thesis, University of Utah, 1949), pp. 64-78.

⁶Burt B. Brewster, "The Bonanza Gilsonite Explosion," The Mining and Contracting Review, XLVII, No. 20 (October 31, 1945), p. 6.

ran for nine miles on the surface, it was the last vein in the area to be developed by a Barber company. It had been too far from the projected Uintah Railroad to receive the earliest attention, and was later ignored because the best grade ore it produced--called "jet"--was considered inferior to the nearby Bonanza ore. Except for accessment diggings, the vein had only been worked by the American Asphalt Association on the one claim they owned--the Bandana--which they operated intermittently from 1903 to 1952. Actually, the American Association owned only a thousand feet of the Bandana. The other five hundred feet and all other patented claims belonged to the Barber Asphalt Corporation. When the American Asphalt Association was dissolved in 1953, the newly formed American Gilsonite Company, successor to the Barber Asphalt Corporation, acquired all the Bandana, giving that company control of twenty-seven patented claims on the vein which contained an estimated reserve of almost 9,000,000 tons of gilsonite.⁷

All went well with the revised Barber operations for two years. Production climbed steadily; but on October 9, 1945, a terrifying and damaging explosion occurred in the Bonanza Mine. A series of four explosions alternated between two shafts until the explosive dust was spent. Then "secondary explosions followed and soon the geyser-like performance . . . spread to the other fourteen shafts and on the following 12 of

⁷Earl Douglass, op. cit., p. 24.

the shafts were in action simultaneously, emitting smoke with alternate sheets of flame."⁸ Mine debris was blown out of sight into the air; and in falling back to the earth like a spray, it defied all rules of probability by doing no injury or damage to any person:

Large mine timbers were blown into the air so high that they were still falling five minutes after the explosion. Potential death, in the form of boulders, timbers, and debris, rained down on the entire community but no one happened to be in the precise spot where the material fell.

Three large timbers came through the roof of one house to reduce a small living room to shambles. The one occupant of the room happened to be sitting in a corner which was not wrecked.

In another home a husband and wife were playing cards. A 16-foot timber came through the ceiling, hitting between them but touching neither.

Three workmen were standing at the collar of a shaft when the blast occurred. But none of them suffered anything more serious than a minor cut or singed hair. Fourteen shafts spouted smoke and fire for days before the fire was extinguished.⁹

The heat was so intense from the mine's flames that with a slight northerly wind they would have burned the entire Bonanza Camp. Good fortune did not end there. Since the explosion had occurred at night, about nine o'clock, there were no miners at work, and therefore, no lives were lost. Bulldozers shoved a great many tons of earth into the shafts to smother the fire. After several discouraging break-through explosions, the fire

⁸Burt B. Brewster, *op. cit.*

⁹"Potential Death," Salt Lake Tribune, November 6, 1953, p. A3.

was declared out, leaving extensive damage to the full length of the mine. From this experience the practice was begun of leaving vertical pillars of ore between shafts as protectors against spreading explosions or fires.

In 1946, probably to secure greater capital for rejuvenating the Bonanza Mine and for developing radically new mining techniques and ore uses, the Barber Asphalt Corporation merged with the Standard Oil Company of California to form the American Gilsonite Company. The new company was incorporated in Delaware with a capitalization of \$2,500,000 in common stock.¹⁰ The first president was C. F. Hansen of Standard Oil, but all other officers were from the Barber Asphalt Corporation. This new company initiated a fantastically comprehensive program of research in laboratories of Standard Oil, the University of Utah, Colorado School of Mines, and several private institutions. Costs of production had steadily climbed without a corresponding rise in gilsonite prices. More efficient and less expensive production methods or new uses had to be found. The major concern was to find an economical means of reducing gilsonite to high grade gasoline and metallurgical coke.

The costly experiments were proceeding nicely when, on November 5, 1953, another explosion occurred. There was one real difference with this explosion which otherwise aped the destructiveness of the 1945 explosion: eight men were

¹⁰"American Gilsonite Company," Corporation Files, Office of Utah Secretary of State.

killed in the holocaust. The property destruction and death toll were listed as Utah's tragedy of the year by the Salt Lake Tribune.¹¹ Killed were Joe Kay Baker, Hal L. Cook, Ullis Harper, Glenn Jackson, Kenneth Richins and John O. Smuin of Vernal; Everett Goodrich of Blue Bell; and Jay Var Timothy of Bonanza.¹² Jackson was the father of nine children; and Richins, having just been married, was planning to attend his own wedding reception the next day. Orman Stephens, who was "on top of the shaft" when the explosion occurred, was tossed twenty feet in the air and twenty feet off to the side of the gaping mouth of the death mine. Stephens escaped with only cracked ribs. Others working near the hoist were also injured. They were Lloyd Smuin, Charles Bowden, and Norman Fletcher. The explosion had its start in the eastern end of the mine and traveled westward to a mine bulkhead which held fast, allowing miners in the western end to escape. Soon after the first explosion it was reported by a worker that a cry for help had been heard from the mine. A faint hope arose that someone might be rescued, but the efforts of a hundred volunteers were soon buffeted by the flames. It was clear that the unfortunate miners could not have escaped the combined forces of death such as the blast, flying debris, flames, and suffocation.

¹¹Salt Lake Tribune, January 3, 1954, p. A1.

¹²For complete story with pictures, see: Ibid., November 6, 1953, p. A1-A3.

Flames were suppressed much more effectively than in the 1945 fire. Foam extinguishers and water were used in lieu of earth-fill. As soon as the fire was safely out a crew was put to the task of recovering the bodies of the lost miners and assessing the damage to the mine. By the middle of March, 1954, the body of Everett Goodrich, last of the eight victims, was recovered from the depths of the mine.¹³

There were rumors that the C.I.O.'s local union had struck a week before the explosion because of hazardous conditions in the mine; but George F. Wilde, representative of the Steelworkers' union denied this rumor and announced that there were no known unsafe conditions in the mine prior to the strike. After inspection, the Utah Industrial Commission blamed overheated equipment at the top of the mine for ignition of the explosive dust.¹⁴ At this same time, two days after the explosion, the Commission declared the eight men dead so that insurance claims could be made.

This grim explosion was more costly in human lives than any other gilsonite explosion or accident had ever been, but it did not compare to the terrible explosions and cave-ins in the country's coal mines. For example, Utah's own Castle Gate explosion in 1924 killed 175 men, four of which were Uinta Basin residents.¹⁵ Another Castle Gate explosion in 1928 left fifty-

¹³Deseret News, March 15, 1954, p. B8.

¹⁴Ibid., November 7, 1953, p. 1.

¹⁵The Vernal Express, March 14, 1924, p. 1.

two widows in its wake, thirteen of which had once before been widowed by the explosion in 1924.¹⁶

A company with less capital or executive grit than possessed by the American Gilsonite Company would have figured this a good time to quit the industry and make investments elsewhere; but with American Gilsonite Company, this was the signal for an even more accelerated research program for safe and economical methods. A pilot gilsonite cracking plant was built at Bonanza at a cost of nearly a million dollars,¹⁷ and a 500-foot pilot pipeline for carrying gilsonite in a water slurry was built at the Colorado School of Mines research facilities at Golden, Colorado.¹⁸ By 1956, incredibly revolutionary methods of mining, transporting, and processing gilsonite were revealed; and contracting engineers were put to work implementing the spectacular plans, costing eighteen-million dollars over all.¹⁹ Less than twelve months later--by May 31, 1957--a completely new gilsonite industry had been given birth and stood ready to begin operations.²⁰

¹⁶Ibid., July 27, 1928, p. 1.

¹⁷For pictures and detailed story of this plant, see: Ibid., July 19, 1956, p. 1.

¹⁸Kretchman, op. cit., p. 81.

¹⁹Deseret News and Telegram, August 1, 1957, p. A9.

²⁰For pictures and detailed accounts of this metamorphosed industry, see: (1) "It's a New Day in Mining," Salt Lake Tribune, May 5, 1957, p. D10; (2) "CB&I-built Structures Serve First Solid Hydrocarbon Refinery," The Water Tower, XLIV, No. 4 (March, 1958), pp. 4-6; (3) "Gilsonite to Coke," Heat Engineering, XXXII, No. 4 (July-August, 1957), pp. 54-57; and by far the most complete of all (4) Herbert F. Kretchman, Ibid., pp. 73-93.

At the Bonanza Mine raw ore would still be produced to satisfy old markets; but even here, the methods were revamped. A mechanical ore-cutter was used which was completely operated by compressed air and which cut the gilsonite out by a long, spiked, rotary drill. The cutter was mounted on a rubber-tired vehicle; and through its hollow drill-teeth, which were tipped with carbide, water was driven under pressure to keep the teeth from gumming and the ore so covered with moisture that the highly dangerous dust would not be allowed to form. This cutter was developed through American Gilsonite's own research; and not only did it decrease production costs, but also the hazard of another explosion. The ore was dried and sorted at Bonanza and then hauled in twenty-ton aluminum diesel carriers to Craig where it was bagged, in the company's bagging works, according to the desires of the buyer. This was modernization to be sure, but the fantastic plans spoken of above were materialized in a process stretching over seventy-two miles and beginning at the Eureka Mine on the Cowboy Vein, four miles northeast of Bonanza.

At the Eureka, where ore was pencillated or pre-fractured, gilsonite was, and is, mined by a completely hydraulic method. On a rubber-tired vehicle and with a front boom to control the nozzle, is mounted a hose carrying a jet stream of water which produces 2,200 pounds of pressure per square inch. Persuaded by these cutting streams of water, the Eureka surrenders as much as nine hundred tons of ore daily. As the pulverized ore

mixes with the water, it forms a slurry which flows to the mine's sump where electrically-powered agitators keep the ore in suspension until the slurry is lifted through two sets of centrifugal pumps to a slurry preparation plant about one-half mile west of the mine. As ore is removed from the vein, stulls are installed at a vertical interval of fifty feet and covered with two-inch wire mesh to protect miners from falling rocks. Loose walls are stulled wherever they occur; and as a further safety measure, vertical pillars of ore are left unmined every three-hundred feet along the mine.

The hydraulic mining was not the only development in American Gilsonite's remodeled colossus. As an economical means of transporting the mined ore to a railhead, the company laid a \$2,000,000 pipeline from the Eureka slurry plant to their own specially constructed refinery at Gilsonite, Colorado, on the D&RGW Railroad and the Colorado River, just west of Grand Junction. The seventy-two mile pipeline, which crosses the White River and Evacuation Canyons and 8,437-foot Baxter Pass, following somewhat the former bed of the Uintah Railroad, was buried three and one-half feet deep and carries, at the rate of 325 to 350 gallons per minute, a six-inch stream of gilsonite-water slurry.

Before induction into the long pipeline, the slurry has to undergo careful preparation in the Eureka plant. Sand and water are removed by separate processes; and then by careful meticulous weighing, a new slurry is formed of thirty-five per

cent gilsonite, all particles of which have been reduced to a size of less than one-eighth of an inch, and sixty-five per cent water. The pipeline delivers to the refinery, exclusive of water, between 700 and 900 tons of ore daily. Needless to say, the slurry preparation is so complex that it entails storage bins for ore, tanks for water and slurry, pumps, motors and controls of many sorts. Water used in the system is pumped from the White River; and after it has finished conveying gilsonite to the refinery across the Book Cliffs, it is purified and emptied into the Colorado River. To keep the slurry moving through the line, two reciprocating, outside-packed, plunger pumps, driven by individual 300-horsepower electric motors, with a third pump and motor in reserve. Also in reserve is a diesel-powered pump which would deliver water only into the line until the line was cleared of slurry, the time to accomplish this being about twenty-seven hours. If, in emergency or otherwise, the pipeline were to close down operations, the line would be drained from both ends and the line flushed from a water reservoir constructed on the highest point of the line, atop Baxter Pass.

The most phenomenal achievement in the vastly new gilsonite industry was the successful construction and operation of a \$16,000,000 refinery, located between Grand Junction and Fruita. This refinery, for the first time in history, produced at a commercially competitive cost a high-octane gasoline from a solid substance. Before 1925, the Gilson Asphaltum Company,

through the expenditure of hundreds of thousands of dollars developed a means of reducing gilsonite to gasoline and coke at Madison, Illinois;²¹ but economical production seemed out of reach at that time. It was never-ending and ever-increasing research, especially by the American Gilsonite Company, and the establishment of the Bonanza pilot plant which eventually rewarded a quarter-century dream with success. The new refinery not only signaled a new day for the gilsonite industry, but it added new vigor to the industrial structure of both Utah and Colorado. It was only appropriate that Governor Clyde of Utah and Governor McNichols of Colorado should have been present, as they were, at the dedicatory services. It was also with appropriateness that Secretary of Interior Seaton was selected to deliver the dedicatory address. It was for this grand occasion that the American Gilsonite Company published their beautiful book on the industry--The Story of Gilsonite, written by Herbert F. Kretchman--which tells so well by pictures and detailed script of the great reformation in the gilsonite industry.

The description of the refining processes must here be brief. Reportedly, "it is the first coking plant to perform the complete coking operation at a single site."²² After the coke has been produced in a delayed coker, it is calcined under

²¹Kretchman, op. cit., p. 62.

²²"Gilsonite to Coke," Heat Engineering, XXXII, No. 4 (July-August, 1957), p. 54.

a temperature of 2,300 degrees Fahrenheit in a rotary kiln, leaving only traces of volatile matter in the dense and shrunken coke. This finished coke is the purest form of commercial carbon, the largest part of which goes into the production of aluminum. The gasoline produced in the delayed coking-thermal section, though of about eighty octane, has to be hydrogenated to remove nitrogen compounds and olefins and then processed through a catalytic reformer to restore the octane reduced by the hydrogenation. The result is a high-octane, commercially-competitive gasoline. Of the gilsonite thus cracked in the refinery, about fifty per cent becomes coke, thirty-five per cent gasoline, and fifteen per cent gas, part of the latter being burned at the plant. This means that out of about seven hundred tons of gilsonite processed daily, approximately 1,300 barrels of gasoline and 275 tons of coke are produced. The above percentages indicate that gilsonite is completely cracked, leaving no residues of gas oil or fuel oil.

It is obvious that a great dream has been realized in the gilsonite industry, but some dreamers don't rest. American Gilsonite's president, Ernest Goodner, looks confidently toward the development of a whole new family of "gilso-chemical" products.²³ Whether or not new gilsonite products are developed in the future, the comfortable little community of Bonanza--

²³"CB&I-built Structures Serve First Solid Hydrocarbon Refinery," The Water Tower, XLIV, No. 4 (March, 1958), p. 6.

with trees, a water system, attractive houses, offices, school, television, and a population of about 200 people--will probably have a continually prosperous existence for at least another half century, considering the 16,000,000 tons of unmined gilsonite-reserve in view.²⁴

II. AMERICAN ASPHALT ASSOCIATION

The American Asphalt Association, incorporated in Missouri in 1902,²⁵ was formed and directed by former stockholders in Gilson Asphaltum Company of Missouri which had sold out to the Gilson Asphaltum Company of New Jersey in 1900. The director-owners were all from St. Louis, the home of Adolphus Busch and C. O. Baxter. Baxter, however, transferred his services from the first to the second Gilson Asphaltum Company. Of the American Asphalt Association's 2,000 shares of capital stock at \$100 per share, Milton J. Moore, the company's president, held all but two shares. Robert W. Walsh was appointed secretary, and Sterling P. Barron was named vice-president and general manager. Max Smith was appointed superintendent of mines, a job which he held until succeeded, in 1913, by Clarence Stamm, who in turn was replaced by E. V. Dehayes in 1918. Thomas W. O'Donnell's office in Vernal was designated as the

²⁴"Gilsonite to Coke," op. cit., p. 55.

²⁵"American Asphalt Association," Corporation Files, Office of Utah Secretary of State.

company's first place of business.

S. P. Barron came directly to Utah where, by acquiring only a very limited number of gilsonite claims, he managed, nevertheless, to place his company in the position of chief competitor to the Gilson Asphaltum Company when the Uncompahgre Indian Reservation opened its odd-numbered sections in 1903. Barron later became involved in the Rangely oil fields with E. H. Gorse and Jacob Koenigsmock.²⁶ For the American Asphalt Association, his most important acquisitions were: (1) one-third of the East Norvell Claim on the Rainbow Vein, (2) a claim to the northwest of Gilson Asphaltum's holdings on the Little Bonanza Vein where his company operated the Little Bonanza Mine, (3) a claim on the northwest end of the Big Bonanza Vein on which was situated the Independence Mine, (4) the thousand-foot Bandana Claim on the Cowboy Vein, and (5) a claim on the northwest end of the Cowboy Vein on which was developed the Warner-Quinlan Mine.

Joshua Birchell was hired to open the Bandana Mine in 1903. The ore there, as most ore in the Cowboy, was pencillated and of varying quality which lessened its market value. Birchell was soon ordered to leave the Bandana Mine and to open the Norvell Mine south of the White River and nearer the projected Uintah Railroad. Some ore taken from the Bandana was called "jet"; and when requested by a buyer, jet brought as

²⁶The Vernal Express, December 5, 1913, p. 1.

high a price as select gilsonite. Consequently, the Bandana was mined over the years; but the mining was for brief periods of time and at irregular intervals. Before the advent of practicable gasoline trucks in the late 1920's, the Bandana ore was hauled by wagon to the Uintah Railway terminals--first to Dragon, and then to Watson.

Even with very little mining being done at the Bandana, the mine had a claim to one fatality. In 1924, William Jarvis was killed by stepping on an unsupported end of a plank, which lay on mine timbering, and falling about seventy-five feet to the bottom of the shaft.²⁷ Jarvis had, as was the custom, been sent out from the Rector Mine to help fill a special order from the Bandana and return. The thousand-foot Bandana Claim was acquired by the American Gilsonite Company in 1953 when American Asphalt Association was dissolved.

The East Norvell Claim was two-thirds owned by Gilson Asphaltum Company and one-third by American Asphalt Association; but the Norvell Mine, on the claim, was operated completely by the latter company. Because of this ownership and management arrangement, the former company sued the latter for two-thirds of the gross income from the mine. The settlement was reached by agreement and was much more realistic than the amount demanded. It is felt by this writer that the suit was conducted, at least in part, for revenge, since the American Asphalt

²⁷ Ibid., June 4, 1924, p. 1.

Association had only shortly before obtained, through the Interstate Commerce Commission, a reduction of rates on the Uintah Railway which was owned by the Gilson Asphaltum's holding company--General Asphalt Company. The profit motive was obviously strong, however; and it was well known that the Norvell Mine was a rich gilsonite strike.

The Norvell was a big producer for the American Asphalt Association from the time that it was opened by Joshua Birchell in 1903 until it slacked off in 1914 and was afterwards soon closed. During several years of its busiest operation, Hyrum Rasmussen was mine foreman under superintendent Smith. Most of the ore from the Norvell Mine was hauled by wagon into Dragon, later into Rainbow; and some of the teamsters frequenting the dusty roads between the mine and the railhead were S. W. Teague, John Caldwell, Martin Allred, Joe Herbert, Clair Collett, Fred Newmyer, and James Smuin. Some ore from the Norvell was hauled over Baxter Pass by six-horse teams to Fruita, Colorado, prior to the completion of the railroad. Even after the railroad had been completed to Dragon, some ore was hauled by wagon to Crevasse, Colorado, near Mack. Max Smith's advertisement for teamsters read as follows:

Wanted--teams to haul gilsonite from Norval²⁸ Mine, at Thimble Rock, near Dragon, Utah, to Crevasse, Colorado. Distance, 58 miles. Rate \$13 per ton. Hauling guaranteed the year around, good roads and spring water. American

²⁸"Norvell" is spelled many different ways, but the spelling chosen for this paper was taken from J. L. Norvell's name as it was recorded in the Vernal Land Office.

Association. Max E. Smith, Agent, Dragon, Utah.²⁹

In 1908, long before the Norvell Mine closed down, Max Smith had opened the Little Bonanza Mine on the northwest end of the Little Bonanza Vein. The Little Bonanza was operated quite continuously until 1917. To transport the large tonnage of gilsonite at less cost, the American Asphalt Association shipped in 100 Missouri mules which were stabled and shod at Dragon until the railroad was extended to Watson at which time the mules and blacksmith shop were transferred to the new terminus. Barns were also built at the mine. The Little Bonanza Mine kept the road, first to Dragon and then to Watson, lined with ore wagons.

In 1913, Max Smith was electrocuted while in Salmon City, Idaho,³⁰ and was succeeded by Clarence Stamm. Two years later, while Stamm was superintendent of the mines and A. W. Hall was foreman of the Little Bonanza Mine, a fire broke out in the engine house, destroying two engines, two dynamos and other facilities valued at \$4,000.³¹ Apparently the fire started by the explosion of a gasoline can. In accounts of the fire, no mention is made of the fact that two weeks earlier a serious altercation took place at the mine, after T. L. Keller received his pay check, resulting in a severe beating being administered by

²⁹The Vernal Express, May 19, 1906, p. 2.

³⁰Ibid., May 2, 1913, p. 1.

³¹Ibid., January 29, 1915, p. 3.

Keller to A. W. Hall.³² Hall fired almost all the Little Bonanza employees as "unreliable" workers; and the workers refused to leave the mine until Hall called the sheriff to have them removed and to have Keller taken before Judge Calder. It is probably only reasonable to assume, however, that if there were a cause-and-effect relationship between the two events that A. W. Hall would have recognized it as he painfully reflected upon the events.

