



Gratia A. Countryman and Family Papers.

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MEMOIRS
OF
THEOPHILUS RUSSELL COUNTRYMAN

THE CRIPPLE CREEK YEARS

1892-1926

Well, here I am, a broken down, retired mining and civil engineer, 85 years of age, and not much good for any kind of work. My sister, Gratia, has suggested that I write my memoirs, or perhaps autobiography would be the proper word. I have never kept a diary for very long and have no other records at hand, must depend on my memory for everything I write. I am not a literary man, have never written anything but engineering, mining, and geological reports, and a few technical articles for technical journal.

1891

(July, August)

It must have been about August 1st when we arrived at New York City and I got my feet once more on the soil of good old U.S.A. I sent a telegram to Ada and another to father. My total expense from Montevideo to New York was about \$250. and so I decided to spend a couple of days there and see a few of the most important sights of the big city.

I stopped at the "Murray Hill" on 40th St. I had enough money to pay my expenses home, but Mr Smith had given me some letters to the Chief Engineer of the N.Y. Central Railway, and so got a pass to Chicago. At Chicago, Col. McClure gave me a pass to Minneapolis and then on to Denver. I stayed only 2 or 3 days in Minneapolis and then on to Denver. My dear little six-year-old daughter Alta was in Minneapolis, but I let her go back with a lady friend, Mrs. Edwards, who was travelling by a different route.

How delighted I was to be with my dear wife and children again. I had travelled (by ocean and railway) some 15 or 16 thousand miles and felt like resting. - But financial conditions with us were such that I could not afford to rest very long. I had arrived home with not over \$50. Ada had paid off all debts on our home, but had only about \$300.- left in the bank. It was quite clear that I must find a

job of some kind soon and go to work. Naturally I first inquired about work with the various railway companies of Denver. I soon found that none of them were doing any new construction or even contemplated doing any in the near future.

I also inquired at the offices of some of the leading mining companies, and finally in about two weeks after reaching home I heard from a friend that one of the leading mining engineers in Leadville wanted an assistant. I got his name and address and resolved to go and see him instead of writing. I obtained a round trip pass to Leadville over the D. & R.G. Railway and went there at once and saw him, told him my experience and references and got the job.

His name was William Byrd Page, from old Virginia. He was a cousin of Thomas Nelson Page the famous writer. He had been in Leadville some 7 or 8 years. He wanted a man chiefly for office work who knew something about Geology and map making. The pay was \$100.- per month to begin with, besides a nicely furnished little bedroom just back of his office, for me to occupy. I accepted it, although the pay was much less than I had received for some time. But a "half loaf is better than no bread". I went back to Denver, got my clothes and a few other things and returned to Leadville on a pass over Colo. Cen. Railway.

September, 1891; My work was chiefly office work although I went out with Mr. Page frequently to help him make underground surveys and examinations.

Leadville was one of the great mining districts of Colorado producing silver, gold, lead, zinc, and a little copper. The elevation at the business center of town (Main St. and Harrison Ave.)

was 10200 feet above sea level. Most of the principal mines were 100 ft. to 500 ft. higher. The district was about at the apex of its production or about 20 million dollars per annum. There were perhaps nearly 200 mines, great and small, but some 10 or 12 properties made fully half of total production.

Mr. Page was then a large stockholder in a mine which a year or two later became one of the greatest mines in the state. Mr. Page was then getting up a large comprehensive map of the entire district showing the location of the principal mines, and the position of all the largest ore bodies discovered at that time. It was my business to make that map from a large number of other maps and survey notes. And I spent most of my time for nearly 7 months in doing that and making several cross sections showing geology, etc.

Mr. Page allowed me to go home for the Christmas to New Year's week without any deduction from pay.

By being quite careful in my personal expenses I managed to earn a living for myself and family. We owned our home and so had no rent to pay. Ada discharged her maid and did her own house work besides taking care of our 3 small children which is some task.

Living in Leadville was rather expensive owing to the fact that supplies of every kind had to be hauled up from Puebla 170 miles on a steep grade. One could not get a very satisfactory meal for less than 50 cents.

Early in 1892 we began to hear some very favorable reports from a district in El Paso County about 10 miles southwest of Pike's Peak. Reports of the discovery of gold-bearing veins and placers. Mining men in Leadville paid little attention to them at first, because only

a few years before a gang of swindlers had started some false reports of rich strikes of gold ore, not very far from that locality. Many prospectors had rushed in, only to be sorely disappointed. But later on, more reports and more reliable reports began to come in. At the same time very reliable reports came from another district way up in the mountains to the south west called "Creede", the name of the man who had found it. It was a silver "strike" and most prospectors preferred to go there.