The mine, itself, never had a serious explosion or fire. Serious accidents and loss of life, as at the Norvell, were not excessive for the long period the mine was producing by rather primitive methods. Only one recorded fatality has been found in researching the history of the Little Bonanza Mine; and that occurred in 1954, after the American Asphalt Association had sold the property to Gordon S. Ziegler and associates, who had reopened the mine. By 1917, the American Asphalt Association, which had leased all the properties on the Black Dragon Vein from the Gilson Asphaltum Company, decided to shut down the Little Bonanza Mine, which was beginning to produce less profitably, and to develop maximum effort along the Black Dragon Vein.

The Black Dragon Mine was reactivated in 1916 and produced gilsonite more or less satisfactorily for about four years. In the meantime, the company lost no opportunity to

³²Ibid., January 15, 1915, p. 5.

insure a steady flow of marketable ore by having another mine tested and ready to swing into activity.

In 1918, the Country Boy Mine, which proved to be one of the most faithful producers, was also reopened, keeping continuously in action for about twelve years. In 1924, the Country Boy had three levels of drifts running back from the main shaft. Plank ceilings were timbered in to separate the three levels and protect the lower levels from falling rocks. John Smuin, seventeen years of age, was working overtime in the lowest drift, trying to finish hoisting his sacked ore so that he could go to Dragon that night. Fred and Henry Slaugh, in the upper drifts, left the mine on time; and on their way out, they heard the rumble of loosening rock walls. They called to Smuin, but it was too late--great chunks of the upper walls fell with such force that the safety barriers were smashed and Smuin was instantly crushed to death at the bottom of the mine.³³ Fatalities caused by gilsonite mines caving in were rare, but at least one more did occur. In the 1930's, William Reeves was killed in a tunnel at the Black Virgin Mine which was situated between Dragon and Rainbow.

In 1922, two completely new mines were begun: the Rector and the Warner-Quinlan. The latter was north of the White River on an unnamed lot on the northwest end of the Cowboy Vein and situated about a mile and one-half north and a little east

³³Ibid., May 18, 1923, p. 1; and statement by Henry Slaugh, personal interview, November, 1958.

of the Little Bonanza Mine. The American Asphalt Association owned the Warner-Quinlan, but only one shaft was put down and ore production was sporadic. The mine's ore, like in most of the tremendous Cowboy Vein, was pre-fractured, selling as an inferior grade of gilsonite unless buyers with special interests were found. Title to the Warner-Quinlan was also acquired by Gordon S. Ziegler and his associates when the American Asphalt Association dissolved in 1953.

The story of the Rector Mine was in most ways different from the Warner-Quinlan. It was, in the first place, located on the northwest end of the famous Black Dragon Vein and, therefore, on property leased from the Gilson Asphaltum Company. Also, the gilsonite was select ore and the mine a profitable producer for about fifteen years. Fuller Remington who, with the assistance of Milo Hadlock, Monroe Hatch, and Karl Merrell, had opened the Warner-Quinlan Mine by digging 250 tons of gilsonite in the spring of 1922, proceeded with the same crew to the Rector Claim, opening the Rector Mine in July of that year. Also assisting in the initial opening of the Rector were Walter Anderson, and Frank, Harold, Ross, and Wallace Merrell.

After the mine was opened, the American Asphalt Association employed a large force of men at the Rector. Employees from the Merrell family alone totalled at least seven. Mining methods were primitive but effective. The ore was dug out of shafts and drifts with miners' picks, sacked and sewed at the bottom of the mine, and hoisted by Fordson tractor winches.

Vertically, drifts were spaced about fifty feet apart and run out laterally to the next shaft. Timbering as they went along, the plan was to remove all ore in the vein. Since there was an unusual amount of rock in the vein, dynamite was used to loosen the obstructions. All dynamite was detonated from the surface by use of electric blasting caps and detonator. Each miner carried his own sealed, safety lamp on his hat and went to work by means of ladders down a manway to the side of the main shaft. During an average mining day, about 100 tons of ore would be produced.

From the mine dumps near the shafts, the sacked gilsonite was hauled by White trucks, with hard rubber tires, to the mouth of Rector Canyon where it was loaded into Uintah Railway cars which were spotted on a siding specially built for convenience of the Rector Mine. Several drivers--such as Paul High, William Haven, Sam Cox, Leo Mallery, Lute Shook, and Kenneth Rhodes--were kept steadily employed hauling the Rector ore. They lived in Dragon, where garages were built for the trucks, and drove out to Rector each morning, a distance of about four miles. The ore-haul was about one and one-half miles in length, and each driver made several trips each day.

Rector Camp was situated below the ridge through which the Rector Claim ran, and was nestled at the head of Rector Canyon, which was a box canyon. The camp consisted of a boarding house, two bunk houses, several small frame houses each of which was equipped with rain barrels, wood pile, vegetable

cellar, and outdoor privy. At first, as at Dragon and Rainbow, many lived in tents. In such a desolate region, culinary water was always a premium item. Drinking water was brought from Columbine to Dragon by the railway tank cars and from Dragon to Rector by a tank truck. At Rector the truck would pull up to each house and by means of a syphon hose would fill the water barrel kept in the kitchen. Then at the boarding house, it would fill the cistern from which the drinking and cooking water was subsequently drawn by means of a hand-pump. In the winter time, snow was melted in large tubs to secure a softer brand of water than delivered by the water man.

To see a movie or a baseball game, it was necessary to go to Dragon or Rainbow; and to buy groceries, one usually went to Dragon, though there was a store in Watson. The primary social events at Rector were dances, Kangaroo courts, and dramatic plays, all of which were staged in the boarding house. The boarding house was run first by Mr. and Mrs. Walter Dow and later by Hyrum Rasmussen and wife. In the Kangaroo court, attorneys were appointed periodically and put to work prosecuting and defending a man accused of an alleged (but often an imaginary) offense. The whole camp would turn out to hear the case argued. The jury's verdict was always an important one, for if found guilty, the accused would be sentenced to some dreaded, menial task such as cutting a week's firewood for the boarding house or bunk house.

As for dramatic achievements, the plays of the Rector

Thespians were taken to Rainbow and Dragon; and one play-- "That's My Baby"--was even taken to the Orpheus Hall in Vernal where it drew a full house. In Dragon or Rainbow the plays would take the entire crowd away from the movie theater for the evening. Regardless of their technical skill, these actors found pleasure in entertaining the mining communities. In fact, most people in Rector found a comfortable, pleasant, neighborly existence for themselves in that remote and unattractive mining camp. It was there among shale beds, sagebrush, cedar trees, and dust-blackened faces of gilsonite miners that the writer of this paper spent the first seven years of his life; and even now, with the faintest scent of burlap, a nostalgic happiness is experienced.

Rector Mine closed down and Rector Camp disintegrated when the Uintah Railway was discontinued in 1938. The mine has not been reopened, and there is hardly a ghost of a building to mark the site of the camp.

Long before Rector Mine ceased producing, however, American Asphalt Association began developing one of their own claims north of the White River. The claim, an unnamed quarter-quarter section, was on the northwest end of the Big Bonanza Vein; and the mine which was opened there became known as the "Independence." The Independence was operated quite continuously until sold to Gordon S. Ziegler in 1953. Mining there was never on a large scale.

It seems that the American Asphalt Association lost

interest and mining zeal when the Uintah Railway ripped up its steel road in 1938. When Ziegler made an attractive offer in 1953, the American Asphalt Association decided to sell all properties and dissolve the company. The Bandana and Norvell Mines were sold to the American Gilsonite Company; and the Little Bonanza, Independence, Warner-Quinlan, and other properties were sold to Gordon S. Ziegler and associates of New York. Thus ended a company which had been a chief competitor in the gilsonite industry for a half century.

III. UTAH GILSONITE COMPANY

In 1920, S. P. Barron had a quarrel with other officers in the American Asphalt Association; and as a consequence, he left that company and immediately formed one of his own--Utah Gilsonite Company--which was incorporated in Missouri with a capitalization of \$250,000.³⁴ William J. Scott, T. L. Creighton and Eugene Devine, all of St. Louis, each bought 833 shares of the 2,500 shares available, leaving one share for Barron, him-

S. P. Barron was designated president; and his son, Osmond P. Barron, was appointed secretary. C. A. Bobzien of Watson was appointed general superintendent, and the general place of business was Uintah County until 1949 when Salt Lake County was designated.

S. P. Barron had already acquired some gilsonite

³⁴"Utah Gilsonite Company," Corporation Files, Office of Utah Secretary of State.

properties in his own name, this having precipitated the altercation with other officers of the American Asphalt Association. It was around these properties that the Utah Gilsonite Company was formed. S. P. Barron was an aggressive, young man who was not easily outthought or outdone. Once in an argument over gilsonite claims, he got into a fist fight with J. H. Colthorp in Vernal.³⁵ Barron was a trained pugilist, but looked like a soft city boy. Colthorp jumped Barron only to receive a licking himself.

In full, the Utah Gilsonite Company's holdings consisted of: (1) the Little Black Diamond Mine on the Duchesne Vein, north of Fort Duchesne; (2) an unnamed strip on the Uintah Vein, south of the Little Bonanza, where the Little Emma Mine was developed; and (3) claims on the Harrison Vein, south of Rainbow, where the Harrison Mine was situated.

The first mine developed was the Harrison where the company held two quarter-quarter sections (forty-acre tracts). At the mine, the company built bunk houses, a blacksmith shop, a sack house, a barn, and a garage which sheltered three trucks. In Watson, a frame cottage, office, truck garage, tool house, oil house, sack house, and water tank were also maintained.³⁶ The Harrison Vein on the one section worked by the Utah Gilsonite Company averaged less than two feet in width and contained

³⁵The Vernal Express, September 8, 1906, p. 1.

³⁶"Utah Gilsonite Company," Assessment of Mines, 1922, Utah State Tax Collector's Office.

no select ore. On the other section the vein was too narrow to be worked.³⁷ Five and one-half miles of the six-mile vein exposure was owned by the Gilson Asphaltum Company. Gilsonite from the Harrison Mine was sacked in the mine before hoisting, and was hauled by truck the short distance to the Rainbow or China Wall railheads.

By 1927, when the mine's shafts averaged 200 feet in depth, the Harrison Mine began to slack off in production; but the Utah Gilsonite Company, looking ahead, had long since opened a new mine--the Little Emma--north of the White River on the Uintah Vein where they held three quarter-quarter sections with mineral rights. The Little Emma Mine lay about three miles to the south of the Little Bonanza Mine and about seventeen miles north of Watson. The vein is exposed on the surface for six miles and most of the workable vein was owned by Gilson Asphaltum Company. At the Little Emma Mine, the vein is two and three feet wide; and by 1928, it had been worked to a depth of 752 feet.³⁸ Mining continued at the Little Emma until the property was sold in 1952. Before good roads were developed to Craig, Colorado, and Heber City, Utah, the Little Emma ore was hauled by truck to the Uintah Railroad at Watson.

The ore at the Little Emma, being similar to that at the Bandana Mine, was called "jet." It had a high melting point,

³⁷Earl Douglass, op. cit., p. 121.

³⁸Ibid., p. 79.

and ore of that nature had traditionally been sold as an inferior quality. S. P. Barron held the price of the ore up, however, and gave it a new name--"Brilliant Black" which he marked "BB"--for which he demanded a premium price. He created a market and desire for this ore which has continued to sell well to this day.

It seems that nearly every mine took its toll in serious injuries or deaths. The Little Emma was no exception in this respect. In 1928, an Ouray Valley farmer, A. E. Jenkins, was killed while timbering in the mine with James Smith.³⁹ Smith said that a heavy timber fell from above and struck Jenkins in the head. Jenkins had been working in the Little Emma on a temporary basis to earn a little cash money with which to start a homestead.

For a discussion of the Little Black Diamond Mine on the Duchesne Vein, see Chapter III above.

When S. P. Barron died, a lack of interest in the company was demonstrated by his heirs. They were soon tired of gilsonite and wanted to sell out, which they did in 1952 before dissolving the company. The entire holdings of the Utah Gilsonite Company were sold to Gordon S. Ziegler and associates.

IV. GORDON S. ZIEGLER⁴⁰

Gordon S. Ziegler of Great Neck, New York, and his

³⁹The Vernal Express, March 16, 1928, p. 1.

⁴⁰Most of the information regarding Gordon S. Ziegler and his company was obtained from William F. Beer, Jr., personal interview, November, 1958.

associates provide the principal competition for the American Gilsonite Company. The third producing Company today is the Standard Gilsonite Company which operates the Pariette and GK Mines only. The output of the Gordon S. Ziegler Company being about 50,000 tons annually which is probably more than ten times that of the Standard Gilsonite Company and approximately one-sixth the output of the American Gilsonite Company. Gordon Ziegler first became aware of Utah's gilsonite while working as a clerk or bookkeeper in the office of the Allied Chemical Company in New York, a company which used gilsonite in several of its products and which held the exclusive sales rights to the gilsonite mined by L. F. Lindley's Raven Mining Company of Utah. Ziegler was advanced in the Allied Chemical Company until he became general manager. When Lindley's health began to fail him early in the 1940's, Ziegler attempted to buy the holdings of the Raven Company. Lindley held on to his property, however, until he was declared incompetent in 1949 and the company was reorganized and renamed "Standard Gilsonite Company" in 1956. Ziegler began searching for other properties. He managed to purchase from the Castle Peak Asphalt Company the Castle Peak Mine, on the Seaboldt or Baxter Vein, a mine which has operated continuously to the present time. Also from this company, Ziegler acquired a gilsonite processing plant in Provo, Utah, which has since been moved to the Little Bonanza Mine. From the Utah Gilsonite Company, he purchased the Little Black Diamond Mine on the Duchesne Vein; but no attempts have been

made to reopen this mine. It should be noted that the Castle Peak and Little Black Diamond Mines were acquired and are owned by Gordon S. Ziegler himself.

To the east of these claims and on the former Uncompahgre Indian Reservation, Ziegler, in association with Oren G. Clement, Donald C. Nelson, and John M. Godina, purchased gilsonite claims which are more pertinent to this chapter. From the Utah Gilsonite Company, they acquired the Harrison Mine on the Harrison Vein and the Little Emma Mine on the Uintah Vein. From the American Asphalt Association, they purchased the Little Bonanza Mine on the Little Bonanza Vein, the Independence Mine on the Big Bonanza Vein, and the Warner-Quinlan Mine on the Cowboy Vein; and this they did before the Utah Gilsonite Company and the American Asphalt Association were dissolved in 1952 and 1953 respectively.

The Harrison Mine, like the Little Black Diamond Mine, has not been operated by Ziegler and his associates; but the Little Emma, Little Bonanza, Independence, Warner-Quinlan, and Castle Peak Mines are producing ore, most of which is hauled by company owned trucks to Little Bonanza's processing plant where the gilsonite is cleaned, sized, and bagged. Directly from the mines in burlap bags or from the Bonanza plant in paper or val-pak bags, the ore, whether processed or unprocessed, is usually shipped by the company's own twenty-ton diesel trailers to the D&RGW Railroad at Craig. The ore is, however, sometimes hauled by the trucks all the way back to the company's

New Jersey plant.

The methods of mining in all of these mines is very similar. Air-driven chipping machines are used to cut the ore loose, the old methods of shafts, drifts, and timbering are still used. At the Little Bonanza, the ore is brought to the top in a bucket where it is dumped into ore bins from which it is taken into the processing plant. At the Warner-Quinlan and the Little Emma, the gilsonite is hoisted in burlap sacks in which it is then taken to Little Bonanza for processing and re-bagging. From the other mines of the company, ore is usually hoisted in buckets and hauled in bulk to the Little Bonanza plant.

Ziegler has a big manufacturing plant in New Market, New Jersey, where gilsonite is blended with waxes and pitches into many compounds. One unique product sold by the Ziegler Company is a lining for beer aging vats which is constructed from specially prepared gilsonite mats. These mats are melted together when once inside the vats, providing a seamless lining which is non-toxic, odorless, and tasteless. The linings are superior to glass linings which have seams and which must be set up in cement tanks. One of the plants successfully using these gilsonite-lined vats is the Coors plant in Denver, Colorado. Evidently, Adolphus Busch was attempting a similar use for gilsonite back in 1888 when the flaking gilsonite ruined his beer and his desire to research further.

Another product sold by the Ziegler company is Tri-sulate

which is pure, crushed gilsonite blended to give the desired melting point, which is used for hot-pipe insulation. Tri-sulate, like Gilsulate of the American Gilsonite Company, is only crushed gilsonite; but since the latter company secured a patent on Gilsulate, the Ziegler company pays a royalty on all their ore used as Tri-sulate. All of Ziegler's gilsonite products are made available in Japan, Europe, and Scandinavia as well as in the United States.

L. A. Wilson was formerly superintendent of the Little Bonanza and neighboring mines, while William F. Beer was superintendent of the Castle Peak Mine for the Ziegler company; but just recently, Wilson was placed in charge of all the mining operations, including the Castle Peak Mine; and Beer was promoted to an untitled position of roving supervisor.

At least one fatal accident is noted in the mines operated by the Ziegler company. Morris Durfee, of Vernal, was killed in the Little Bonanza Mine in 1954⁴¹ when he apparently stepped backwards into a shaft, falling about 190 feet. Lloyd Goodrich, a fellow miner, had been talking to Durfee about fifteen minutes before Durfee was discovered to be silent and missing. He probably died instantly from head injuries, and his body was recovered from seventeen feet of water at the bottom of the shaft.

⁴¹Salt Lake Tribune, April 3, 1954, p. A10.

V. MISCELLANEOUS OPERATIONS

C. J. Neal of Vernal, who had, as described in Chapter III above, acquired the Little Black Diamond Mine, which he subsequently sold to the Utah Gilsonite Company, and who had worked in several gilsonite mines and for several companies and who had become heavily involved in oil interests near Vernal, began in 1942 to buy "for taxes" gilsonite properties south of the White River on the once famous Black Dragon and Rainbow Veins. After having secured a number of claims by this means and acquiring a quit-claim deed to the properties from the Barber Corporation, through his agent Thomas Davis, he proceeded to revive mining operations on the veins by the employment of contractors. Between 1947 and 1949, William Beer mined the China Wall and the Black Virgin. For a few years afterward, Mearl Hyer continued operations at the Black Virgin.

The amount of ore mined on these claims under the ownership of C. J. Neal was not phenomenal; but to have acquired, by payment of delinquent taxes, claims from the traditionally shrewd Barber Corporation was certainly a singular achievement as was Neal's subsequent sale of those claims to the Barber Corporation for a price rumored to be about \$275,000. The price indicates the Barber Corporation's genuine desire to regain ownership and raises a question as to why the corporation ever allowed the tax sale in the first place.

Since the federal government opened no new gilsonite

lands for sale on the former Uncompahgre Indian Reservation after 1910, any and all properties mined in addition to those discussed above were so mined under school-lands or Indian-property lease arrangements. There were not a great number of such leases, though in aggregate, a few thousand tons of gilsonite have been mined over the years under school-lands leases by such lessees as: the Prestite Corporation of St. Louis, Thomas Davis, and William F. Beer, Jr. These lease operations took place at Wild Horse Bench, Ant Hill, Turkey Trail, and Willow Creek, all in the area of Ouray; and were, in comparison with other operations on the former Uncompahgre Indian Reservation, of little consequence.

In September of 1958, Standard Gilsonite Company opened a new mine, called the "GK," which is partly on school-lease land and partly on land to which they hope to obtain title. The GK Mine is located about eighteen miles southeast of Ouray on the Willow Creek Road and within the heart of the former Uncompahgre Indian Reservation. The GK Mine employs an average of about twelve men and is producing approximately 500 tons of gilsonite per month. If Standard Gilsonite Company is able to secure title to the GK Mine, then certainly it will be the first real opening of a "new" gilsonite vein since the mineral claims settlement on the Uncompahgre which took place prior to 1910.

CHAPTER VII

TRANSPORTATION: THE KEY TO A PROSPEROUS GILSONITE INDUSTRY

I. NEEDS AND OPTIMISM

In 1906, Utah's Governor Dern in referring to the State's hydrocarbon deposits, which he claimed surpassed "in variety, purity and extent all other recorded occurrences," said further that "transportation facilities alone are lacking to make the deposits a bonanza of wealth. . . ." ¹ In this comparatively modest appraisal of Utah's potential hydrocarbon industry, the point of need for better transportation facilities was well taken and was applicable not only to the State of Utah in general but to the Uinta Basin in particular. No one was so much aware of the need for improved means of transporting mineral products as the residents of the Uinta Basin themselves; and as early as 1895, only seven years after the Gilson Asphaltum Company of Missouri had begun operating the St. Louis Mine, there were many hopeful expressions about a major railroad company constructing a line through the Uinta country. Predictions of soon-to-be-built railroads were almost unfailingly accompanied by predictions of fabulous industrial growth in the Ashley and Uinta Valleys.

The Utah Asphaltum and Varnish Company, which owned

¹Salt Lake Mining Review, VIII, No. 16 (November 30, 1906), p. 22.

extensive asphalt deposits on the ridge southwest of Vernal, claimed that they would, when the railroad arrived, build large paint and varnish factories in Ashley Valley and employ a great number of people. Further, they envisioned the valley becoming "one of the greatest manufacturing centers in the West. Sugar and woolen factories, smelters and quarts [sic] mills would be built, . . ." ² and kept running from the valley's own products.