1892

About Feb. 1 1892 Mr. Page's brother-in-law, Louis S. Noble, a geologist, came to Leadville and went into partnership with him. Mr. Noble, a man of about my age, was a very highly educated, accomplished and experienced engineer. He was a very fine man and a good friend for many years after.

About April 1, 1892, I had completed the map Mr. Page had engaged me to make. Very favorable reports continued to come from the new camp in El Paso County (called Fremont then) afterwards called "Cripple Creek". Mr. Page, Mr. Noble and I began talking over the idea of opening an office there. And it was finally agreed that we would form a partnership and do so. I was to go there and open the office and do all the work. Mr. Page and Mr. Noble had plenty of business in Leadville. I was to have $\frac{2}{3}$ of the net profits of the Cripple Creek office and they $\frac{1}{3}$. They both had a large acquaintance among the mine owners and mining men of Leadville and other districts and could therefore secure much business for me in case Cripple Creek should prove to be a valuable permanent district.

But to make the best of such business, it was necessary that I

secure a commission as a "Deputy U.S. Mineral Surveyor". To do that I had to go to Denver to the Office of the U.S. Surveyor General, give him some satisfactory references, pass the required examinations, and give bond in the sum of \$10,000.- The examination required a thorough knowledge of geometry, plane and spherical trigonometry, and the use of logarithms, and the solution of certain special problems given. I also had to know some of the principal laws governing mining claims and lands. Besides that I had to take a transit, test it for correct adjustments, go out with the examiner to a place in the suburbs of the city at a certain time of day, there take observations on the sun, and from these observations, calculate the latitude, longitude and true meridian.

Well I succeeded in doing all that correctly. I arranged with a surety or bonding Co. for my bond at the rate of \$25. per year payable in advance. Then after taking an oath to do my work to the best of my ability, and to support and defend the Constitution and Government of the U.S., I was given my commission. I may as well state right here that I held that commission for about 34 years.

I returned to Leadville, packed up my personal belongings and made ready to go to Cripple Creek. Mr. Page had a spare transit and some long steel tapes and a few other things necessary in making surveys for me to take.

I went by train on Colo. Midland Ry. to a small station "Florissant" and there got a stage to Cripple Creek over a rough mountain road of 25 miles. Cost of stage ride including baggage equaled \$6.00. I think there were some 12 or 15 passengers hanging to

that old "Concord" stage. To the best of my recollection it was April 20, 1892. That little new town was a sight to behold, built largely of rough boards, a few log houses and lots of large tents with cots, and some small tents.

I got my first night's lodging on a cot in a large tent with about 50 other lodgers. We had a heating stove and some wash basins in common but you had to furnish your own towel. Price 50 cents per night.

The next day I had to find an office or place of business of some kind and it was difficult. Finally I got "desk" room on a ground floor in a large room where there were three others in real estate and nine promoters, and a lawyer. One large wood stove heated the whole room. Rent-\$20 per month for the desk room, when I could get a desk. Furniture of any kind was rather scarce. Everything had to be hauled in by teams for 25 miles over a very rough mountain road. But I finally got a small desk and chair and that was the extent of my furniture for the time being. Then I hung out a canvas sign which I had brought from Leadville:

PAGE - NOBLE - AND COUNTRYMAN; MINING ENGINEERS AND SURVEYORS

There were only two other "U.S. Deputy" surveyors with offices in town before I arrived.

Well, I soon got some business, and in a few days plenty of it, more than I could do. My chief difficulty was to get efficient and reliable assistants. I had to have at least two, and usually three was better. The town was the usual "mining boom town". Prospectors,

business, real estate, capitalists and a few professional men. Lots of saloon keepers, bartenders and gamblers. The chief difficulty at this time was to get building materials. There were very few pine trees in that vicinity large enough to make good lumber so that the first buildings put up were made of rough narrow pine boards full of knots, cut by small movable saw mills.

A company was engaged at this time in building a "Toll Road" to a station on the Colorado Midland Railway called "Divide", about 20 miles from Cripple Creek. It was finished about July 1st and then became the principal connection with the outside world. Divide was about 35 miles from Colorado Springs by railway.

Shortly after, a company was formed called the Midland Terminal Ry. Co. to build a railway from Divide to Cripple Creek, and another company was formed to build a narrow gauge Ry. from Canon City, some 35 miles to the south. Engineers and survey parties began that summer (1892) making surveys for both roads.

Perhaps here I should give a brief history of the discovery of the Cripple Creek district. All that country for miles around had been a good stock (cattle) region for many years past, a summer range where cattle would do well on the native grass for 6 to 8 months.

One outfit, Bennett and Myers owned some 500 cattle which ranged all summer over the Cripple Creek area and adjoining areas. They had bought from the government a few years before over 160 acres, a quarter section upon which they had built a few rough buildings, ranch house, horse stables etc. for the use of their superintendent, cowboys and riding horses.

One of their cowboys Robert Womack had come from California where

he had worked on a stock ranch and had also done placer mining for gold. A small clear stream, fed by springs higher up, flowed down through this ranch. One day in June 1891 while crossing this creek he got off his horse to get a drink where the water was flowing over bare bedrock. He saw some bright yellow grains caught in a riffle in the rock. Womack knew what they were. He kept it quiet, but every time he got a chance, he took a miner's placer pan and went down to the creek and "panned" the sand. In a few days he had collected some 3 or 4 ounces of almost pure coarse gold dust.

Like most cowboys, he wanted to go on a "spree" when they get surplus cash and so he went down to Colorado Springs and sold his dust to a jeweler for about \$50.-. He wouldn't tell where he got it at first, but he met some old pals, and they soon got gloriously drunk, and then the secret came out. In a day or two it became known all over town. The word GOLD is a lure for old prospectors all over the world. There were always many of such men, loafing around Denver, Colorado Springs and other towns soliciting someone with money and a gambling instinct to "grubstake" them.

Soon many of them got ready with their pack animals, (generally mules and burros) loaded with grub, blankets, pick and shovel, perhaps some powder, and started for the Bennett and Myer stock ranch, some 55 miles from Colorado Springs. Among these numerous prospectors was Winfield Scott Stratton. He was a carpenter who had been living in Colorado Springs for several years and had done some prospecting in the mountains for several summers before, just at his own expense. He knew something of geology and mineralogy and was better informed than most prospectors.

All of these first prospectors expected to hunt for placer gold

in the various creek beds and most of them were disappointed. Stratton also hunted for float, that is fragments of vein matter or quartz carrying small particles of free gold. After a few days tramping over the numerous hills he failed to find anything that looked good to him and decided to return home. He was sitting down eating his lunch near an outcrop of rock sticking up above the surface a few feet and for a length of 50 or 60 feet. He thought at first it was red granite, but on closer examination he saw it was just a reddish hard quartz. He broke off some pieces and noticed numerous small gray and white crystals imbedded in the quartz. He had never seen any such mineral before and decided it must be some kind of silver ore.

He broke off several specimens from different parts of the outcrop and started for home. He gave those specimens to an assayer there to test for gold and silver. The next day the tests had been made and to his astonishment they showed values of from \$300. to \$600. per ton in gold. No silver! Those small gray-white crystals were "sylvanite", a telluride of gold and one of the richest and rarest of gold ores in combination known.

When Stratton saw these results, he took the first train to Divide, hired a horse there and rode his best to the place of his discovery. He arrived there July 4th, 1891, put up his "Discovery Notice" and called the claim the "INDEPENDENCE".

Mining claims must always be given a name; whatever the claimant wishes, only that it must not be profane or obscene. Seldom has any prospector made such a profitable celebration of the Fourth of July! Stratton developed and mined this claim for about ten years, made a

profit of fully 3 million dollars, and then sold it to an English company for 10 million dollars cash. But that is another story.

Stratton's discovery soon became known and in a short time hundreds of prospectors were swarming over the hills. Bennett and Myers laid out their 160 acre ranch into townsite lots and called it "Cripple Creek" because one of their cowboys who tried to jump his horse across the little stream, broke that horse's leg. And so the town was started. Later on many other towns were started in various parts of the district.

Prospectors and others were hunting 'float' and digging holes, shafts, trenches - all over the hills.

It was a difficult area to prospect. There were very few outcrops. The solid rock was covered nearly everywhere with 3 to 10 feet of soil, gravel and loose rock. Many veins and dykes were found. Some had rich ore, some low grade ore, some no ore.

But inasmuch as there were no good roads connecting with the railroad, no ore was shipped in the year 1891. Perhaps a little very rich ore was carried out in sacks on pack animals.

Bennett and Myers and others had brought in some small horsepower saw mills and dragged in pine logs from all directions and cut up a quantity of rough lumber from which the first houses were built.

1892(March)

In March, 1892 a rough road to Florissant^s on the Colorado Midland Railway was finished for the 25 miles. A company called the Anaconda Company that had found some rich ore, hauled out a car load of about 25 tons and shipped it to a Denver smelter. It returned an average of \$250. per ton.