Later, D. H. Hillman, editor of The Vernal Express, prophesied even a greater future for Ouray situated at the junction of the Green and White Rivers. He was certain that the railroads would come and that the one which got there first would "reap the golden harvest." ³ Ouray was to be the "Pittsburg of the West" with a phenomenal growth like that of Chicago which sprang up from a small swamp-land village. Mr. Hillman enumerated all the tributaries of the major streams converging with the Green River above Ouray and asserted that the country's wealth would flow, as the water of these streams, by force of gravity into Ouray. Among other great developments, Ouray was to be the center of one of the world's greatest oil and hydrocarbon industries, the site of the largest sugar-beet factories in the world, the site of Utah's largest copper plant, and the center of a great potato and apple industry. He saw rising

²"Ashley Valley Asphalt," The Vernal Express, December 26, 1895, p. 3.

³"The Future Pittsburg of the West," The Vernal Express, November 26, 1909, p. 1.

smoke stacks and great tanks of refineries, and ended his statement of faith in Ouray with these unbridled words:

The water runs toward Ouray. The oil dips that way; the saccharine juice will flow Ourayward and the wind is blowing that way. Can't you feel it? We have not selected Ouray as the Pittsburg of the West; nature did that a million years ago. We simply study nature and from the tops of these mountains and along these streams, from the viewpoint wherever one might stand, nature's finger is pointing toward Ouray as the metropolis of the inter-mountain country.⁴

Today Ouray has a population of twenty-eight people; and as one surveys the site of the once foreseen metropolis, he finds only two things as Hillman described them: the water and the wind still move Ourayward. True, there are rich hydrocarbon deposits near Ouray, but these are not flowing toward Ouray.

Many Railroad companies seriously contemplated building a line through the Uinta Basin at one time or another, and some actually made preliminary surveys for their proposed routes. In 1896, Utah Central Railway was talking of an eastern extension which would connect Ashley Valley with the outside world.⁵ During 1907, the talk was all of the Moffat Road; and in 1910, there was excitement about three railway systems racing toward the Uinta Basin. These were purported to be the Burlington; the Union Pacific; and the Laramie, Hahn's Peak and Pacific.⁶

⁴Ibid.

⁵"Uintah Asphalt and Coal," The Vernal Express, January 9, 1896, p. 2.

⁶"They All Want to Get there First," The Vernal Express, December 16, 1910, p. 8.

In 1913, the D&RGW surveyed a line from Meeker, Colorado, down the White River to Dragon, Utah.⁷ In 1916, the D&RGW filed on government lands for a line from Colton Station northward into Vernal;⁸ and the Union Pacific made similar filings to bring in a line from the west.⁹ From 1910 to 1930, the belief remained strong in the Uinta Basin that they would soon be placed on a main line of one of the West's large railway companies. Frequent, almost weekly, reference was made to Uinta's future railroads by The Vernal Express; and sometimes the whole front page would be devoted to the subject, carrying headlines such as "Uintah Basin Railroad No Longer A Myth."¹⁰

In spite of hopeful predictions about railroads, the short-lived Uintah Railway was the only line which ever penetrated the mountainous barriers to the Uinta Basin. In 1904, that line linked with the D&RGW the gilsonite mines of the Gilson Asphaltum Company of New Jersey which mines lay south of the White River. Also, the Uintah Railway's road was narrow gauge; and instead of extending the line northwestward into Vernal as was several times proposed, all of the tracks were pulled up and the company dissolved in 1939.

⁷"Railway Survey Runs to Dragon," The Vernal Express, June 20, 1913, p. 1.

⁸"Railroad for Uintah County," Salt Lake Mining Review, XVII, No. 23 (March 15, 1916), p. 30.

⁹Ibid.

¹⁰The Vernal Express, January 9, 1920, p. 1.

Water offered an even cheaper means of transportation than railroads. Consequently, the remotest possibilities of developing a water freight route out of the Uinta Basin were not overlooked. In 1907 and 1908, sober considerations were made concerning navigation of the Green River which, by way of Desolation Canyon, seemed to provide a natural southward passage to the D&RGW. A steamboat, which was later dismantled and moved to the Great Salt Lake, had made trips up and down the river between Green River City and the D&RGW line;¹¹ but between Green River City and Ouray were eighty threatening rapids, from one hundred to three thousand feet in length. A. McKenzie, Chief Engineer of the United States' War Department, was solicited for a statement on the feasibility of dredging the Green River for a steamboat line, and he replied that the project might be "practical from an engineering and economical standpoint."¹² Engineers of the D&RGW estimated the cost of dredging a path for the proposed steamboat system to be as little as \$100,000.¹³ Even in view of these encouraging reports, nothing was ever done about dredging the muddy Green River. Like the factories of Ouray and the railroad to Vernal, steamboats through Desolation Canyon were consigned to the graveyard of ambitious dreams.

¹¹"Green River," The Vernal Express, July 31, 1908, p. 1.

¹²"Make Green River Navigable," The Vernal Express, December 20, 1907, p. 6.

¹³The Vernal Express, July 31, 1908, p. 1.

II. WAGONS AND WAGON ROADS¹⁴

Until the twentieth century was well underway, horse-drawn wagons traveling over poorly repaired dirt roads provided the means of transporting gilsonite out of the Uinta Basin and freight to merchants within the basin. As explained in Chapter I above, the principal road into the basin, known as Nine Mile Road, ran from Fort Duchesne to Price by way of Minnie Maud Creek, Nine Mile Canyon, and Soldier's Canyon. Over the Park City Road, which ran by way of the Duchesne River, Current Creek, Strawberry River and Daniel's Canyon, very little freight was hauled before 1910. A trail existed between Vernal and Green River City, Wyoming, which was used for a few years to bring in mail and supplies to old Fort Thornburg and Ashley Town; but practically no Uinta Basin freight was ever dispatched or received by way of this road even after many improvements were made. To the east of Vernal, the White River and Dry Rifle Creek were followed into Rifle, Colorado; and while thousands of tons of gilsonite were hauled by this route from the Black Diamond Mine, very little freight was hauled back to the Uinta Basin by these freighters whose major operations were so far to the east of the basin towns.

¹⁴Principal sources of information on wagon transportation were: (1) Albert Rasmussen, personal interview, December, 1952, and (2) Evelyn Richardson, "Lifeline of Uintah Basin," Builders of Uintah, Compiled by Daughters of the Utah Pioneers of Uintah County, Utah (Springville, Utah: Art City Publishing Company), pp. 260-263.

The Raven Mining Company and the people of Theodore (Duchesne) built a road through Indian Canyon into Helper, almost paralleling the Fort Duchesne road into Price; but it is only fair to reiterate that for many years the Uinta Basin's lifeline was the Vernal-Fort Duchesne-Price road through Nine Mile Canyon which carried four times as much traffic as any other road.¹⁵

There were hundreds of men who freighted along these early roads, usually during slack periods of work on their farms. Some, however, devoted most of their time to the pursuit of freighting; and to those pioneers of transportation a salute is given here. Some of those hardy freighters who persevered through rain, snow, mud, and freezing temperatures were Joseph Abplanalp, Martin Allred, Joseph Bateman, John Chivers, E. S. Defreze, Enos Gurr, Alonzo and Oliver Haws, Joseph Herbert, Charles and John Holmes, Maroni Mecham, Myron Mott, James Parker, Lewis Pearson, Robert Pope, Albert Rasmussen, Thomas Sabey, Edwin Wardle, and Lafe Woods.

Most freight outfits were made up of two tarpaulin-covered wagons, one trailing, pulled by a six-horse team hitched up by two in tandem. Sometimes on lighter loads four-horse teams were used, but even then the load was divided between two wagons. The lead wagon, which carried part of the load, usually had three beds and the trail wagon too. A good wagon

¹⁵"The Road from Price to Fort Duchesne," The Vernal Express, February 13, 1896, p. 3.

outfit would transport three to six tons depending on road conditions and the size of the team.

Each freighter carried with him grain and hay for the horses and a box of "grub" for himself. For the horses and driver, water was also hauled--a twenty gallon barrel attached to each wagon or a fifty gallon barrel on the lead wagon. Other necessary equipment was an extra tow chain, a wagon jack, a can of axle grease, a shovel, pick, ax, and a bed roll wrapped up in a tarpaulin. Equipped in this manner, the freighter would camp almost anyplace night caught him, though about every eighteen or twenty miles along the Vernal-Price road there were permanent facilities for watering the horses and camping: Half Way Hollow, Duchesne Bridge (Myton), The Wells, Nine Mile, etc. The water at The Wells was, however, so brackish that it often made both men and horses ill. A round trip from Vernal to Price consumed from two to three weeks time; and at a one-way rate of from 75 cents to \$1.25 per hundred pounds, the freighter--furnishing his own animals, equipments and supplies--probably grossed on a round trip haul from \$50 to \$150, considering portions of the trip the outfit would sometimes travel without a paying load. If traveling either way without a load, the freighter would haul feed to be used by his horses on the return trip and would cache it at strategic points enroute. By this stratagem, a larger pay-load could be hauled when back-tracking along the road.

Albert Rasmussen, who spent a great many years at wagon

freighting, said¹⁶ that with a very few exceptions freighters never carried guns with them and that they never had any trouble with the Indians. He avowed that Indians were better neighbors to freighters than the Whites and that no Indians and very few freighters ever stole hay or supplies placed along the route for a return run. For the most part, freighters were an honest, co-operative group, often traveling in pairs helping each other whenever difficulty arose.¹⁷ The natural obstacles of rivers, mountains, defective equipment, and temperamental horses were enough for the freighter to contend with. Contention among the freighters would have been intolerable.

Water, mud, and snow were perhaps the three greatest enemies of the man with a wagon. A well-built dirt road would be made impassable by a rainstorm, terminated at a river crossing by a swollen stream, and completely buried by deep snow in the mountain passes. There were many weeks during most winters in which the roads to Price and Park City were blocked by snow, though serious effort was made to keep them open. When a blockade was broken, there was always cause for jubilation as when the Roosevelt Mercantile Company announced the arrival of several loads of freight following a number of days without flour or cereal in town.¹⁸ Once a whole Price-bound train of

¹⁶Statement by Albert Rasmussen, personal interview, December, 1952.

¹⁷Evelyn Richardson, *op. cit.*, p. 261.

¹⁸"Roosevelt Rumors," *The Vernal Express*, April 6, 1907, p. 1.

freight wagons hauling gilsonite were forced by a heavy snow-storm to dump their entire cargo by the roadside south of Myton until the road was again opened.¹⁹ On a previous occasion, the Raven Mining Company, which had taken a shipment of elaterite through Indian Canyon to Colton Station, found that their horses were trapped on the Colton side of the mountains by a snowstorm; and the company was actually considering the advisability of returning Al Murdock's horses by rail to Heber City and then into Uinta Valley by way of Daniel's Canyon.²⁰ Snowslides were always a hazard in Indian Canyon, burying for the winter wagons, automobiles, and trucks. In 1926, a slide buried seven trucks, one of which was never recovered.²¹ Sometimes traffic continued right over the top of buried vehicles so determined were the efforts of Duchesne's residents to keep the line open.

During warm months of the year, rain meant rising rivers and mud on roads; and with winter moisture in the ground, a thaw was feared as much as rain. Fred Ferron expressed this fear when he hired thirteen teams to hastily transport the Raven Mining Company's mined elaterite to Soldier's Summit Station "before the frost is out of the ground."²² Ferron's haste

¹⁹The Vernal Express, March 16, 1907, p. 2.

²⁰"Local and Personal," The Vernal Express, January 26, 1907, p. 3.

²¹Daughters of the Utah Pioneers of Uintah County, Builders of Uintah (Springville, Utah: Art City Publishing Company, 1947), p. 275.

²²"Theodore Thrums," The Vernal Express, March 9, 1907, p. 2.

was not unwarranted, for a month later hauling could only be done after two o'clock in the morning and then only for the few hours that the ground remained frozen.²³ Following the mud, came hard, deep ruts. Maintaining dirt roads was a never-ending job; and since little money was expended for their upkeep, they were generally in an unbelievably poor condition. The mining companies, the military post of Fort Duchesne, and the County Road Commissioner each waited for the other two parties to furnish the labor and equipment and initiative to accomplish the needed repairs and improvements. In the main, gilsonite and elaterite companies contributed as much to the growth of a satisfactory system of roads in the Uinta Basin as did any other interests.

Roads got so bad at times that the cost of getting gilsonite and elaterite to a D&RGW station, due to increased freight rates, was higher than the market price in Chicago.²⁴ The old wagon road through Nine Mile to Price was supposed to be maintained by the County, but the United States Government actually did most of the repair work on the road which was used as Fort Duchesne's supply line. When the fort contracted with the Uintah Railway for supplies through Dragon, the Nine Mile Road became "almost impassable to freighters."²⁵ There is little

²³Theodore Thrums," The Vernal Express, April 20, 1907, p. 1.

²⁴Ibid., March 23, 1907, p. 2.

²⁵"Gilsonite and Coal in Uintah County," Salt Lake Mining Review, IX, No. 23 (March 15, 1908), p. 17.

wonder that the County's purchase of any new road equipment should be an important item of news. When it expended \$318 for a road grader weighing two and a half tons and requiring an eight-horse team for operation,²⁶ there was some concern expressed about the size of the expenditure; but most attention was given to the many ruts and ridges which would disappear more frequently from the county roads.

The rivers in the Uinta Basin presented special problems in transportation. During the spring thaw or extended periods of rain, fords were unusable and bridges and ferries were threatened with destruction. Travelers and freighters crossed most streams by fording, and accounts of delays and detours were frequently made during high water seasons.²⁷ By 1911, bridges had been built across the Duchesne River at Duchesne and Myton, across the Uintah at Fort Duchesne, across the White south of Bonanza and near Ouray, and across the Green at Jensen.

At the time the Jensen bridge was constructed, in 1911, four ferries were operating successfully across the Green River. First, in 1897, Lars Jensen built the "Mau-be" Ferry a few miles up the river from Jensen.²⁸ This ferry was destroyed by

²⁶"Road Grader Ordered," The Vernal Express, June 21, 1907, p. 1.

²⁷For example: The Vernal Express, July 21, 1906, p. 1; and June 8, 1907, p. 1.

²⁸Ibid., March 4, 1897, p. 4.

an ice jam in 1908, but was replaced by a new ferry in that same year.²⁹ William Cook says³⁰ that this ferry boat got its name from an incident which occurred there soon after it was built. A "bunch of toughs" from Colorado came to the ferry, pointed a gun at Lars Jensen and said they'd "shoot him up" unless he took them across the river. Jensen answered, "Mau-be you will and mau-be you won't." The toughs left, but both Lars Jensen and his ferry were known thereafter as "Mau-be." Secondly, there was the Jensen Ferry built near the town of Jensen by Jens Jensen in 1907.³¹ Thirdly, ten or twelve miles below Jensen was the Alhandra Ferry built by the Uintah Toll Road Company, subsidiary of the Uintah Railway Company, to provide a more direct route from Dragon to Vernal. Fourthly, there was the Ouray Ferry built also by the Uintah Toll Road Company, as a connecting link in the road from Dragon to Fort Duchesne.

Even with these key ferries and bridges, a year-round transportation system within the Uinta Basin was not secured. Longer bridges of steel and macadamized or hard-surfaced roads were needed. Bridges and ferries were crushed by ice and raging waters, but they were rebuilt with speed and newly calculated strength. Under the best of conditions, ferries were inoperative during the winter months. Since the rivers froze

²⁹"Jensen Jottings," The Vernal Express, June 26, 1908, p. 4.

³⁰Statement by William Cook, personal interview, August, 1958.

³¹The Vernal Express, May 11, 1907, p. 4.

over, wagons and stages crossed on the ice. Early winter and spring were the most miserable seasons since ice too thin to support wagons would, nevertheless, prevent the operation of ferries. No one was more anxious than the gilsonite companies to see bridges, ferries, and roads quickly repaired when damaged. When the Fort Duchesne bridge across the Uinta River washed out by a flood in 1906, David Wood, Assistant General Manager of the Uintah Railway Company--Sister company of the Gilson Asphaltum Company of New Jersey--offered the services of Joe Goff, the company's noted engineer, and all the necessary labor to rebuild the bridge if the County would build the abutments and approaches and furnish the materials for the bridge.³² Wood's offer was accepted by the County Commissioners, and the bridge was soon rebuilt. In the process, the subsidiaries of the General Asphalt Company had shown their extreme interest in a good road network, and this in spite of the fact that their St. Louis Mine near the bridge had been closed down for more than a year.

III. THE UINTAH RAILWAY

In keeping with their comprehensive plans for developing the vast gilsonite deposits on the former Uncompahgre Indian Reservation, the General Asphalt Company, frequently referred

³²"Fort Duchesne Bridge," The Vernal Express, July 21, 1906, p. 1.

to as the "Barber Asphalt Company," began a survey in the spring of 1903, for a narrow-gauge railway line which would reach from a point just west of Crevasse Station on the D&RGW Railroad into the gilsonite country. The survey was followed by a wagon road which was soon transformed into a track bed. By the fall of 1903, it was determined that a railroad could be successfully established and operated along the survey line which took a tortuous course over the Book Cliffs, stretching 54.64 miles from Mack, Colorado, to Dragon, Utah. A corporation, known as the "Uintah Railway Company," was formed on November 4, 1903,³³ to construct and operate the fabulous railroad then in the initial stages of construction.

The Uintah Railway Company was incorporated in the State of Colorado by five men who were designated as directors and who ostensibly were residents of Denver. Among the five, however, was C. O. Baxter who had always maintained a home in St. Louis and who had been employed by the Gilson Asphaltum Company of Missouri and the company to which it sold its properties-- the Gilson Asphaltum Company of New Jersey, a subsidiary of the General Asphalt Company. Of the capital stock amounting to \$1,750,000, only qualifying shares went to the directors, all others to the General Asphalt Company (Barber Asphalt Company),³⁴ sometimes referred to as "The Trust." By 1906, the

³³"Uintah Railway Company," Corporation Files, Office of Utah Secretary of State.

³⁴John Moody, "The Uintah Railway," Moody's Industrials, 1928, p. 1282.

Uintah Railway Company had a subsidiary of its own: the Uintah Toll Road Company. There was not only an overlapping in the ownership of the General Asphalt Company's subsidiaries but in their management as well. At one time Arthur W. Sewall was president of the Uintah Railway Company, Gilson Asphaltum Company, and Uintah Toll Road Company; and E. Robert Riter was secretary for the same companies and for the General Asphalt Company as well.³⁵ M. W. Cooley and John McAndrews were for many years general manager and superintendent, respectively, of both the Uintah Railway Company and the Uintah Toll Road Company; and the list of examples could be extended appreciably.

The Uintah Railway Company purchased their rails, some ties, and their initial rolling stock from an abandoned branch line of the D&RGW, and this they did by arrangement with the latter company's Division Manager, Frank Baxter, who was a brother of C. O. Baxter, a director in the purchasing company. The trackage and equipment were obtained at a reasonable price; but nevertheless, the cost of constructing and equipping the line into Dragon was \$32,028 per mile³⁶ or approximately \$1,750,000 over all. The cost of this line has been placed as low as \$175,000³⁷ which was probably an error caused by accidentally

³⁵See appropriate files, Corporation Files, Office of Utah Secretary of State.

³⁶"The Uintah Railway Company," Statistics of Railways in the United States; 24th Annual Report of the Interstate Commerce Commission, (1911).

³⁷Herbert Kretchman, The Story of Gilsonite (Salt Lake City: American Gilsonite Company, 1957), p. 40.

dropping a zero.

To understand why this railroad was expensive to build as well as to operate, one needs only to travel over its remaining track bed which is used as an unimproved truck and automobile road today. There are sixty-five degree curves and long stretches of grade above five per cent, running seven and a half per cent for five uninterrupted miles on the south side of Baxter Pass.³⁸ Before there was a general straightening of the line to accommodate big Mallet engines in 1926, there were some seventy-six degree curves. Even the improved line, in one place, took twenty-four miles of track to reach a point six direct-miles in distance;³⁹ and in a rail distance of six miles on the southern slope the railroad climbed 2,000 feet in elevation. The indomitable directors of the Uintah Railway Company refused to believe that the precipitous southern front of the towering Book Cliffs was an impenetrable barrier to a railroad. While many railroad builders were shaking their heads with disapproval or disbelief, the Uintah people surveyed, constructed, and operated this unique and rather obscure railroad; and this, too, at a time when the Salt Lake and Mercur Railroad received notoriety for its steepest grades of four and a half per cent, its tightest curves of forty-two degrees and its winding ten-mile path from Fairfield to Mercur which lay seven air-line

³⁸"Railroading in the Mountains," The Vernal Express, December 20, 1907, p. 8.

³⁹The Vernal Express, June 15, 1928, p. 1.

miles apart.⁴⁰

In the spring of 1903, William A. Banks, with the railroad surveyors, directed by Frank Baxter, drove the first stake on top of 8,437-foot Baxter Pass,⁴¹ named in honor of Frank Baxter, and viewed the abrupt fall of 4,000 feet to the arid, broken wastelands which stretched across the distance to the D&RGW's line at Mack, Colorado. Within eighteen months the Uintah Railroad was to be a noisy, successful reality, a thing probably difficult to envisage atop the Book Cliff wilderness in 1903.

Construction engineer Watson⁴² argued with the railroad company directors for a tunnel through the Book Cliffs which would provide a line with no sharp curves or steep grades; but after consideration, the directors ordered a track to be laid over the top of the mountain barrier.⁴³ With the decision made, dynamite, shovels, scrapers, axes, saws, and pile drivers were immediately put to work. The road grading was contracted out to Strauss and Storrs of Springville, Utah; and several large crews began tearing out a narrow path up both the north and south sides of the mountain range. The principal tool of these

⁴⁰Salt Lake Mining Review, I, No. 18 (December 30, 1898), p. 5.

⁴¹Statement by William A. Banks, personal interview, June, 1951.

⁴²Watson's first name is unknown. The town of Watson was named for him, however.

⁴³Statement by William Cook, personal interview, August, 1958.

crews was the horse-drawn scraper.

Several bridge building crews, under the supervision of a Mr. Lawrence and Hyrum Sutton,⁴⁴ were employed to construct the numerous wooden bridges required in a country with such an irregular topographical profile. Thirty-six bridges were required between Mack and Atchee, a distance of about twenty-eight miles. For driving bridge piling, a half-ton hammer was used. The hammer was raised between guide rails to a height of twenty-three feet by a team of horses which drew a cable through a system of pulleys; and at the top of the guides, the hammer was tripped, allowing it to fall freely upon the pile. A saw mill was established on the north slope of Baxter Pass, and from this spruce and pine mill came the green timber for the trusswork and stringers of all the bridges and the ties for most of the line.

Track crews were last employed; but as bridge and grade crews neared the completion of their work, the ties and rails were quickly laid into place. The line was a three-foot gauge with the rails weighing sixty pounds to the linear yard.⁴⁵ The track was completed in September of 1904; and the next month, the first engine, a Baldwin, pulled into Dragon, having traversed the entire line from Mack. A mile-long spur had been

⁴⁴Statement by William Cook, personal interview, August, 1958. Cook worked as a carpenter on the crews which built the bridges for both the Uintah Railway Company and the Uintah Toll Road Company.

⁴⁵W. L. Rader, "The Uintah Railway," The Colorado Magazine, XII, No. 3 (May, 1935), p. 100.

run from Dragon southwestward, up Dragon Canyon, to Dragon Camp and the Black Dragon Mine. Ore, which had been stockpiled, was soon being speeded on flat cars and in coal cars to the main line of the D&RGW.

To supply the water for operating the railroad, a reservoir was constructed by means of an earth dam which was located five miles down the north slope from Baxter Pass. This artificial lake--Lake McAndrews--was named after the Uintah Railway Company's superintendent, John McAndrews. A water storage tank with spout for filling engine boilers was erected at a siding known as Wendella below Lake McAndrews, and south-bound trains stopped there for water before beginning the ascent to Baxter Pass, up an unrelenting five per cent grade. Culinary water for use along the line was obtained from springs at Columbine which was also on the north slope but very near the summit. There was a flat, green meadow at Columbine which became a choice location for picnics and celebrations.

Coal used in offices, shops, and the ever-consuming engines was obtained from the Gilson Asphaltum Company's own 480-acre tract of coal land in Garfield County, Colorado,⁴⁶ called "Carbonera." The mine was located in a six-foot vein of high-grade bituminous coal.

On the south side and at the foot of the Book Cliffs the maintenance shops and round house were located at a place

⁴⁶Moody, op. cit.

they named "Atchee" to honor the Ute Chief by that name. Atchee was the major station between Mack and Dragon. Also, there were sidings at Shale, near the top of the southern slope; at Baxter, right on the top of Baxter Pass; at Sewall, north of Wendella; and at Urado, between Sewall and Dragon and right on the Utah-Colorado line. Traveling from Dragon to Mack, then, the major sidings or stations were Urado, Sewall, Wendella, Columbine, Baxter, Shale, Atchee and then a rather straight twenty-eight mile stretch into Mack.

For the convenience and comfort of their patrons, the Uintah Railway Company constructed twenty-room hotels both at Mack and at Dragon.

Harmonizing with the country in which they are placed, they are in what might be termed the Adobeque Renaissance style of architecture, with walls of concrete. The lounging rooms and parlors are equipped with current magazines and daily papers, the dining rooms are most inviting and the bedrooms models of cleanliness and comfort. Lighted by gas, heated by steam, with the necessary luxuries of the tub and shower baths and with most excellent cuisine, there is abundant invitation to both traveler and tourist to not only come, but linger.⁴⁷

The region about Mack is barren and uninviting, but the grounds around the hotel built here by the Uintah Railway form an oasis in the desert. This quaint bungalow is embowered in trees, and on a hot day it makes an inviting resting place for those who have been exposed to the scorching sun or who are changing from one road to another.⁴⁸

⁴⁷"Railroading in the Mountains," The Vernal Express, December 20, 1907, p. 8.

⁴⁸Marius R. Campbell, Guidebook of the Western United States, Part E, The Denver and Rio Grande Western Route U. S. Geological Survey Bulletin 707 (Washington: Government Printing Office, 1922), p. 190.

By the end of 1905, a year after the Uintah Railway was completed, wagon roads had been constructed to Vernal and Fort Duchesne from Dragon; and over these roads, the company operated stage and freight lines which made connection with the Dragon railhead on routine schedules. Also, a mail and parcel post contract was secured for Vernal and most towns on the former Uintah Indian Reservation. So, the railroad was not only carrying gilsonite out of Dragon, but it was also hauling passengers, freight, and mail to and from the Ashley and Uinta Valleys.

In 1911, the company extended its railroad ten and a half miles to the northwest where the new terminal town of Watson sprang up and from which a railway spur was run three miles southward to the Rainbow Mine and then westward a half mile to the China Wall Mine. There had been rumors that the company would extend the railroad northward across the White River to the Bonanza Mine. In fact, Mr. Longacre's survey party made a survey for a line clear into Vernal and excited Vernal people with descriptions of the future railway bridge across the White River which, with a single span, would reach 900 feet from cliff to cliff and would stand 480 feet above the water.⁴⁹ The residents of Myton were also guessing that a branch of the Uintah Railway would reach their town when C. O. Baxter and John McAndrews began "looking over the prospects" in that town,⁵⁰

⁴⁹"On To Vernal," The Vernal Express, September 25, 1908, p. 1.

⁵⁰"Myton News," The Vernal Express, March 3, 1906, p. 1.

and Dan H. Hillman, editor of The Vernal Express, ventured a guess that the Moffat Road would not be the first railroad across the Uintah Reservation,⁵¹ a prediction that was safe enough since no railroad ever crossed that reservation. In 1912, when the decision was made to concentrate the Gilson Asphaltum Company's efforts at the Rainbow Mine, mining at the Bonanza Mine was discontinued and no extension of the railroad was in sight. Talk of extension was revived from time to time⁵² and hit a new high when new engines were purchased in 1926 and when the gilsonite mining was shifted from the Rainbow to the Bonanza Mine in 1935; but nothing ever came of the talk. The Uintah Railroad was never extended beyond Watson and Rainbow, though track additions were made to switching yards, and sidings were added at the mouth of Country Boy and Rector Canyons to provide for loading ore from the mines at the head of those canyons.

To handle their brisk trade in 1912, the company operated eleven single-expansion engines, twenty-seven flat cars, twenty-four coal cars, eighteen boxcars, ten stock cars, five tank cars, two first-class coaches, and two sleeping cars.⁵³ Three motor service cars, which looked very much like overgrown

⁵¹The Vernal Express, February 24, 1906, p. 2.

⁵²Ibid., February 11, 1921, p. 1, and June 15, 1928, p. 1.

⁵³"The Uintah Railway Company," Statistics of Railways in the United States; 25th Annual Report of the Interstate Commerce Commission, (1912).

automobiles on railroad wheels, were added to the company's railway fleet in 1915. Other cars were added to the rolling stock as necessity required, but the number of cars in the various categories changed little over the years. The cars ranged in capacity from fifteen to twenty-five tons, flat cars capable of the heaviest loads.

Most of the early engines operated on the line were Shays, though there were two Baldwins and other engines in service. In 1926, the Uintah Railway Company acquired an engine which was reported as capable of doing the work of three Shay engines.⁵⁴ The new narrow-gauge monster was a Mallet specially built by the Baldwin Company. Baldwin engineers had been taken over the line from Mack to Watson by L. C. Sprague, general manager of the Uintah Railway Company, to determine first hand the type of engine needed. The Baldwin-Mallet was supposed to be the largest engine built for narrow-gauge roads; and it was for this engine that the curves on the line had to be reduced to sixty-five degrees or less. These new Baldwin-Mallet locomotives were of the 2-6-6-2 type, and each developed a tractive force of 42,100 pounds.⁵⁵

Before the Baldwin-Mallet engine arrived, Shay engines pulled most of the freight and a small Mallet toiled with a single passenger coach over the rugged Book Cliffs. While most

⁵⁴The Vernal Express, August 27, 1926, p. 1.

⁵⁵Rader, op. cit.

of the ore-carrying flat cars were of twenty ton capacity or better, the average amount of freight hauled per car was about ten tons.⁵⁶ Further, the average number of loaded cars per train mile was five. It is true that an average of two or three empty cars were pulled with each freight train, but the steep grades and sharp curves on both slopes from Baxter Pass prevented the employment of long trains. Even with a short freight train of seven cars, and a sixty-ton pay load, two and sometimes three engines were employed to make the tortuous pull up the ascending grade and to brake the load down the descending grade, grades that were so steep prodders had to be employed when shipping sheep to prevent the animals from crowding to the lower end of the car and crushing one another to death.⁵⁷ So, while the construction engineers proved it possible to operate a railroad over the Book Cliffs, they never proved it could be easy. W. L. Rader, general manager of the Uintah Railroad in 1935, said that "representatives of the Interstate Commerce Commission, who visited the property in July, 1924, pronounced it the most difficult operating proposition they had ever seen."⁵⁸

⁵⁶"The Uintah Railway Company," Statistics of Railways in the United States, 25th Annual Report of the Interstate Commerce Commission (1912).

⁵⁷Burt B. Brewster, "Gilsonite Mining Goes Modern," Mining and Contracting Review, XLVII, No. 5 (March 15, 1945), p. 6.

⁵⁸Rader, op. cit.

It is little wonder that rates were high on this railroad, perhaps too high. The company had expended about \$1,750,000 in building and initiating operations on the railroad and paralleling it with a telephone and telegraph line between Mack and Dragon and another \$50,000 for an extension of the system to Watson. The company wished for a steady and rapid recovery of the investment. In 1908, freight charges from Dragon to New York City were \$22.35 per ton, of which \$10 was for the haul from Dragon to Mack.⁵⁹ A one-way passenger ticket for the trip between Mack and Dragon cost \$6.50. The passenger fare and the freight charge from Dragon to Vernal were identical to the charges from Mack to Dragon, making a cost, from Mack to Vernal, of \$20 for a ton of freight and \$13 for a single passenger. These rates do not appear quite so excessive when compared with rates previously charged on the wagon and stage line from Price to Vernal, by way of Nine Mile Canyon, in 1896. Passenger fare from Price to Vernal was \$10 and an arduous two or three days of travel over rough roads. Express charges were three and a half cents per pound or about \$70 per ton.⁶⁰ Freight wagons over the same 120-mile road were about \$20 per ton.

The Uintah Railway Company and subsidiary stage and

⁵⁹"Gilsonite and Coal in Uinta County," Salt Lake Mining Review, IX, No. 23 (March 15, 1908), p. 17.

⁶⁰The Vernal Express, June 11, 1896, p. 1.

freight lines practically superseded the Price-Vernal route,⁶¹ and this in spite of high rates. In 1907, as thoroughly explained in Chapter V above, the freight rates from Dragon were reduced to \$8 per ton for the American Asphalt Association which had secured a hearing in Denver with the Interstate Commerce Commission.⁶² A similar demand for reduction of gilsonite freight charges was made by the Utah Gilsonite Company in 1924.⁶³

The Uintah Railway directors were plagued far less by suits of competitor companies than by rain or snowstorms. Rain acted like grease on the tracks of the steep grades, creating flash floods in that highly eroded country, weakening bridge trusswork and pilings and sometimes washing out bridges altogether. William Cook recalls an incident⁶⁴ more comic than tragic which occurred in about 1909 and which illustrates the hazards of a rainstorm. The people of Dragon had taken their children to Columbine, near Baxter Pass, to celebrate the 24th of July. The "big doings" were interrupted by a rain and hail storm, so the women and children were loaded into a single railway coach and dispatched for Dragon under the power of a small Baldwin engine. When the train came to the "S" turn

⁶¹Ibid., January 12, 1907, p. 1.

⁶²"Kick on Freight Rates," The Vernal Express, November 15, 1907, p. 1.

⁶³The Vernal Express, May 16, 1924, p. 1.

⁶⁴Statement by William Cook, personal interview, August, 1958.

near Lake McAndrews, it jumped the track and went nose down into the creek. The coach stood on top of the engine; women fainted; and apart from the shock of the wreck, serious injury could have been caused by the coach's coal stove which had a live fire. As it turned out, no one was more than slightly injured. In a short time a rescue party brought another train--an engine, boxcar, and caboose--out from Dragon. William Cook climbed atop the wrecked coach and jerked a window open, through which his wife handed out the children. Then the women climbed out and all were loaded in a boxcar. The rescue train itself jumped the track just below Wendella and tipped on its side against the bank. Finally, the boxcar was righted and all passengers were hauled safely into Dragon after a very exciting afternoon. It was a celebration long to be remembered.

On another festive occasion, the families of W. A. Banks, B. Thompson, and E. E. Heaton loaded their ice cream freezers and lunch baskets into a "go devil," a motorcar on railroad wheels, and left Watson for a picnic at Lake McAndrews. Again, it began to rain; and in one place, a hundred feet of track had been washed out by a sudden flood. When the motorcar came to the gaping hole in the tracks, it somehow caught on the edge instead of plunging into the stream. One woman caught her six-months old baby by one foot as it was thrown towards the torrent. Banks received some bruises, but all got home safely.⁶⁵

⁶⁵"Watson People Have a Narrow Escape," The Vernal Express, August 18, 1916, p. 1.

Each engine carried sand boxes with releasing controls in the cab. The engineer could release a small stream just ahead of the drivers to provide traction when the tracks were made slippery by rain or snow. It took some time to learn conservative habits with the sand. Some inexperienced engineers used all their sand before reaching the steepest grades and runaway trains were not unusual between Baxter Pass and Atchee or between the pass and Wendella.

Bridges were often washed out by the floods following rainstorms. In August of 1909, a heavy rainstorm caused sufficient damage to the railroad bridge near Davis Spring to render it impassable, and the train was held up several days while the bridge was being repaired.⁶⁶ The same storm washed several of the toll-road bridges completely out. In October of 1911, M. Kipros, employee of the Uintah Railway, was killed when a bridge, damaged by a similar storm, collapsed under the weight of an engine, the engine falling upon Kipros.⁶⁷ George N. Kipros, administrator for the estate of M. Kipros, sued the Uintah Railway for damages and obtained \$3,467, approximately one-third the sum obtained from W. D. Halpin, an auditor for the Uintah Railway, when he was sued by W. A. Robertson for having alienated the affections of the latter's wife. Also the

⁶⁶"Dragon Items," The Vernal Express, August 20, 1909, p. 2.

⁶⁷The Vernal Express, September 12, 1913, p. 1, and September 19, 1913, p. 1.

amount awarded to George N. Kipros was little more than half that awarded to W. H. Holman who lost the sight of his left eye from a metal splinter which struck him as he was repairing an engine boiler at the Atchee roundhouse.⁶⁸ One thing became clear as time went on: suits against the General Asphalt Company's subsidiaries were extremely difficult to win, especially when a case depended upon the establishment of the company's negligence.

Engineer George Lyman was involved in three serious accidents, meeting his death in the third. Rain was responsible for the first, steep grades for the second, and a combination of snow and steep grades the third. In about 1905, a bridge between Mack and Atchee caved in, dumping the engine in the creek. Lyman was pinned under the overturned engine and would have drowned had it not been for a Greek employee on the train who held Lyman's head out of the water until help came more than three hours later. Lyman was finally rescued from his frightening predicament with only a few burns as injuries.⁶⁹ His second accident occurred in September of 1918 when taking a mixed freight and passenger train down the seven and a half per cent grade from Baxter to Atchee. The engine could not hold back the load, and the train began running out of control.⁷⁰

⁶⁸Ibid., September 12, 1919, p. 1.

⁶⁹Statement by William Cook, personal interview, August, 1958.

⁷⁰The Vernal Express, September 13, 1918, p. 1.

The fireman, Roy Eno, anticipating a death ride, jumped from the train, receiving only slight injuries. All others stayed with the train which itself jumped the track on a sharp curve and rolled only a short distance. P. J. Fitzpatrick, the conductor, was killed; George Lyman was severely injured; and the passengers, while psychologically and physically shaken, experienced no critical injuries. The third and last of Lyman's accidents occurred in January of 1923 on that same slope which was at the time covered with snow. Again, the train ran away and jumped the track. This time the engineer, Mr. Griffiths, was badly scalded; and George Lyman, who had been promoted to road inspector, was killed.⁷¹

Land slides caused by rain and melting snow were more than disruptive to freight and passenger service; they were expensive and hazardous. These slides occurred both on the north and south slopes of the Book Cliffs, but more frequently on the south. One such slide in June of 1929 cut off railway service for nearly two months. Wool, freight, and gilsonite were shipped out of the Uinta Basin by trucks to Craig, Colorado;⁷² and freight was brought in from that same station. Gigantic equipment was put to work on the railroad to "remove a mountainside,"⁷³ and service was resumed after a considerable

⁷¹"Serious Accident on Uintah," The Vernal Express, January 5, 1923, p. 1.

⁷²"Blockade to Bring Freight Via Craig," The Vernal Express, June 6, 1929, p. 1.

⁷³The Vernal Express, June 20, 1929, p. 1.

loss in freight and passenger charges.

There were many accidents which had nothing to do with the weather. James E. Hood, manager of the Uintah Railway, died after having a leg crushed under an overturned car only five miles out of Mack.⁷⁴ A couple of cars loaded with gilsonite got loose at the Black Dragon Mine and headed for Dragon, "but in their hurry got off the track and blocked the road" so that the water car could not reach the camp one Sunday. It was "a dry Sunday in Camp but it was wet at the Junction."⁷⁵ While loading gilsonite, John Caldwell fell off a car and critically injured his right shoulder.⁷⁶ In widening the road bed and reducing the sharpness of the curves on the main line in 1926, a large steam shovel was employed and was transported on a flat car. George Winder was crushed to death by this shovel when the fireman and engineer, who were oiling the shovel, accidentally pulled the lever to drop the shovel just as Winder, a mechanic, was walking beneath it.⁷⁷

The biggest source of administrative headaches, accidents, and expensive maintenance was an unpredictable element of nature--snow. Snow fell deeply and almost daily on Baxter Pass during the months of December, January, and February.

⁷⁴Ibid., December 21, 1923, p. 1.

⁷⁵Ibid., September 20, 1907, p. 1.

⁷⁶Ibid., January 28, 1910, p. 1.

⁷⁷"George Winder Crushed to Death," The Vernal Express, August 13, 1926, p. 1.

Frequent references were made to snow blockades on Baxter Pass⁷⁸ which delayed passengers at Dragon or at Mack, delayed the mail for as much as a week at a time, prevented important freight shipments from being delivered on schedule, kept large crews of men with several engines busy shoveling and plowing snow, and even caused fatal accidents. It was not unusual for as many as a hundred men⁷⁹ from Dragon, Mack, and Atchee to be employed shoveling snow on Baxter Pass after a slide, a high wind which drifted the snow, or just a heavy snowfall. The wind blew often atop the pass and filled the cuts about as fast as men could shovel them out. In some of the cuts, it was necessary for the men who were using hand scoops to relay the snow up to as many as three men to get it over the top and out of the road. The man in the bottom of the cut always had the least envious position in case the soft snowbanks gave way. More than one man was temporarily buried in that employment. A snow plow was fastened on the front of an engine, which was sometimes backed by the power of a couple more engines; and the plow, tilted so as to drive the snow to the canyon side of the track, was backed up and driven forward against the snow pack to clear the track which lay outside the earth cuts.

⁷⁸For example: The Vernal Express, January 12, 1907, p. 1; December 18, 1908, p. 5; January 29, 1909, p. 6; January 28, 1910, p. 1; February 4, 1916, p. 1; and November 17, 1922, p. 1.

⁷⁹Ibid., January 7, 1910, p. 1; and statement by William Cook, personal interview, August, 1958.

A report by John McAndrews, railroad superintendent, of a bad snowstorm in January of 1907 may be helpful in understanding the snow problem faced by the Uintah Railway:

The snow blockade on the Uintah Railway, at the Baxter Pass was finally broken last Sunday and the first mail, consisting of fifty-nine bags of mail matter, was delivered at the Vernal Post Office, Monday night. It was the first that had been delivered since the preceding Saturday.

Mr. McAndrews, of the Railway Company, stated upon his arrival here that the cause of the trouble was the heavy wind accompanied, at intervals, by heavy snowstorms that rendered all their work useless until the storm abated last Sunday morning. The company had 75 men at work on this end of the blockade and all obtainable men on the other end, but until the storm ceased the wind filled in the drifts as fast as the snow was shoveled out, thereby undoing all their work. It was also almost impossible for the men to endure the cold as the wind was so fierce and the temperature so low. They were not long getting out when the storm ended. Mr. McAndrews pronounces this the heaviest winter he has ever seen in this section of the country. The company is well equipped for handling snow. Two snow plows and five locomotives were employed in breaking the blockade. The trains have been making regular trips since Sunday.⁸⁰

A week earlier, the railroad had been blocked by twenty-five foot drifts. Two engines pulling a passenger coach got stuck in one of the drifts and the passengers spent three days on the encased train:

The passengers on board were Captain Cooley, Manager of the Uintah Railway Company, two other employees of the company and three drummers. Two of the latter, . . . John H. Crane of Provo, S. E. West of Ogden have since arrived at Vernal, after a most entrancing experience which they appear to appreciate very much. These passengers remained on the train from Saturday until Monday, when they were able to make their way to McAndrews through the assistance

⁸⁰"Drifting Snow," The Vernal Express, January 26, 1907, p. 1.

of the Greek section hands. Since that time, owing to the continuous storm and wind all efforts to extricate the train have proven futile, though every available man has been at work endeavoring to clear the track.

. . . This is the longest period that this community has been deprived of mail facilities since the winter of 1879.⁸¹

The winter of 1906-07 was severe, but it was by no means the worst. There were many other just as troubling to McAndrews and his railroad. In 1908, much of Vernal's Christmas freight was delivered late because of snow on the Uintah line.⁸² In January of 1909, all hands from the Black Dragon Mine were sent to the summit to shovel snow. Two engines pushing a plow came down the hill and nearly buried the scampering shoveling crew.⁸³ In February of 1910, a fifteen-foot snowslide buried the track between Baxter and Lone Pine soon after a train had passed.⁸⁴ In February of 1916, a terrible snowstorm blocked all railroad traffic from Dragon to Mack for a full week.⁸⁵

R. C. Collett, riding a train out of Dragon toward Mack, was confronted with a two-mile snowdrift which was twenty feet deep on Baxter Pass.⁸⁶ He became so impatient that he put on

⁸¹"Delayed Mail," The Vernal Express, January 19, 1907, p. 1.

⁸²The Vernal Express, December 18, 1908, p. 5.

⁸³Ibid., January 29, 1909, p. 6.

⁸⁴Ibid., February 11, 1910, p. 6.

⁸⁵Ibid., February 4, 1916, p. 1.

⁸⁶Ibid., February 19, 1909, p. 1.

snowshoes and walked the thirty-four miles into Mack. After this successful feat, the people in Vernal were asking why the United States mail wasn't transferred by hand carrier across the snowdrifts on Baxter Pass, from open track to open track, and then by train and stage to Vernal on schedule.

It was reported, in February of 1909, that engineer Joseph Lane and an "unknown Greek" called "Nick" met death while working with a snow crew on Baxter Pass and that, also, the track foreman and two other Greeks were seriously injured.⁸⁷ On one of the engines forward drives, the plow hit the packed snow so hard that it lifted the engine right off the track and started it to rolling down the mountainside.⁸⁸ The engine rolled over and over at a fearful speed until it struck the bottom of the ravine, leaving the engine only a heap of scrap iron. William Cook, a witness to the accident, said that "Nick" held onto the catwalk on the side of the engine for two complete rolls, that he lost three fingers in the process, but certainly was not killed. Engineer Lane, who rode the engine to the bottom, was killed, however.

In January of 1910, Baxter Pass was the scene of still another tragedy.⁸⁹ A Shay engine, traveling from Atchee to

⁸⁷"Two Killed," Ibid., February 12, 1909, p. 1.

⁸⁸Statement by William Cook, personal interview, August, 1958.

⁸⁹"Trainman Scalded," The Vernal Express, January 7, 1910, p. 1; and statement by William Cook, personal interview, August, 1958.

Dragon, was trapped in a snowdrift at Shale, near the top of the southern slope; and in making an effort to free itself, the crown-head blew down into the engine and all the coal and cinders out the back of the engine. A snow shoveling crew was on hand to witness the spectacle. W. D. Sutton, the roadmaster, and Samuel Hancock were killed. The Vernal Express called Samuel Hancock the "fireman," but William Cook said he was the engineer. At any rate, the grate slash-bar was driven through Sutton, and Hancock was scalded. A great cloud of steam shot skyward as did a third person, called the "fireman" by Mr. Cook. At first Mr. Cook thought a coat was falling out of the air; but as the small, falling object approached the ground, it proved to be the fireman who landed in a soft snowbank and survived the fall.

Incidents could be related at great length, if this were not enough, to demonstrate that snow was both a bitter and annual problem for the management of the Uintah Railroad.

Fire, too, was a destructive force; and it struck twice at the Dragon terminus. In 1906, the passenger depot and the automobile house were burned by a fire of unknown origin.⁹⁰ Some new wagons were destroyed in the blaze, but no freight or express was damaged. Four years later, a great conflagration took place when the Uintah Railway's big freight warehouse was razed by flames.⁹¹ The fire was probably started by sparks

⁹⁰The Vernal Express, October 20, 1906, p. 3.

⁹¹"Conflagration at Dragon," Ibid., May 13, 1910, p. 1.

from a freight engine which fell on a pile of dry gilsonite sacks. Bucket brigades couldn't get close enough to even fight freight warehouse fire, so they turned their attention to the saving of the baggage, express, and telegraph buildings. The warehouse had never been more filled with freight. Among the property destroyed was a carload of sugar; two cars of Vernal City's wooden water pipes; a great deal of machinery, furniture, dry goods, and hardware. The Vernal Express called it "the greatest loss by fire that the Uintah Basin has ever experienced. . . ."92 The buildings and some of the goods were insured; but nevertheless, the Uintah Railway did suffer a great loss.

Rain, snow, steep grades, fire accidents, and fatalities did not stop the Uintah Railway from operating; and all these hazards combined with high rates did not discourage patrons. Hundreds of thousands of tons of gilsonite were shipped out over that unique railroad and so were millions of pounds of wool, thousands of cattle and sheep, and thousands of tons of freight, express, parcel post, and mail. Until reliable truck service was established from Vernal to Salt Lake City and to Craig, which was after 1920, it hauled the mail and practically all of the freight into Ashley Valley. Many of the oil-drilling rigs at Rangely were brought in on the Uintah Railroad as was the eighty-ton mill and power plant for Vernal Milling and

⁹²Ibid.

Light Company.⁹³ Even fruit trees for the town of Roosevelt came by way of Dragon.⁹⁴

More surprising were the strange items shipped by parcel post since it was, in effect, a subsidized mode of shipment. Thirty thousand pounds of cement came into Vernal by parcel post in 1914;⁹⁵ 3,400 pounds of copper ore were shipped out to the Garfield Refinery;⁹⁶ and 12,000 eggs were shipped from the Acorn Store in Vernal to Grand Junction, Colorado.⁹⁷ Most amazing of all, however, was the parcel post shipment of bricks into Vernal by way of the Uintah Railroad for the purpose of building the Bank of Vernal.⁹⁸ Each brick was wrapped separately and so tied up the mail service that the federal government had to enact new protective laws against such abuses of the postal service.

In spite of all its difficulties, the Uintah Railroad was prosperous during its thirty-four years of service. It was said in 1929 that the Uintah Railroad "has a reputation of being the best paying railroad for its length in the country,"⁹⁹ and that in 1929 it had a net profit of \$33,000.¹⁰⁰ The company's total operating revenue for 1910, 1913, and 1916,

⁹³The Vernal Express, May 4, 1907, p. 1.

⁹⁴Ibid., April 6, 1907, p. 1. ⁹⁵Ibid., January 30, 1914, p. 1.

⁹⁶Ibid., July 2, 1915, p. 2. ⁹⁷Ibid., May 7, 1915, p. 1.

⁹⁸Daughters of the Utah Pioneers, Uintah County, op. cit., pp. 271-273.

⁹⁹The Vernal Express, June 6, 1929, p. 1.

¹⁰⁰Ibid., March 13, 1930, p. 1.

respectively, was \$300,547, \$369,911, \$421,588; and the net corporate income for the same years was \$114,676, \$116,845, and \$158,918.¹⁰¹

The development of hard-surfaced highways into the Uinta Basin and the Gilson Asphaltum Company's shift in operations from the Rainbow to the Bonanza Mine in 1935 spelled the doom of the colorful Uintah Railroad. Business slowed down in 1936, and the company petitioned for the right to withdraw from business in 1938. In 1939, the tracks were torn up; the towns of Dragon and Watson met a rapid death; and the Uintah Railway Company, which had constructed the only railroad ever to enter the Uinta Basin, was dissolved.¹⁰² Today the track bed serves during good weather as a truck road from Bonanza to Mack, and it is followed generally by the gilsonite-slurry pipeline from Bonanza to the American Gilsonite's \$16,000,000 refinery at Gilsonite, Colorado.

IV. THE UINTAH TOLL ROAD COMPANY

As soon as the Uintah Railroad was completed in 1904, the Uintah Railway Company put bridge, ferry, and road crews to work to the north and northwest of Dragon building 112 miles

¹⁰¹"The Uintah Railway Company," Statistics of Railways in the United States, Annual Reports of the Interstate Commerce Commission. See appropriate years.

¹⁰²"Uintah Railway Company," Corporation Files, Office of Utah Secretary of State.

of toll roads,¹⁰³ connecting the terminus of Dragon with Vernal and Fort Duchesne, the centers of the Ashley and Uinta Valley's, respectively. Most of the road construction took place in the spring and summer of 1905. In that year, full operations began on the roads, after securing a United States mail contract for the Vernal and Fort Duchesne areas.

When construction was complete and freight, mail, and passenger traffic was moving on daily schedules, a new company--the Uintah Toll Road Company--was created to continue operations and maintain the roads. It was incorporated on November 5, 1906, in New Jersey, with a capitalization of \$25,000.¹⁰⁴ Only qualifying shares were held by the directors, all others by the Uintah Railway Company. The directors were John M. Mack, A. W. Sewall, Avery D. Andrews, and Clyde Browne of Philadelphia and George H. B. Martin of Camden, New Jersey. John M. Mack is the person for whom Mack, Colorado, was named. A. W. Sewall, who became the company's first president, was at the same time president of the Uintah Railway Company and the Gilson Asphaltum Company. M. W. Cooley and John McAndrews were designated agents for the company in Utah. E. S. Gurr became the road superintendent with responsibility for all the teams, wagons, stages, and stations on the road. Arthur Lee was given charge

¹⁰³Moody, op. cit.

¹⁰⁴"Uintah Toll Road Company," Corporation Files, Office of Utah Secretary of State.

of all the freight entering and departing Dragon both on the Uintah Toll Road and on the Uintah Railway. Lee soon left Dragon and was replaced by W. A. Banks who had previously helped make the surveys for both the railroad and the toll roads.

Hyrum Sutton and Mr. Lawrence brought their bridge building crews and equipment from the Uintah Railroad to the toll roads where they bridged Evacuation Creek, White River and many smaller streams and gulches on the roads to Vernal and Fort Duchesne. Most of the timbers for the bridges came from the north slope of Baxter Pass by way of the saw mill just above Wendella. William Cook, one of the bridge carpenters, said that the men on those crews would build fires along that wilderness road with which to cook and keep warm. The fires were started by lighting a pile of sagebrush, and then kept going by placing oil shale on the burning brush. The tar would burn out, making a hot fire of long duration and leaving the shale like a pile of ashes.¹⁰⁵ The fire did have its disadvantages, however: it issued black smoke and a petroleum-like odor.

The wide Green River would have required steel bridges of immense proportions; and so the company, governed by a spirit of frugality, installed ferries. Joe Goff built one ferry at Ouray, near the confluence of the White and the Green, on the Bonanza-Fort Duchesne road and one at Alhandra, about

¹⁰⁵Statement by William Cook, personal interview, August, 1958.

twelve miles below Jensen, on the Bonanza-Vernal road.

Frank Lang, of Fruita, Colorado, had charge of constructing the wagon roads. He employed a great number of men with teams and scrapers to scratch out a smooth wagon and stage path totaling 112 miles in length. The road was not macadamized, and only in a few places was fine shale available for scraping onto the road's surface. For the most part, the road became a long strip of mud in rainy weather, and required frequent grading in dry weather to remove the ruts.

Freight, stage, toll, telephone and telegraph stations were established at Ignatio, Bonanza, Kennedy's Hole, Alhandra, Chipeta, and Ouray. Ignatio, more frequently referred to as "White River," was on the south bank of the White River and by the bridge which was a mile up stream from the present bridge, a distance of eighteen miles from Dragon. Bonanza was four miles north of the White River, which, though not a major station on the Dragon-Vernal or Dragon-Fort Duchesne roads, was the junction of those roads with the Rangely road. Kennedy's Hole was about sixteen miles northwest of Ignatio, twelve miles from Bonanza, or about equal distance between the White and Green rivers, being named after S. A. Kennedy, a member of the Uintah Railway's office staff. Alhandra was on the southeast bank of the Green River, eighteen miles northwest of Kennedy's Station and fourteen miles out of Vernal. Chipeta was about halfway between Ignatio and Ouray, or about fourteen miles west of Bonanza, being named after the wife of the Uncompahgre Chief,

Ouray. Ouray was on the west side of the Green above the confluence of the White and Duchesne rivers with the Green, about twenty miles from Fort Duchesne.

Chipeta and Kennedy were halfway stations on the Dragon-Fort Duchesne and Dragon-Vernal roads, respectively. At these stations were built commodious wayside inns where stage passengers stretched their legs and secured a well-cooked noon meal on the dusty one-day-relay trip to or from the railroad in Dragon. Freighters could obtain meals, lodging, feed and shelter for their teams or even fresh teams at most any of the stations. The total distance from Dragon to Vernal was about sixty-eight miles, and from Dragon to Fort Duchesne it was about sixty-five.

A person in Vernal, wishing to make connections with the D&RGW at Mack, would board the Dragon Stage in Vernal at 7:00 a.m.¹⁰⁶ The stage would cross the Green River on the Alhandra Ferry and obtain fresh horses at Alhandra Station at about 9:30 a.m. Continuing on, the stage would arrive at Kennedy's Station at noon where fresh horses would be hitched to the stage and passengers would eat dinner. At about 3:30 p.m. the stage would arrive at Ignatio where it would again be supplied with a fresh four-horse team. With good luck, the stage would pull into Dragon at 6:00 p.m. where the passengers found comfortable accommodations at the Uintah Railway's Cottage Hotel. Next morning, the passengers would depart Dragon on the Uintah

¹⁰⁶"The Uintah Stage Company," The Vernal Express, January 13, 1906, p. 5.

Railway at 7:00 a.m.¹⁰⁷ and would arrive in Mack at noon, only five hours later. The cost of the trip was \$13 per person, split evenly for the stage and train fares, and took but a day and a half over all.

In April of 1906, C. O. Baxter, vice-president of the Uintah Railway, announced that, in addition to the wagons and teams then in service, the company would soon purchase "twenty-two new broad tired wagons . . . and eight six-horse teams."¹⁰⁸ The purchases, which were soon effected, were for the purpose of initiating a relay system similar to that used for the stage. At that time, freight leaving Dragon would be from four days to a week on the road to Vernal. Baxter's relay plan was realized, but it only lasted until the next winter. A four-day freight run was the eventual outcome of the experiment, with freight arriving and departing Vernal, Dragon, and Fort Duchesne daily. On less-than-a-ton shipments from Dragon to Vernal or Fort Duchesne, in 1910, freight charges were seventy-five cents per hundred pounds.¹⁰⁹ When shipping by the ton, the cost for the same haul was \$10 per ton. In 1905, the rate per hundred pounds from Dragon to Vernal was forty-five cents.¹¹⁰ In 1906, it

¹⁰⁷"The Uintah Railway Company," The Vernal Express, January 13, 1906, p. 5.

¹⁰⁸"Daily Freight Service," The Vernal Express, April 14, 1906, p. 1.

¹⁰⁹The Vernal Express, March 18, 1910, p. 2.

¹¹⁰"Advanced Freight Rates," The Vernal Express, July 14, 1906, p. 2.

raised to sixty cents. The reason given for the increase was the increased cost of running a relay system; but when the relay system was dropped, the rates remained unchanged until subsequently increased again.

The toll charge for driving a wagon or automobile over the Vernal-Dragon road ranged from \$3.50 to \$2.50, with the largest parts of the fee being required at the Alhandra Ferry and the White River Bridge. Wagon drivers would often ford the White River at a convenient spot three miles downstream from the bridge, avoiding the Ignatio toll charge and actually shortening the Dragon-Kennedy road by a mile or so.¹¹¹ It is little wonder then that the bridge, when replaced, was moved downstream and that Alhandra and Ouray were later made the major toll stations.

Big shearing corrals were maintained along the Vernal-Dragon road at three different places. One was six miles north of Dragon, one at Kennedy's Hole, and another at Alhandra. After 1911, when the Uintah Railroad was extended to the Rainbow Mine, a fourth was built at Watson. Many thousands of sheep were sheared in these pens each year, and millions of pounds of wool were shipped over the Uintah Toll Road to Dragon and thence by railroad to eastern markets.

In about 1905, some automobiles began to appear in the Uinta Basin, causing a general craning of necks and gaping of

¹¹¹Statement by William Cook, personal interview, August, 1958.

mouths. Horses, too, were startled by the new and noisy contraption.¹¹² C. O. Baxter, who had a curious and inventive genius so characteristic of his former associate, Adolphus Busch, was never to be found lagging in the development of new ideas. By 1906, an associate company of the Uintah Railway had an automobile factory of its own, and C. O. Baxter was testing a forty-five horse-power truck from the factory on the Uintah Company's toll roads.¹¹³ The company had displayed a model in the New York automobile show where it took orders for twenty-five of the machines which sold for \$7,000 each. The freight automobiles proved unsatisfactory; but between 1908 and 1910, the Uintah horse-drawn stages were replaced by Buick automobiles.¹¹⁴ The new stage schedule called for four and a half hours from Vernal to Dragon, and so it made a round trip between 7:00 a.m. and 5:00 p.m. The Buicks would travel across the flat country at about forty miles an hour, and people lined up along the roads everywhere to watch the cars go by.¹¹⁵

"Captain" M. W. Cooley's personal automobile was often a matter of conversation and news. One Sunday he took a party-- Miss Finnicum, Misses Innes, and Fred Baird--for a drive; but

¹¹²"Dragon Items," The Vernal Express, July 31, 1908, p. 1.

¹¹³The Vernal Express, April 14, 1906, p. 2.

¹¹⁴"New Mail Schedule," The Vernal Express, July 22, 1910, p. 1.

¹¹⁵Statement by William Cook, personal interview, August, 1958.

the machine broke down two miles from Bonanza.¹¹⁶ All passengers walked back to Ignatio and caught the stage back to Dragon. Captain Cooley stayed with the automobile; and finally repairing it, overtook the stage and retrieved his passengers. Also, when Dr. (Mrs.) Garrett-O'Donnell was contemplating buying a new car, her very considerations were an item of news,¹¹⁷ as, of course, were the purchase and the subsequent wrecking of the car. By 1916, there were in Vernal and its immediate environs over 100 automobiles.¹¹⁸

In 1915, Fred Felch began an automobile service between Vernal and Craig;¹¹⁹ in 1916, the Price-Myton automobile stage service was extended to Vernal;¹²⁰ and in that same year, a record run was made from Vernal to Salt Lake City in an Overland Roadster, the time being eleven and a half hours.¹²¹ Great progress was being made in modes of transportation, the day for horse-drawn vehicles was waning, and people were even talking of flying. However, when the editor of The Vernal Express announced the Intermountain West's first "aeroplane" exhibit, in 1910, and talked of the future possibility of a person flying

¹¹⁶"Dragon Items," The Vernal Express, April 30, 1909, p. 3.

¹¹⁷"Local and Personal," Ibid., April 10, 1908, p. 5.

¹¹⁸The Vernal Express, October 13, 1916, p. 1.

¹¹⁹Ibid., April 16, 1915, p. 6.

¹²⁰Ibid., June 9, 1916, p. 1.

¹²¹Ibid., September 1, 1916, p. 1.

from Vernal to Salt Lake City and back in a single day, he felt it necessary to strengthen his argument by telling his readers that only recently a couple flew through the air thirty-two miles and back in an hour.¹²²

With their stage lines converted to automobiles, the Uintah Toll Road Company again turned its attention to the modernization of its freight lines. In 1910, the company experimented with a "big freight auto" which ran from Dragon to Vernal with a load of three tons of freight, a barrel of gasoline and five men.¹²³ In Vernal, the town's people were given a real thrill when the truck took two Cooper wagons in tow and hauled some fifty passengers for a joy ride. It was also demonstrated that the truck could turn around in less space than a four-horse team. Successful as the big auto may have been, freight horses were not dispensed with at that time. In fact the company was trying out a new idea in 1913-14. They attempted to pull several wagons with Holt caterpillars,¹²⁴ but for some reason these were unsatisfactory. In 1916, large tractors were acquired, and it was seriously hoped that they would dispense with the horses.¹²⁵ In dry weather and on smooth

¹²²Ibid., January 28, 1910, p. 5.

¹²³"Big Freight Auto Makes Trial Run," The Vernal Express, August 26, 1910, p. 1.

¹²⁴Daughters of the Utah Pioneers, Uintah County, op. cit., p. 266.

¹²⁵The Vernal Express, May 19, 1916, p. 1.

ground, these tractors--which were used successfully by B. F. Redman between Elko and Tuscarora, Nevada, as early as 1899--¹²⁶ could not get sufficient traction in the mud or on hills to pull the five-wagon load expected of them.

The Uintah Toll Road horses had consumed over 600 tons of Uinta Basin hay per year;¹²⁷ but by 1920, the day for "hay burners" was finally over. Gasoline trucks proved more advantageous than six-horse teams. White trucks took over the job of transporting freight to and from Watson,¹²⁸ which was the Uintah Railway's northern terminus after 1911. Arson (Luvy) Jacobson, who with A. W. Banks had helped experiment with the first trucks, was foreman of the repair shops at Watson; and Bruce Angus was one of the earliest drivers on the line. The Uintah Toll Road Company, in becoming completely motorized, was only keeping pace with the times, for the Castle Peak Mining Company began shipping their gilsonite by gasoline truck to the D&RGW Railroad at Craig in 1915.¹²⁹

It may appear from the description of the stage and freight operations, including stations, roads, vehicles and schedules that all went smoothly on the Uintah roads; but to

¹²⁶"Redman's Traction Engine," Salt Lake Mining Review, I, No. 2 (April 29, 1899), p. 7.

¹²⁷The Vernal Express, July 14, 1906, p. 2.

¹²⁸Ibid., March 19, 1920, p. 1.

¹²⁹Salt Lake Mining Review, XVI, No. 19 (January 15, 1915), p. 57.

the contrary, there were many difficulties experienced in operating this extensive communication and transportation system. Equipment damage by fire or storm was not unusual. In 1908, a passenger stage was destroyed by fire near Dragon; and John McAndrews, the mail contractor, after some resistance, was ordered to pay \$6.90 for the registered mail which was burned.¹³⁰ In 1916, a truck rolled down Lion Hill, near Alhandra, and burned. Telegraph and telephone lines were often damaged by snow or lightning,¹³¹ delaying communication and requiring costly repairs.

Bridge damage, too, was often extensive. In 1906, a heavy rain damaged many bridges,¹³² including the White River bridge.¹³³ In 1909, several bridges were washed out by floods.¹³⁴ Bridge repairs were made annually on most bridges, and old bridges were replaced by more substantial ones as time went on. In 1928, the White River Bridge at Ignatio was replaced by a steel-truss bridge with a load capacity of 40,000 pounds at a cost of \$35,000.¹³⁵ The maintenance on this bridge

¹³⁰"Local and Personal," The Vernal Express, November 13, 1908, p. 5.

¹³¹The Vernal Express, March 11, 1910, p. 1; and May 13, 1910, p. 1.

¹³²Ibid., April 7, 1906, p. 2.

¹³³Ibid., March 31, 1906, p. 3.

¹³⁴Ibid., August 20, 1909, p. 2.

¹³⁵Ibid., May 4, 1928, p. 1.

was such a drain on the company's budget that the company offered to give the bridge to Uintah County if only the County would see to the upkeep.¹³⁶ The offer was made when the County Commissioners began to question the bridge's one-way toll charge of \$1.00 per automobile.

Rain, snow, ice, and thaw were four major causes of difficulty on the Uintah Toll roads; and when these and other natural forces failed to destroy property and equipment, they, nevertheless, made travel and the transportation of goods a miserable experience. Sudden rainstorms were sure to trap vehicles in deep mud. With one rainstorm, in 1927, most of the traffic in the Uinta Basin was tied up; and in the Willow Creek area alone, seventy-five cars were unable to move until the ground dried out.¹³⁷ Winter or spring thaws created almost the same troublesome mud as did summer and fall rains,¹³⁸ and people using the roads often expressed their wishes for zero weather.¹³⁹

During high water in the spring, the Green River would overflow, making the ferries inoperative;¹⁴⁰ and during periods of low water, large stretches of sand would separate the ferry

¹³⁶Ibid., July 4, 1929, p. 1.

¹³⁷Ibid., July 1, 1927, p. 1.

¹³⁸Ibid., January 29, 1909, p. 6.

¹³⁹Ibid., April 17, 1908, p. 7.

¹⁴⁰Ibid., June 8, 1907, p. 3.

boat from its loading piers on either end. It was necessary for an auxiliary low-water ferry boat to be installed on the Green River above Alhandra in 1906 to keep traffic moving.¹⁴¹ Freezing weather formed ice on the river which, in turn, put the ferries out of operation. Traffic--wagons, stages, automobiles and trucks--crossed the river on the ice. The greatest frustration to the freight and stage lines came during the periods when ice not solid enough to cross was still ice enough to put the ferry out of commission. During winter spells of warm weather, the ice would soften and traffic would cease--many six-horse teams would be delayed at Alhandra.¹⁴² Sometimes the stage could cross when freight wagons would not chance it with their heavier loads. Soft spots in the crossing, ice jams, and heavy chunks of floating ice were the spring hazards.¹⁴³ Dynamite and explosive powder were used to save bridges, break up jams, and speed the process of freeing the river of ice so that ferries could be put into service again.¹⁴⁴ Information that "the ice on the Green River was solid enough . . . to permit . . . freight teams to cross"¹⁴⁵ was always good news.

¹⁴¹"Alhandra Happenings," The Vernal Express, July 14, 1906, p. 1.

¹⁴²The Vernal Express, December 15, 1906, p. 2.

¹⁴³"Jensen Jottings," The Vernal Express, March 17, 1916, p. 1.

¹⁴⁴The Vernal Express, March 11, 1910, p. 1; and March 17, 1916, p. 1.

¹⁴⁵Ibid., December 15, 1906, p. 2.

Without high and low water or freezing or melting ice, the Green River ferries had difficulties enough. A big floating tree, becoming entangled in the guide cable, prevented the Alhandra Ferry from operating for three days;¹⁴⁶ and the transportation of sheep, which were moved across the river in large herds, were the cause of increased anxiety and exhausting labor. Sheep stubbornly resisted being the first loaded on the ferry; but when the ferry was loaded and began to move out into the river, the remainder of the herd would attempt to follow it. Their wool would become soaked, and a man could hardly lift one out of the water. Some sheep would escape and swim the distance, having to be lifted from the water on the opposite bank.¹⁴⁷

It is easily understood that the construction of a bridge across the Green River would be a major event in the history of the Uinta Basin even if it were not on the Vernal-Dragon road. The first bridge was built in 1911 at Jensen, on line with the projected trans-oceanic highway, later known as "Highway Forty," and was the cause of a wild celebration. A bridge was so important that the Uintah company offered to remove future tolls from their road and to deliver all bridge hardware without any freight charges if only the State of Utah

¹⁴⁶Ibid., May 25, 1917, p. 1.

¹⁴⁷Statement by William Cook, personal interview, August, 1958.

would build the bridge at Alhandra instead of at Jensen.¹⁴⁸

Winter snow presented stage and freight lines with almost insurmountable problems. For example: Bob Johnson, driving the stage out of Vernal, in 1908, turned back short of Green River after missing the road several times and nearly turning his stage over,¹⁴⁹ snow having drifted six feet deep in various places along the road.

Diseases such as measles and pneumonia struck the personnel of the Uintah Toll Road Company like people elsewhere in the Uinta Basin, and operations were further handicapped by accidents which brought serious injuries to employees. These will not be detailed; but for examples: Miles Colton was run over by a freight wagon in 1916,¹⁵⁰ and a son of Lafe Woods was struck by lightning in 1906 as he was freighting along the Dragon road.¹⁵¹

Harry Ratliff's first-hand description of a trip he took in 1910 from Mack to Vernal and thence to Jensen by way of the Uintah Railroad and the Uintah Stage is repeated to portray the difficulty of winter travel:

In 1910, during January, I inveigled Nile Huggle,

¹⁴⁸"Green River Bridge--Jensen or Alhandra," The Vernal Express, April 29, 1910, p. 1.

¹⁴⁹"Fierce Snow Storm," The Vernal Express, December 18, 1908, p. 1.

¹⁵⁰The Vernal Express, March 31, 1916, p. 1.

¹⁵¹Ibid., July 28, 1906, p. 3.

another restless, rough, country critter, into helping me run a legal grade from the benches below Split Mountain Canyon into the canyon proper, for long before this time I had seen the idle lands and waste water that passed beside them.

We were hauled to Watson by the Uintah Railroad, and laughed at the pugnacious efforts of the puffing contraption that pulled us up and over the Book Cliffs to Watson, where we stopped for the night. The next morning we started by horse-hauled stage over frozen rough roads for Vernal, Utah.

About half-way between . . . Dragon . . . and where the old stage road left Evacuation Creek, the stage broke down. The driver said he would have to go back to Watson for another vehicle, so Nile and I shouldered our baggage, consisting of two grips, a transit, tripod and folding rod, and started on afoot. The driver said that if we got to White River Station the Company would take us on.

We made it into White River Station for a late lunch and hadn't more than got our soup down, when here came our wagon. Mr. Leslie Ashton of Vernal and the Indian Agent, a Mr. Neal, were there waiting to go, too, so there were four passengers. We got along fine until about eight miles out of Alhandra, when a wheel broke and there we were all "busted" down and no place to go, and it was raining too. We shouldered our packs again and made it into Alhandra about eleven o'clock that night, cold, muddy and wet.

Mr. Bob Johnson was ferryman, and Mrs. Johnson was like a mother to us. She put us to bed and Bob agreed to call us if the stage and mail arrived, Bob got us out and said he was going to run the river, but the ice had broken and "she's a little risky," Bob said. It was dark and raining. Bob took part of the mail and me the first trip. He rowed while I pushed away chunks of ice two and one-half feet thick and eight to ten feet wide or long. I knew then how Mr. Washington felt while crossing the Delaware, only I didn't stand up as he did. Next trip Bob brought Nile, and said, "The other passengers had more sense than we had. They were going to wait for daylight." We got into Vernal that night and filled up on Mother McClellan's good food, and waited for the Jensen stage, which Mr. Seymour Snow operated. We got started for Jensen about four o'clock. It was a rainy, wet afternoon.

One of Mr. Snow's team was a bit . . . frisky with her tail. She got it over one line and--whoof! she went. Mr. Snow fell out. I caught one line and circled the running

team until we finally hit dead center a pole of the new telephone line that Charley Neal was building. The wagon buckled, the tongue was broken and one wheel went all wrong. Mr. Snow said he would go on afoot . . . and come back for us. Nile tossed a dollar in the air and I lost, so I had to ride the fractious filly. I don't think I made any fancy ride, but I stuck to her somehow and we lit out. . . .¹⁵²

By its franchise, the Uintah Toll Road Company was allowed to charge 8.82 cents per mile for vehicles using its roads. On more than one occasion, the company was accused of fixing "extortionate prices" for use of the six miles of road nearest Dragon.¹⁵³ The company was ordered to confine its toll charges to the legal rate. The general belief was that even the legal limit on toll charges was too high; but on the other hand, H. A. Halpine, the company's representative, claimed the company was suffering a loss each year--\$100,000 between 1905 and 1908--and that its assessed valuation was too high.¹⁵⁴ The toll roads and freight and passenger lines provided a necessary link between the Uintah Railroad and Uinta Basin towns. While their maintenance and operation were a direct financial liability to the Uintah Railway Company, they were indirectly a source of prosperity for the railroad; and the Uintah Railroad's annual net profits, as shown above, were computed by first having

¹⁵²Daughters of the Utah Pioneers, Uintah County, op. cit., pp. 274-275.

¹⁵³"Commissioner's Meeting," The Vernal Express, May 11, 1907, p. 2.

¹⁵⁴"Taxes Too High," The Vernal Express, June 5, 1908, p. 1.

deducted the losses of the Uintah Toll Road Company, called "outside operations" in their reports.¹⁵⁵

In May of 1936, the Rainbow gilsonite mine having been closed down and operations moved to Bonanza, the Uintah Toll Road Company applied for permission to withdraw from business in Utah. Permission was granted, and the company was dissolved in August of that year.¹⁵⁶ The Bonanza gilsonite would be hauled eastward by truck to Craig, Colorado, which meant doom for the Uintah Railway Company. Closing out the Uintah Toll Road Company was just a preliminary preparation for the dissolution of the parent company with its fabulous railroad.

V. MACK-VERNAL v. PRICE-MYTON

Upon completion of the Uintah Railroad and toll roads and the Uintah company's acquisition of a United States mail contract to most Uinta Basin towns, a verbal battle began between The Vernal Express and the Price Advocate as to the relative virtues of the Mack-to-Vernal mail route and the former Price-to-Myton route which brought in most of the mail for the entire basin. People from Fort Duchesne westward favored the Price-Myton route, and people in Vernal and other Ashley Valley towns favored the Mack-Vernal route. This quarrel, which

¹⁵⁵"The Uintah Railway Company," Statistics of Railways in the United States, Annual Reports of the Interstate Commerce Commission. See appropriate years.

¹⁵⁶"Uintah Toll Road Company," Corporation Files, Office of Utah Secretary of State.

became very emotional at times, continued until 1910 when the government decided to use both routes.¹⁵⁷ The Vernal people were certainly right about the difficulty of keeping the Price-Myton road open, however. Heavy snows closed the passage for weeks at a time, and closed it as often as snow blocked Baxter Pass. As late as 1922, the Myton mail was held up by snow which lay eight feet deep on the summit.¹⁵⁸

When the editor of the Price Advocate attempted to sell his establishment in 1907, his adversary announced that,

The editor of the Price Advocate has found out that he cannot knock the Uintah Railroad out, so he has given up the hopeless task and has offered his newspaper plant for sale.¹⁵⁹

Two weeks later the Price paper took another thrust at the Uintah Railroad only to receive another bombast from Daniel Hillman:

What is the matter with Brother Crockett's memory? Perhaps the people of Price have forgotten the rickety stages, the break downs and the vexatious delays, but the people of this end of the line have not. How about the blockade on the Price road during the past winter, it is possible the man behind the Advocate has never heard of the train of freight teams that unloaded a cargo of gilsonite beyond Myton, because of the deep snow. The delay in the mail on the Uintah Road lasted only a few days, while the blockade on the Price road lasted all winter.¹⁶⁰

One thing is quite certain: the residents of Ashley and

¹⁵⁷The Vernal Express, May 13, 1910, p. 1.

¹⁵⁸Ibid., November 17, 1922, p. 1.

¹⁵⁹Ibid., March 2, 1907, p. 2.

¹⁶⁰Ibid., March 16, 1907, p. 2.

Uinta Valleys were no more abused with regard to their mail service than were other Utahns outside the big population centers. In Heber City, for example, the people were saying such things as:

The mail came in Wednesday by way of Park City, and yesterday it came up from the mud slide on a hand cart. How it will come in today or from what direction is not as yet known to the people of this valley, but if it comes we shall all be truly thankful.¹⁶¹

The dispute over the two routes, was revived from time to time until 1934, when both were entirely discontinued, being replaced by a daily mail service out of Salt Lake City by way of Heber City and Strawberry Valley--the route of U. S. Highway Forty.¹⁶²

VI. GILSONITE PIPELINE

Since the means of transporting gilsonite has always been a principal factor in the prosperity of the industry, this chapter would be incomplete without at least a summary statement of the seventy-three-mile pipeline from Bonanza to Gilsonite, Colorado, on the D&RGW Railroad west of Grand Junction. The line, described in Chapter VI above, carries daily from 700 to 900 tons of gilsonite in a water slurry from the Eureka Mine, near Bonanza, to the American Gilsonite

¹⁶¹Wasatch Wave as cited by The Vernal Express, April 6, 1907, p. 3.

¹⁶²The Vernal Express, April 26, 1934, p. 1.

Company's \$16,000,000 gasoline and coke producing refinery, relieving the company of the need to maintain rail or truck communications across the Book Cliffs.

The main communication line by way of Book Cliffs, and particularly its route from the west to a point east of it, is a long and important one. It is not only a route for the transport of goods, but it is also a route for the transport of people. It is a route that will be of great importance in the future.

The highway over the Book Cliffs, as revealed from the air, is a very interesting one. It is a route that is being developed by a private company, and it is a route that is being developed in a very interesting way. It is a route that is being developed in a way that is very different from the way that other routes are being developed.

The highway over the Book Cliffs, as revealed from the air, is a very interesting one. It is a route that is being developed by a private company, and it is a route that is being developed in a very interesting way. It is a route that is being developed in a way that is very different from the way that other routes are being developed.

Since the means of transporting livestock has always been a principal factor in the prosperity of the industry, it is not surprising that the industry has always been interested in the development of a route that would provide a direct and efficient means of transporting livestock. The industry has always been interested in the development of a route that would provide a direct and efficient means of transporting livestock.

The highway over the Book Cliffs, as revealed from the air, is a very interesting one. It is a route that is being developed by a private company, and it is a route that is being developed in a very interesting way. It is a route that is being developed in a way that is very different from the way that other routes are being developed.

151 Wasatch Wave as cited by The Vernal Express, April 1907, p. 3.
152 The Vernal Express, April 28, 1934, p. 1.

CHAPTER VIII

GILSONITE: ITS CHARACTERISTICS, ORIGIN, AND USES

I. CHARACTERISTICS AND GEOGRAPHIC LOCATION

Gilsonite, found in a variety of solid and semi-solid states with differing oxygen contents and physical properties, is generally known as a black, lustrous solid having the structure of a hydrocarbon. More specifically, gilsonite is a bitumen because of its solubility in carbon disulphide and an asphaltite because its fusing-point is above 230 degrees Fahrenheit. When gilsonite occurs in a liquid state, it is, as you would suppose, classified as an asphalt instead of an asphaltite. Even as a liquid it has basically the same type of hydrocarbon structure.¹ Figure 1 presents a rather complete list of gilsonite's properties.

Gilsonite differs from ozocerite, another Uinta Basin hydrocarbon, in that ozocerite is classified as a mineral wax, having a low fusing-point and a high paraffin content. While ". . . ozocerite is predominantly paraffinic whether in the liquid or solid form, . . . gilsonite is predominantly aromatic."² Gilsonite also differs from albertite (elaterite) and wurtzilite, other Uinta Basin hydrocarbons, in that they are asphaltic pyro-bitumens which means that they are insoluble in carbon disulphide, they decompose before they melt, and they are practically oxygen free. Albertite and wurtzilite are, in turn, differentiated from

¹John M. Hunt, Francis Stewart, and Parke A. Dickey, "Origin of Hydrocarbons of Uinta Basin, Utah," Bulletin of the American Association of Petroleum Geologists, XXXVIII, No. 8 (August, 1954), p. 1679.

²Ibid., p. 1680.

FIGURE 1
GENERAL CHARACTERISTICS OF GILSONITE*

Test Number	Test Name	Results
(Test 1)	Color mass	Black
(Test 4)	Fracture	Conchoidal
(Test 5)	Lustre	Bright to fairly bright
(Test 6)	Streak	Brown
(Test 7)	Specific gravity at 77° F	1.03 - 1.10
(Test 9a)	Hardness on Moh's scale	2
(Test 9b)	Hardness, needle penetrometer at 115° F.	3-8
	Hardness, needle penetrometer at 77° F.	0-3
	Hardness, needle penetrometer at 32° F.	0
(Test 9c)	Hardness, consistometer at 115° F.	40-60
	Hardness, consistometer at 77° F.	90-120
	Hardness, consistometer at 32° F.	Too hard for test
(Test 9d)	Susceptibility index	100
(Test 10a)	Ductility at 77° F. (Abraham's method)	0
(Test 15a)	Fusing-point (K. and S. method)	230° - 350° F.
(Test 15b)	Fusing-point (R. and B. method)	270° - 400° F.
(Test 16)	Volatile at 325° F., 5 hrs. (dry substance)	Less than 2%
	Volatile at 400° F., 5 hrs.	Less than 4%
	Volatile at 500° F., 5 hrs.	Less than 5%
(Test 19)	Fixed Carbon	10 - 20%
(Test 21)	Soluble in carbon disulfide	Greater than 98%
	Non-mineral matter insoluble	0 - 1%
	Mineral matter	Trace - 1%
(Test 22)	Carbenes	0 - 1/2%
(Test 23)	Soluble in 88° petroleum naptha	10 - 60%
(Test 26)	Carbon	85 - 86%
(Test 27)	Hydrogen	8.5 - 10%
(Test 28)	Sulfur	0.3 - 0.5%
(Test 29)	Nitrogen	2.2 - 2.8%
(Test 30)	Oxygen	0 - 2%
(Test 33)	Solid paraffins	0 to Trace
(Test 34b)	Sulfonation-residue	85 - 95%
(Test 37a)	Acid value	2.3
(Test 37d)	Saponifiable value	5.6

GENERAL CHARACTERISTICS OF GILSONITE* (cont.)

Test Number	Test Name	Results
(Test 37e)	Saponifiable matter	Trace
(Test 38c)	Asphaltenes	32.6%
(Test 39)	Diazo reaction	No
(Test 40)	Anthraquinone reaction	No

*Taken from Herbert Abraham, Asphalts and Allied Substances, 5th edition (New York: D. Van Nostrand Company, Inc., 1945), I, p. 251.

non-asphaltic pyrobitumens--peat, lignite, coal--in that this latter group has an oxygen content above five per cent. The dominant molecular structure of albertite and wurtzilite, like gilsonite, is of aromatic rings, whereas ozocerite is of paraffin chains.³ Figure 2 shows gilsonite's relationship to other hydrocarbons.

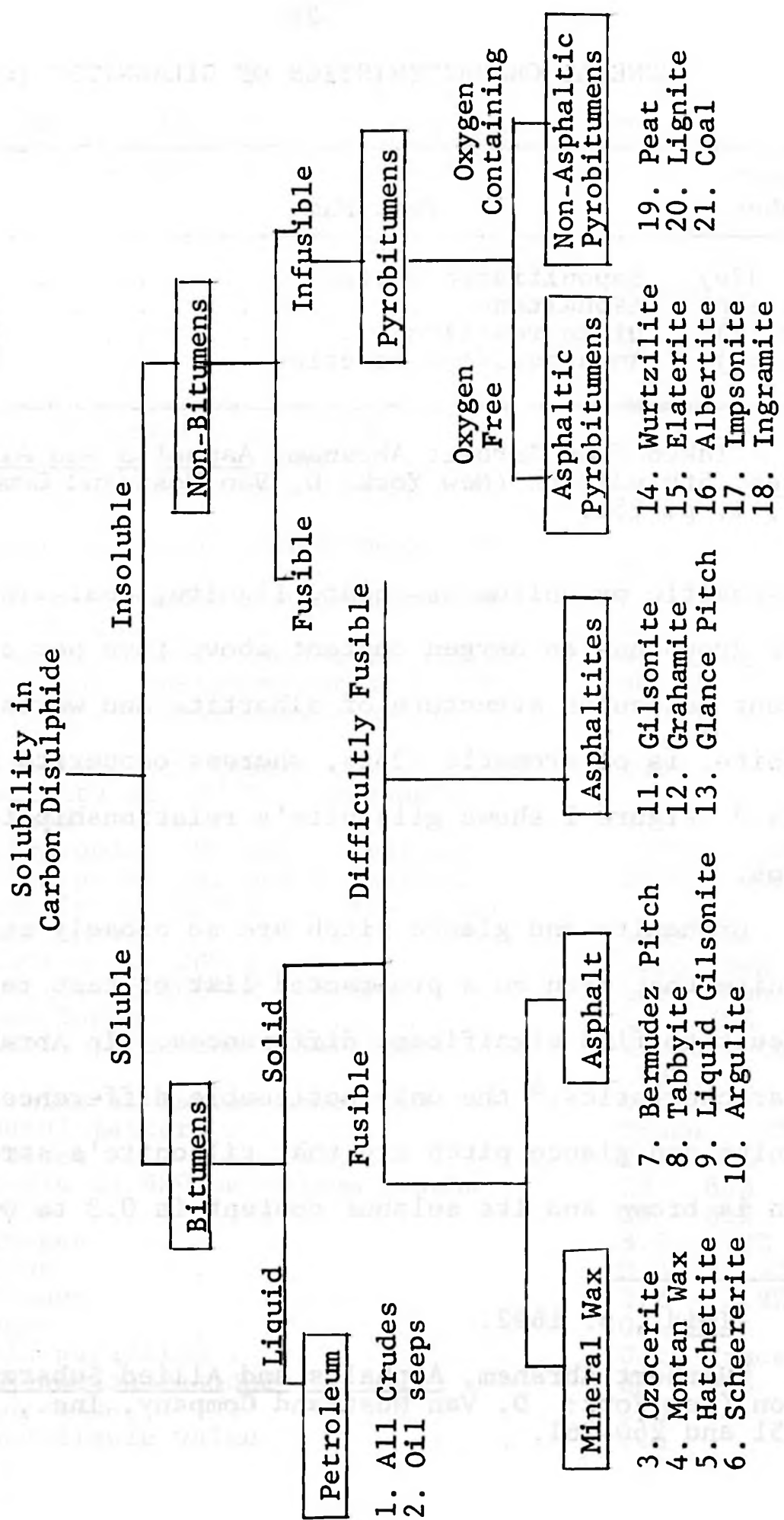
Grahamite and glance pitch are so closely related to gilsonite that even on a protracted list of test results it is difficult to find significant differences. In Abraham's lists of characteristics,⁴ the only noticeable differences between gilsonite and glance pitch are that gilsonite's streak on porcelain is brown and its sulphur content is 0.3 to 0.5 per cent

³Ibid., p. 1692.

⁴Herbert Abraham, Asphalts and Allied Substances, 5th edition (New York: D. Van Nostrand Company, Inc., 1945), I, pp. 251 and 260-261.

CLASSIFICATION OF NATURAL HYDROCARBONS*

(Classification is by physical properties. Liquid hydrocarbons are listed at the left, solid but fusible hydrocarbons in the middle, and insoluble, infusible hydrocarbons at the right. There is from left to right across the chart a decrease in solubility, volatility, and hydrogen content and an increase in the fusion point, refractive index, and molecular weight of the hydrocarbons.)



* Graph taken from John M. Hunt and others, op. cit., p. 1679.

while the streak of glance pitch is black and its sulphur content is 2.0 to 8.0 per cent. If any of about twenty-five other tests were used as the criteria for identification, the two asphaltites would be nearly identical.

Like glance pitch, grahamite makes a black streak on porcelain and has a little higher sulphur content than gilsonite. It differs from both gilsonite and glance pitch in that its fusing-point is higher, being listed as from 250 to 625 degrees Fahrenheit. It should be noted here, however, that while Abraham lists gilsonite's melting points from 230 to 375 degrees, the Ziegler company claims to market gilsonite with melting points up to 600 degrees.⁵ It appears to this writer that there is almost as much variation between the types of gilsonite mined from different veins as there is between certain occurrences of grahamite and gilsonite or between glance pitch and gilsonite. The products by whatever name are certainly capable of being used for the same purposes in industry.

According to Abraham,⁶ grahamite is found in Ritchie County, West Virginia; Fayette and Webb Counties, Texas; Pushmataha, Atoka, and Stephens Counties, Oklahoma; States of Vera Cruz, Luis Potosi, and Tamaulipas, Mexico; Pinar del Rio, Havana, and Santa Clara Provinces, Cuba; Mendoza and Neuquen

⁵Statement by William F. Beer, Jr., personal interview, October, 1958.

⁶Abraham, op. cit., pp. 270-288.

Provinces, Argentina; Province of Tarma, Peru; and in Trinidad.

Glance pitch is found⁷ in Barbados; Haiti; Pinar del Rio, Santa Clara, Camaguey Provinces, Cuba; State of Vera Cruz, Mexico; Emery County, Utah; District of Chontales, Nicaragua; Department of San Miguel, Salvador; Departments of Tolima and Bolivar, Colombia; Bentheim, Germany; Vilayet of Sham, Syria; under the Dead Sea, Palestine; and Abu Gir, Iraq.

Gilsonite is reported to have been found in possibly three locations:⁸ the Uinta Basin of Utah and Colorado; Wheeler and Crook Counties, Oregon; and Archangel Province, Russia. The asphaltite found on the Izhma River in Archangel has, among other similar physical characteristics, the same fusing-point and specific gravity as gilsonite; but that found in Oregon is on the borderline between gilsonite and grahamite and is called "gilsonite" by some and "grahamite" by others. It has a higher melting-point than most Utah gilsonite; but like the latter, it makes a brown streak and has the same specific gravity. To show some of the confusion in the area of identifying types of asphaltites, J. M. Locke identifies the Dead Sea deposits as gilsonite;⁹ and F. V. Greene claimed that

⁷Ibid., pp. 261-270.

⁸Ibid., pp. 253-260.

⁹Joseph M. Locke, "Gilsonite or Uintahite, A New Variety of Asphaltum from the Uintah Mountains, Utah," Transactions of the American Institute of Mining Engineers, XVI (May, 1887 - February, 1888), pp. 164-165.

the Utah gilsonite deposits were really glance pitch.¹⁰ This writer believes it is safe to say, however, that most--by some definitions, all--of the world's known gilsonite deposits are on or near the former Uncompahgre Indian Reservation of Utah.

II. ORIGIN

While the nature of rocks bearing hydrocarbons and the association of a particular hydrocarbon with its specific source-stratum has long been a controversial subject, it is felt by this writer that at last a definitive study--by John Hunt, Francis Stewart, and Parke Dickey¹¹--has been made which should end most disputes with regard to the origin of hydrocarbons in the Uinta Basin.

. . . The source rocks were identified with certainty by a combination of geological and chemical studies using more than 2,000 outcrop and subsurface rock and hydrocarbon samples.¹²

It is convincingly argued that during Cretaceous time an epicontinental sea covered most of the Rocky Mountain area and that a remnant of the great sea, isolated in the Uinta Basin, became gradually more saline throughout most of Eocene time.

¹⁰F. V. Greene, "Asphalt and Its Uses," Transactions of the American Institute of Mining Engineers, XVII (May, 1888 - February, 1889), p. 359.

¹¹John M. Hunt and others, op. cit., pp. 1671-1698.

¹²Ibid., p. 1671.

During this whole period the sediments of the Uinta basin were characteristically fluvial and deltaic around the edges, often oxidized and red in color, grading sharply over into siliceous dolomites, often highly bituminous, apparently deposited in a reducing environment from the salty water in the center of the lake. There were large fluctuations in the area covered by the lake so that the lacustrine and fluvial deposits interfinger in a very complex manner. . . . The three formations of interest, from oldest to youngest, are the Wasatch, the Green River, and Uinta. These names have been used by some largely as facies terms to differentiate sediments which were believed to be of different age but actually were deposited simultaneously. The Wasatch is predominantly fluvial and continental, consisting of redbeds and heavy sands. Much of what has been called Wasatch in the cliffs along the south side of the basin was deposited at the same time as what has been called Green River in the center of the basin. The Green River includes those beds of lacustrine lithologic type, of which the most distinctive are oil shales. The Uinta formation consists of red and green shales with channel sands. It is particularly well developed in the northeastern part of the basin and grades into lacustrine beds which have been called Green River toward the center of the basin. In this paper the terms Wasatch, Green River, and Uinta are used to designate time-stratigraphic units, unless it is expressly stated that they are used as facies terms by some phrase like "Green River lithology."¹³

Hunt, Stewart, and Dickey then proceed to describe in some detail the Wasatch, Green River and Uinta formations, pointing out the source rocks of each of the four distinctly different hydrocarbons in the Uinta Basin. These hydrocarbons are ozocerite from the Wasatch formation, albertite and gilsonite from the Green River formation, and wurtzilite from the Uinta formation. Their detailed description follows:

Wasatch Formation

The Wasatch is primarily a redbed, non-lacustrine

¹³Ibid., p. 1673.

formation, and is exposed all around the southern margins of the basin. In the Soldier Summit area the upper Wasatch consists principally of variegated shales and channel sandstones with some lacustrine sediments, consisting of marine fossil shales and dense limestones. Some shales contain ostracods but the limestones are almost barren of fossils, which differentiates them from the limestones in the units above and below. Locally this lacustrine facies contains highly bituminous oil shales.

Ozocerite is a native wax . . . which occurs as filling in fracture breccia associated with north-south-trending faults in the southwest margin of the basin near Soldier Summit. The faults cut the non-marine upper Wasatch, and the origin of the ozocerite is apparently the bituminous lacustrine oil shales farther northeast toward the center of the basin. The Carter Oil Company's Ruth Nelson No. 1 had a show of oil containing wax similar to ozocerite on the northern margin of the basin in beds of shoreline facies close to typical Wasatch redbeds. In the latter area it is fairly obvious that the hydrocarbon was generated in oil-shale facies and migrated a short distance laterally into sandstones in a redbed facies. A similar condition appears to exist at Soldier Summit, where the upper Wasatch red shales change facies to oil shales a short distance downdip (northward). In the Roosevelt and Duchesne fields oil is produced directly from fractured bituminous shales in the basal Green River. The heavy ends of this oil are remarkably similar to ozocerite. The source beds of the ozocerite from the field studies appeared to be in the vicinity of the upper Wasatch-Green River contact.

Green River Formation

The Green River formation reaches a maximum thickness of nearly 7,000 feet near the center of the basin. It includes three major facies: lacustrine, shore, and sub-aerial. The lacustrine facies are of two major types. The first type consists of siliceous carbonates containing dolomite, calcite, and finely crystalline quartz with a wide range in amounts of organic matter and small amounts of clay minerals. These are generally called "oil shales," and are peculiar and distinctive. They weather white and are exposed as high cliffs in many places. The other lacustrine type consists of gray-green shales interbedded with minor amounts of thin white limestone or dolomite. These beds occur abundantly in the western and southwestern part of the basin. The shore facies is composed of interbedded sandstones and calcareous shales and muds, which locally contain oölites, clastic calcareous mudstones, and

algal reefs. These grade laterally into the subaerial facies which is predominantly brown sandstone and siltstone, interbedded with minor amounts of red and green shale. The latter have generally been called Wasatch, even though they are of Green River age.

The lower part of the Green River consists of oil shale, red and green shale, sandstone, marlstone, oolite, and algal reefs. The unit contains many fossils at the base, predominantly gastropods and pelecypods that are believed to be either fresh- or brackish-water types. Similar fossils are not found in any of the overlying beds.

In the lower Green River formation about 500 feet stratigraphically higher than the ozocerite deposits are found small deposits of an entirely different hydrocarbon: albertite. This hydrocarbon occurs in fissures within the lake beds. The largest albertite vein is 4-8 inches wide and can be traced for several hundred feet. Other hydrocarbons that appear to be less weathered forms of albertite, such as ingramite, occur in the same general area, and all of them appear to have originated in the lower Green River lake beds in which they are found. In fact some veins have such a small lateral and vertical extent that they can be tied directly to their source rocks.

The middle part of the Green River contains a large number of sandstones, which are more common on the margins of the basin than in the center. Along the south rim of the basin there are thick sandstone beds saturated with liquid gilsonite. The sandstones that are saturated all belong in the near-shore facies and are interbedded with and grade laterally into oil shale. The more massive sands farther from the oil shales are not saturated, even though they are laterally updip from them.

Many small joints occur in the lacustrine facies in the center of the basin. These are filled with gilsonite that apparently was derived from the adjacent shales. In the eastern part of the basin, the large Dragon and Weaver gilsonite veins terminate downward in oil-shale beds. The sediments in Evacuation Wash are near-shore, and characterized by oolites and algal reefs which have been described by Bradley (1929). No fossils except ostracods and insects are found.

The lake reached its maximum areal extent during late Green River time. Shoreline facies occur around the margins of the basin, but most of the subaerial beds have been removed by erosion. The top of the unit contains a highly saline facies, characterized by cavities formerly

occupied by crystals of various carbonate salts. In the western part of the basin the lithologic character is still lacustrine and the unit consists of green shales with little bituminous or carbonate content, and no hydrocarbon veins. In the eastern part of the basin the section is predominantly oil shale which ranges widely in richness. The richest member of the oil shales is known as the "Mahogany ledge" and consists of bedded oil shales of various lithologic types, mainly very dark brown and black, hard, cherty dolomite and papery, laminated shale, which averages, when retorted, 30 gallons per ton of shale-oil. It is stratigraphically the same member that is being mined by the U. S. Bureau of Mines in the Piceance basin at Rifle, Colorado. It is exposed on the east margin, but is not present on the west or south sides of the basin.

In the Bonanza-Rainbow area there is a restricted zone containing crystal cavities which are empty, filled with calcite, or filled with gilsonite. These cavities apparently were formed by the solution of nahcolite, or other complex carbonate salts.

A shoreline facies of upper Green River is present along Raven Ridge on the northeast margin of the basin, and many of the sandstones are saturated with asphalt. The source of this asphalt is apparently the rich shales into which the sandstones interfinger basinward. Heavy sandstones of Green River age which also interfinger with oil shales basinward are found saturated with asphalt around the southern margin of the basin.

All the hydrocarbon veins within middle and upper Green River are gilsonites, most of which branch into a series of veinlets in the rich oil shales. . . . The largest gilsonite veins cut about 1,500 feet of section and reach a thickness of approximately 20 feet. At their base in the general zone of the Mahogany ledge, veins as thin as 1/4 inch have been observed, although the average is nearer 1 inch. The gilsonite veins were clearly derived from the upper Green River formation, and nowhere do they cut the underlying beds of basal Green River and Wasatch facies. There is no evidence that any of the gilsonite veins originate in the overlying Uinta formation. Although many of the veins are widest in the subaerial deposits of the Uinta formation, in all places they terminate downward in the Green River. The total hydrocarbon in these veins actually represents only a fraction of that remaining in the oil-shale source beds. For example, the Cowboy gilsonite vein represents only 0.1 per cent of the weight of rock in one mile radius from the vein, yet the rocks average about 11 per cent organic matter.

Uinta Formation

The Uinta formation overlies the Green River formation. The red and green shales and channel sandstones, which are characteristic of the Uinta formation in the Bonanza area, grade westward into lacustrine oil shales. Some of these lacustrine beds are lithologically peculiar, consisting of very cherty bituminous carbonates with abundant cavities once occupied by crystals of soluble salts.

West and south of Duchesne in these Uinta beds of lacustrine facies are found veins of the hydrocarbon wurtzilite. Most of the veins are less than 2 feet wide and 20-30 feet in height. Few veins can be traced more than a mile or two, and occur at about the same stratigraphic horizon. All are completely enclosed by bituminous marlstones which are their source beds.¹⁴

Figure 3 presents major stratigraphic and geological time divisions in use by the United States Geological Survey.

Since changes in the hydrogen-to-carbon ratios in the hydrocarbons of the Uinta Basin occur suddenly in short stratigraphic sections and in both directions of depth rather than increasing uniformly with an increase in depth, it is assumed that the evolution of gilsonite was little effected by varying conditions of temperature and pressure.¹⁵ Likewise, it is believed that clay minerals had very little catalytic activity on the forming of the Uinta Basin hydrocarbons, because hydrocarbons within one time unit whether in limestones, dolomites, or sandstones have the same composition.¹⁶ It is maintained

¹⁴Ibid., pp. 1673-1678. For various tests--infrared spectra, refractive indices, elemental analyses, and chromatographic analyses--conducted on hydrocarbons and source rocks to determine the precise type of hydrocarbon and its strata of origin, see pages 1678-1690.

¹⁵Ibid., pp. 1696-1697.

¹⁶Ibid.

FIGURE 3

MAJOR STRATIGRAPHIC AND TIME DIVISIONS IN USE BY
THE U. S. GEOLOGICAL SURVEY*

Era	System or Period	Series or Epoch	Estimated ages of time boundaries in millions of years
Cenozoic	Quaternary	Recent	
		Pleistocene	1
	Tertiary	Pliocene	10
		Miocene	25
		Oligocene	40
		Eocene	60
Mesozoic	Cretaceous	Upper (Late)	
		Lower (Early)	125
	Jurassic	Upper (Late)	
		Middle (Middle)	
	Triassic	Lower (Early)	150
		Upper (Late)	
Paleozoic	Permian	Middle (Middle)	
		Lower (Early)	180
	Pennsylvanian	Upper (Late)	
		Middle (Middle)	
		Lower (Early)	
	Mississippian	Upper (Late)	
		Lower (Early)	255
	Devonian	Upper (Late)	
		Middle (Middle)	
		Lower (Early)	315
	Silurian	Upper (Late)	
		Middle (Middle)	
Lower (Early)		350	
Ordovician	Upper (Late)		
	Middle (Middle)		
	Lower (Early)	430	
Cambrian	Upper (Late)		
	Middle (Middle)		
	Lower (Early)	510	
Precambrian	Informal subdivisions such as upper, middle, and lower, or upper and lower, or younger and older may be used locally.		3,000

*U. S. Department of Interior, Fred A. Seaton, Secretary, Suggestions to Authors of Reports of the United States Geological Survey, 5th edition (Washington: U. S. Government Office, 1958), p. 90.

that the most important factor for change in hydrocarbon types came with changes in the depositional environment--Uinta lake--which in time generally increased in salinity.

For a graphic representation of the increase of the lake's salinity and sediments see Figure 4. A description of these changes from Hunt, Stewart, and Dickey follows:

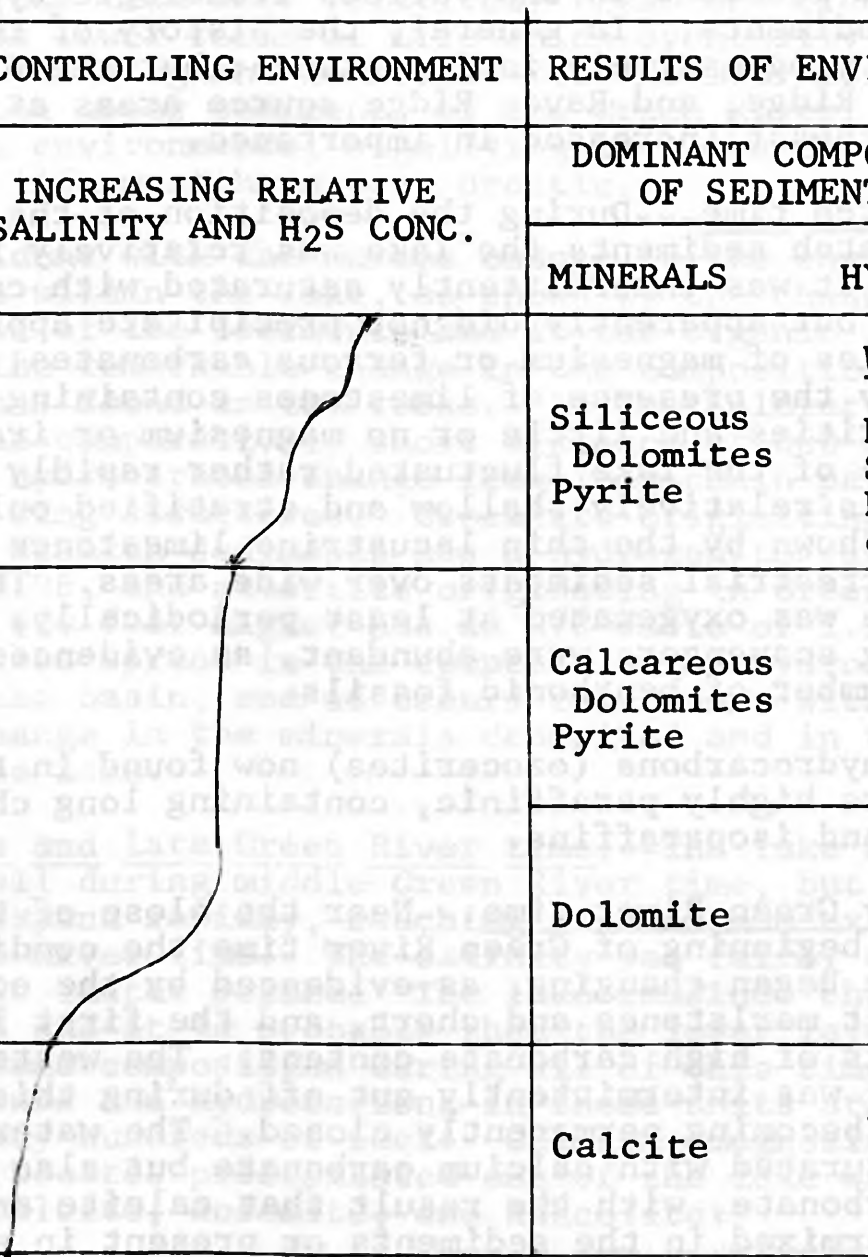
The increasing salinity resulted from continued evaporation accompanying continuous input of stream water into the lake. The increase in salinity with time is shown by the occurrence of minerals such as calcite, requiring relatively low concentrations for precipitation, in the basal sediments, and complex iron, magnesium, and sodium carbonates of high solubility in the younger sediments. Also, the increasing number of crystal cavities in the youngest sediments are a reflection of highly saline conditions. Accompanying this change in mineralogy is a decrease in the number of macroscopic fossils of benthonic organisms. The major changes in the composition of the hydrocarbons correlate stratigraphically with the changes in mineralogy and fossil type. In general, the dominant molecular structure of the hydrocarbons changes from paraffin chains to aromatic rings, and to chain and ring compounds high in sulphur and nitrogen, the most important representatives being ozocerite, albertite, gilsonite, and wurtzilite, respectively. . . .

The climate of the basin during Tertiary time was warm and humid, as shown by the assemblage of temperate and semi-tropical flora and fauna (Berry, 1925). The lake water apparently became stratified with the rise in salinity, so that the lower layers became cooler and increasingly stagnant, while the upper layers were comparatively warm and rich in organic life. . . .

Each of the types of hydrocarbon deposits in the Uinta basin occurs in a particular sedimentary facies. The oil shales occur only in the lacustrine facies. The hydrocarbon veins, which originate from the oil shales, occur primarily in fractures in the part of the lacustrine facies containing oil shale although some are well developed in large associated sandstones. The deposits of bituminous sandstone occur in the shore facies, where reservoir sandstones interfinger with lacustrine facies containing oil shales. The subaerial deposits are barren of hydrocarbon.

FIGURE 4

CHANGE IN COMPOSITION OF HYDROCARBONS AND MINERALS
WITH ENVIRONMENT*

AGE	CONTROLLING ENVIRONMENT	RESULTS OF ENVIRONMENT	
GROUP	INCREASING RELATIVE SALINITY AND H ₂ S CONC.	DOMINANT COMPONENTS OF SEDIMENTS	
		MINERALS	HYDROCARBONS
Uinta		Siliceous Dolomites Pyrite	<u>Wurtzilite</u> Naphthenes, Sulphur and Nitrogen compounds
		Calcareous Dolomites Pyrite	<u>Gilsonite</u> Aromatics and Nitrogen compounds
Green River		Dolomite	<u>Albertite</u> Condensed aromatic rings
		Calcite	<u>Ozocerite</u> Paraffin chains
Wasatch			

*Graph taken from John M. Hunt and others, op. cit., p. 1692.

The geographic position of the facies containing a particular type of deposit changed during the history of the Uinta lake, due to the change in size of the lake and the consequent lateral movements of the shore with time. . . .

Changes in the relative importance of borderland areas as sources of sediments accompanied the changes in lake size and resulted in the various lithologic types of Uinta basin sediments. In general, the history of the lake, decreased progressively in importance; but the Diamond Fork, Asphalt Ridge, and Raven Ridge source areas at the north and northeast increased in importance.

Wasatch time.--During the deposition of the Paleocene and Wasatch sediments the lake was relatively fresh and clear. It was intermittently saturated with calcium carbonate, but apparently did not precipitate appreciable quantities of magnesium or ferrous carbonates, as indicated by the presence of limestones containing small amounts of impurities and little or no magnesium or iron carbonates. The size of the lake fluctuated rather rapidly and it probably was relatively shallow and stratified only occasionally, as shown by the thin lacustrine limestones interbedded with terrestrial sediments over wide areas. The bottom of the lake was oxygenated at least periodically, and bottom-dwelling scavengers were abundant, as evidenced by the large number of benthonic fossils.

The hydrocarbons (ozocerites) now found in these sediments are highly paraffinic, containing long chains of both normal and isoparaffins.

Early Green River time.--Near the close of the Wasatch and the beginning of Green River time the conditions within the lake began changing, as evidenced by the occurrence of the first marlstones and chert, and the first laminated sediments of high carbonate content. The western outlet of the lake was intermittently cut off during this period, finally becoming permanently closed. The water was not only saturated with calcium carbonate but also with magnesium carbonate, with the result that calcite and dolomite are intermixed in the sediments or present in small alternating beds or laminae. This balance between the concentration of various salts was apparently quite delicate because of the rapid changes in the types of minerals deposited. The amount of fine clastics, derived from rising borderlands, increases as shown by the change from limestones to marlstones. The non-carbonates and carbonates are commonly found in thin laminae or lenses, indicating that they were deposited in a more or less cyclic manner. The major mineralogical change was from dominantly calcitic carbonates

to dolomitic carbonates. This change coincides with the change in clastics.

The lake was chemically stratified intermittently, and eventually became permanently stratified. Stable layers of saline, toxic (H_2S) water formed on the bottom of the lake, destroying all mollusks and bottom-crawling life. The upper layers of the lake were relatively fresh and clear, supporting various lower forms of life which eventually were preserved in the stagnant lower layers. No macrofossils are found in the upper sediments of the Green River, except in near-shore environments, signifying that the disappearance of animal life must have been drastic.

Coincident with the marked change in the environmental conditions within the lake, as shown by the change in mineral composition of the sediments and in the organic life of the lake, is the remarkable change in the composition of the hydrocarbons found in the rocks. At the Soldier Summit section in the comparatively short distance of 600 feet vertically the hydrocarbons change from long-chain paraffins to condensed ring structures. Ozocerite originating in the uppermost Wasatch sediments has a hydrogen-to-carbon atomic ratio of 1.96, and albertite originating in Green River sediments 600 feet higher has an H/C ratio of 1.32. This is the widest spread in the composition of hydrocarbons found in the basin, and it occurs coincident with the most drastic change in the minerals deposited and in the organic life of the lake.

Middle and late Green River time.--The lake was relatively small during middle Green River time, but it soon began to expand rapidly, reaching its maximum extent during late Green River time. The salinity was fairly constant during this latter period. The lake remained chemically stratified and it is probable that the lower layers had much the same composition during all of this time, because the sediments and hydrocarbons in these units are very similar for many hundreds of feet. Calcium, magnesium, and sodium carbonates precipitated out of the lake water and are found as calcite, dolomite, and nahcolite.

Pyrite is common in all of the sediments. The chemically stratified layers filled the trough parts of the basin but only intermittently covered the shelf areas, as indicated by the alternate layers of simple and complex carbonate minerals in sediments in these areas.

The condition of the lake through middle Green River time was conducive to the formation and preservation of large amounts of organic life. The richest oil shales,

including Mahogany ledge, were deposited at this time, and it is in these sediments that the deposits of gilsonite are now found. The composition of individual gilsonite samples varies in different parts of the basin, but all of them contain far more aromatic ring structures than the ozocerite found in the Wasatch sediments below or the wurtzilite found in the Uinta sediments above. Gilsonite-type hydrocarbons also are unique in having the highest nitrogen content (3 per cent) of any hydrocarbon in the basin.

Uinta time.--Near the close of the Green River and during Uinta time the lake shrank rapidly in size and occupied only the western part of the basin. It finally disappeared in early Duchesne River time. These rapid changes in size are accompanied by changes in environment that are reflected in the type of hydrocarbons and sediments deposited. The shrinkage resulted in the lake waters becoming progressively more stagnant and saline. The entire section of Uinta lacustrine sediments is characterized by a variable but increasing carbonate content, the presence of crystal cavities, and large amounts of chert. Calcium, magnesium, and sodium carbonates and silica were precipitated from the lake water. Magnesium probably was present in greater quantities than previously, as evidenced by the occurrence of sepiolite, a magnesium silicate.

The drastic change in the lake environment was accompanied by an equally marked change in the type of hydrocarbon found in the sediments, from the aromatic gilsonite to the more naphthenic wurtzilite high in sulphur and nitrogen. The change from gilsonite to wurtzilite occurs at almost exactly the same horizon as the change in sediments, so that the basal Uinta formation represents a transition zone.

It is of particular interest that as the salinity of the lake increased progressively from Wasatch to Green River to Uinta, there was an increase in the quantity of the nitrogen and sulphur appearing in the hydrocarbons. Thus, ozocerite contains none, albertite less than 2 per cent, gilsonite as high as 4 per cent, and wurtzilite as high as 7 per cent nitrogen and sulphur combined. There seems to be no doubt that as the salinity of the lake increased the asphaltic nature of the hydrocarbons increased, the latter forms containing the largest quantities of nitrogen, sulphur, and oxygen compounds.¹⁷

The origin of the great vertical fissures running

¹⁷Ibid., pp. 1690-1696.

generally northwest to southeast in rather parallel lines across the Uinta Basin has been somewhat controversial, but it is felt that A. L. Crawford presents a sound argument for their origin along tension lines in a syncline.¹⁸ The fracture system has a slight curvature to it with the fissure trends in the northwest portion of the basin varying as much as twenty degrees less from north than those in the southeastern part of the basin.¹⁹ As synclinal, tension, tear-cracks the gilsonite-filled fissures would have been, as they are, generally wider with increased depth. Crawford says that:

A strong westward and upward thrust originating in the Uncompahgre Plateau would have had an effective buttress in the east-west mass of pre-Cambrian quartzites composing the Uinta Range, (or conversely, an eastward thrust, originating in the Uintas or the Wasatch, would have had a buttress in the Uncompahgre) and a synclinal warping of the Basin would have resulted.

There would have been a tendency to open diagonal northwest-southeast tear cracks in the hanging wall block bordering such a fault. As the tension along the fault was relieved by periodic slips, there is assumed to have been a jolting of considerable magnitude that effected the bitumen-filled sands near the base of the Eocene series. This mechanical action is assumed to have been comparable with the sudden squeezing of a sponge and to have forced out the viscous fluid almost simultaneously with the formation of the diagonal tear cracks. . . .²⁰

¹⁸Arthur L. Crawford, "Gilsonite and Related Hydrocarbons of the Uinta Basin, Utah," The Oil & Gas Possibilities of Utah, compiled by G. H. Hansen and M. M. Bell for the Utah Geological and Mineralogical Survey (Salt Lake City: University of Utah Press, 1949), pp. 248-252.

¹⁹Ibid., p. 249.

²⁰Ibid., pp. 248-249.

This squeezing effect would have been of particular importance in filling the gilsonite veins which reach from the middle Green River formation up through the Uinta and into the Duchesne River formation. In the case of fissures filled with ozocerite, albertite or wurtzilite, the liquid hydrocarbons could have and probably did migrate laterally into the vertical cracks.²¹

III. USES

In industry, both domestic and foreign, gilsonite has been used in the production of such a wide variety of goods since 1888 that it would be impossible to present a detailed study of uses in this paper. Instead, the intention is to present here a brief survey of the uses of gilsonite and gilsonite-like substances in both ancient and modern times and to make a rather protracted list of the current uses of gilsonite.²²

Like Moses, King Sargon, "while an infant, was placed in a reed basket coated with asphalt . . . and set adrift on the waters of the Euphrates. . . ." ²³ Glance pitch was known to exist on the Euphrates just west of Bagdad, and was used in Babylon for such purposes as stair treads, pavements, cementing

²¹John M. Hunt and others, op. cit., pp. 1674-1678.

²²For a detailed history of the uses of hydrocarbons, see: Herbert Abraham, op. cit., I, Chapter 1.

²³Abraham, op. cit., p. 5.

stone walls, and waterproofing baths as early as 3,200 to 2,900 B.C.²⁴ Likewise, it was used for waterproofing brick walls in India about 3,000 B.C.²⁵

The Assyrians are reported to have recommended the use of asphalt for medicinal purposes:

. . . when mixed with sulphur as a fumigant, as a salve for swollen feet and hands; when mixed with oil for soothing the eyes; when mixed with beer as a sedative for the stomach. . . .²⁶

In Sumaria, gold foil, hair, and other objects were cemented to statuary by asphalt-like substances as early as 3,500 B.C.²⁷ This cementing material was probably glance pitch from the Dead Sea which was so widely used in ancient times. It is known that the Dead Sea's glance pitch, called "gilsonite" by J. M. Locke, was used in the embalming of the Egyptian dead.²⁸

Also in ancient times, asphalt was used as ammunition for the Greek fire throwers.²⁹ The burning asphalt would cling to buildings or people, and the flames could not be extinguished without damp earth.

In Mexico during more recent times, the Totonacs collected a gilsonite-like substance from the region of the Panuco River and sold it to the Aztecs "who, in turn, compounded it with chicle . . . and used the mixture as chewing-gum. . . ."³⁰

²⁴Ibid., pp. 9-10.

²⁵Ibid., pp. 16-17.

²⁶Ibid., p. 29.

²⁷Ibid., p. 8.

²⁸Ibid., p. 19.

²⁹Ibid., p. 38.

³⁰Ibid., p. 54.

At the end of the fifteenth century, the Incas of Peru constructed an elaborate system of roads, "some of which were paved with a composition not unlike modern bituminous macadam."³¹ Both the substance used in the Aztec chewing gum and that in the Incan roads were probably grahamite.

"On his third voyage to America . . . Columbus discovered the island of Trinidad;" and with the gilsonite-like asphalt of Trinidad Lake," he careened his galleons and caulked their storm-racked seams. . . ."³²

When gilsonite was first mined on the Carbon Vein near Fort Duchesne, Utah, it was used primarily in the manufacture of paints and varnishes, a superior gilsonite varnish having interested Adolphus Busch and C. O. Baxter in the Utah gilsonite deposits. Busch attempted unsuccessfully to use gilsonite as a lining for his beer aging vats, a thing which has been only recently accomplished with excellent results by the Gordon S. Ziegler company.

In 1897, before the opening of the Uncompahgre Indian Reservation, it was excitedly announced that the vast Utah gilsonite deposits might be held as a government monopoly, since it had been discovered that gilsonite made a comparatively permanent protective-coating for ship hulls.³³ The excitement about

³¹Ibid., p. 45.

³²Ibid.

³³"Uncle Sam Needs Utah Gilsonite," The Vernal Express, August 12, 1897, p. 1.

this particular use for gilsonite subsided; and, of course, the Uncompahgre deposits were soon being exploited by private industry. In 1907, The Vernal Express reported of Uinta Basin hydrocarbons that:

. . . Fifty-two by-products can be made from them, including thirteen different kinds of oil. Briefly, we mention a few of those by-products as follows: cement for paving streets; waterproof paint for guns; varnishes; coating for barbed wire fences; coating sea walls of brick and masonry; coating paving brick; acid-proof lining for chemical tanks; roofing pitch; insulating electric wires; smoke stack paint; coating poles, posts and ties; lubricant for heavy machinery; torpedo-proof pile coating; covering wood-block paving; binding pitch for culm in making eggeite and briquette coal, rubber belting of all descriptions, rubber for boot and shoe heels, rubber for boots and shoes and, in fact, for all kinds of rubber goods; pipe coating; reservoir coating, floorings, roofings and railroad coatings. After all the above and many other things have been made from this wonderful mineral it has been said that enough colors are left to make the finest quality of ink, and that even after that there will be plenty left for lead pencils.³⁴

In 1918, the Salt Lake Mining Review emphasized the rather recent use of gilsonite with oil residiums to form compounds demanded by rubber and insulation manufacturing companies.³⁵

During World Wars I and II, the gilsonite producing companies lost their foreign markets which had been using about half of all the Uinta Basin gilsonite mined. Conversely, linseed oil became scarce and high-priced in the United States. A. L. Crawford says that "gilsonite effectively took the place

³⁴The Vernal Express, December 20, 1907, p. 6.

³⁵Salt Lake Mining Review, XIX, No. 19 (January 15, 1898), pp. 25-26.

of part of the linseed oil in the foundry industry at an enormous saving."³⁶

In 1928, gilsonite was used principally in japans, varnishes, paints, waterproofing compounds, roofings, floor coverings, felt saturation compounds, battery boxes, fillers for automobile tires, rotogravure ink, and phonograph records.³⁷

Ten years later, a similar list was given but with the following additional uses of gilsonite: asphalt tile, saturation of brake linings and belting, saturating compounds for insulating wire, and pipeline waterproofing and insulating compounds.³⁸ A contemporary list of uses added telephone headpieces, buttons and combs.³⁹

In 1950, H. Clyde Davis made a long list of gilsonite uses⁴⁰ in which he said that gilsonite was also used as melting point additives for many resins and oils, trowel mastics for flooring and roofing, refrigeration car linings, and heavy

³⁶Arthur L. Crawford, "Gilsonite and Related Hydrocarbons from the Uinta Basin," Bulletin of the Mineralogical Society of Utah, VII, No. 1 (June, 1947), p. 46.

³⁷The Vernal Express, December 13, 1928, p. 1.

³⁸J. S. Miller, Jr., "Native Asphalts and Bitumens," The Science of Petroleum, edited by A. E. Dunston and others, IV (New York and London: Oxford University Press, 1938), p. 2710.

³⁹E. W. Harmer, "Gilsonite Mining in Utah Expands," The Mining Journal (Arizona), XXIII, No. 7 (August 30, 1939), p. 7.

⁴⁰H. Clyde Davis, "Geology of the Culmer Gilsonite Vein of Duchesne County, Utah," (unpublished Master's thesis, Brigham Young University, 1952), p. 75.

lubricant. The American Gilsonite Company published a list of "a few of the uses of gilsonite"⁴¹ prior to the construction of their sixteen million dollar refinery in Gilsonite, Colorado, west of Grand Junction. This list is shown below:

A Few of the Uses of Gilsonite

Building Materials

Asphalt Floor Tile
Coated Building Papers
Roofing Materials
Felt-Base Floor Covering

Inks

Roto-gravure
Printing

Rubber Products

Protective Coatings

Electrical Insulating Varnish
Baking and Air-Drying Enamels
Industrial and Roofing Paints
Acid-Resisting Paints
Asphaltic Sealers, Putties
Stoving Japans

Organic Filler
Extender
Stiffener

Miscellaneous

Rope, Cable Lubricant
Core Compound
Mold Wash
Mastic Floors
Pipe Coatings
Mineral Wool Binder
Tank Linings
Alkali-Resisting Coatings
Canvas, Burlap, Saturants
Belt Saturants
Military Flares
Finger Print Powders
Bridge Planking

Molded Products

Battery Boxes
Electrical and Mechanical
Parts
Brake, Clutch Linings
Toilet Flush Tanks

Wax Compounds

Insulating Wire
Bat-Bak Coatings
Engravers Wax
Barrel Linings

Automotive Industry

Underbody Coatings
Chassis Blacks
Sound Proofing and
Insulating Compounds
Sealers

⁴¹The Amazing Story of Barber Gilsonite (Salt Lake City: American Gilsonite Company, 1954), pp. 8-9.

Also, an excellent paper entitled "Gilsonite and its Industrial Applications" has been prepared by the American Gilsonite Company, giving in considerable detail descriptions of how gilsonite is used in paints and varnishes, spirit varnishes, cold-cut paints, printing inks, wax compounds, asphalt compounds, and molded products.

Today, 1958, there are three producing gilsonite companies operating in the Uinta Basin. These are, from least to greatest in gilsonite production, the Standard Gilsonite Company, the Gordon S. Ziegler Company, and the American Gilsonite Company. As explained in Chapter III above, most of the gilsonite now produced by the Standard is used as an additive for well-drilling fluids--"Beaver Dam"--or, when mixed with Portland cement, as a well-cementing agent--"Gilsonite Cement." However, smaller quantities are used in a fireproof paint called "Flame-Control" and are sold as graded gilsonite ore to manufacturers. In Chapters III and VI above it was explained that the Gordon S. Ziegler Company uses gilsonite in a crushed form, called "Trisulate," for hot pipe insulation, in a compound for lining beer aging-vats, and in many commercially valuable wax and pitch compounds produced in the company's plant at New Market, New Jersey. Ore graded as to size and melting-point is also sold to various manufacturers. As explained in some detail in Chapter VI above, the American Gilsonite Company's gilsonite is sold in raw form to be used for numerous purposes in industry; some is crushed and sold under the name of "Gilsulate" as a

hot-pipe insulation; but most--from 700 to 900 tons per day--is crushed, cleaned, mixed into a water slurry and pumped seventy-three miles through a pipe over the Book Cliffs into Gilsonite, Colorado, where it is reduced into two principal commercial products--a high grade gasoline and a pure carbon coke.

Until recent years gilsonite producers were often concerned with the problem of marketing all of the gilsonite mined. With the development of modern transportation systems and the use of gilsonite as a source of gasoline and coke as well as a versatile agent in deep-well drilling, the concern within the next few decades may well be one of finding enough gilsonite to market.

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