This caused much more excitement among the mining fraternity. Capitalists, promoters, business men and still more prospectors started for Cripple Creek. Professional men and building trades workmen were also numerous and the town began to BOOM. Such was the situation when I arrived about the middle of April, 1892.

Many claims had been discovered and located but probably not half of them had been surveyed and recorded.

The U.S. laws give any citizen over 21 years the right to take up lode (vein) and placer claims. He must put a written notice at the place of discovery giving date, the length and breadth of claim and the approximate course and distance each way from the notice, and the name of claim and claimant. He must then do his assessment work (\$100.00 worth), stake out and record a certificate describing it with the county recorder, all within 60 days from date of discovery. The maximum size of a lode mining claim is 300 feet in width by 1500 feet in length. It may be of any size less than that, but in all cases the end lines must be parallel. In making a location survey, a substantial post or stake must be placed at each corner and also a stake at the center of each side line. On all these posts must be

marked the name of the claim and the number of the corner.

There were many claims at this time waiting to be surveyed and recorded. There were also many claim owners who wished to have patent surveys made. And so I had plenty of work to do within a few days after my arrival.

I charged \$15.00 per day for my work, plus the wages of my assistants. That seems like good pay, but it was hard work and I frequently put in 10 or 12 hours per day. Climbing up and down those steep slopes, carrying a 25 pound transit on your shoulder for 8 or 19 hours, and then walking back some 2 or 3 miles to town is a day's work for anyone...especially at an elevation of some 10,000 feet above sea level.

As time passed and many more buildings went up, I was able to get a better office; a room all to myself with a small drawing table, a sleeping cot in one corner and two more chairs.

Another wagon road had been made to Cannon City (35 miles south) and a little rich ore was being hauled over this road to the smelters at Pueblo.

I will state here that the Cripple Creek ores were what was called "refractory" ores. That is the gold could not be recovered by the usual "stamp mill-amalgamation" process. The smelting process, although more costly recovered nearly all the gold.

Not very much ore was shipped from the district during the years 1892 and 1893 because it cost \$5 to \$6 per ton to get to the nearest railway station, so that only the best ores could be shipped at a profit. Even after the toll road to Divide was finished in August the cost was still high.

About July 20, 1892 Ada and the children came up to see me. They had a private rig (instead of stage) to drive in from Divide, but still it was a rough trip. I had rented a little 2 room frame cabin for a week, and we got our meals at my boarding house. In spite of some troubles, we had a good visit. The children enjoyed it immensely, but Alta somehow caught an attack of the measles before they went home.

About August 10th I went to Denver, expecting to meet Lana there, but she did not come. I stayed four days to see the "National Conclave of the Knight Templars", which is held every 3 years in some large city. They held some wonderful parades in full uniform.

I still had plenty of work to do, but was not rushed as at first. But one trouble now came up. Of course many of those who employed me were perfect strangers. I could not tell who were honest and who were not. I could not demand pay in advance. Some of them asked for credit "for a few days" after I had completed their work. And many times the "few days" lengthened into weeks and months. But I always paid my assistants on Saturday nights, or whenever they wanted to quit.

By this time I was getting quite a number of U.S. patent surveys to make. That kind of work was more profitable; for only U.S. Deputy Mineral Surveyors were allowed to do it. And it had to be done with the greatest care and accuracy. The limit of error in the length of a claim was 0.3 or $\frac{3}{10}$ ths of a foot. The limit of error in course of side line was 1 minute or $\frac{1}{60}$ th of a degree. That would not seem so difficult on level ground, but on steep slopes and on rough ground it is different. Cor. No. 1 of each claim must be connected with the

nearest corner of the government land surveys, and the name of such corner - the section and township to which it belonged, and a full description of the boundaries and corners established and the position and value of all the work done upon the claim. To obtain a patent on a lode claim the value of the work done must be not less than \$500. The applicant for a patent had to send to the U.S. Surveyor General at Denver a certain printed Form of Application, together with a certified copy of his location certificate (from county recorder), also a money order for \$30.00 (the Surveyor General's fees) and giving the name of the Deputy Surveyor that he wished to do the work.

On receipt of an application, the Surveyor General would send an order to the Deputy named by the applicant. Each survey order was given a distinct number, running consecutively from the first patent surveys made in the state. I think the first patent survey number issued for Cripple Creek was about #7500. An applicant might apply for a patent on a 'group' of claims provided they were all adjoining and the requisite amount of work was done on each of them. After receiving the order from the Surveyor General, a Deputy was expected to make the survey within a reasonable time and send in to the Denver office a complete copy of his notes with a full report on work done. He had also to send with it a map or plat drawn on a scale of 200 feet to an inch and showing position of all workings and the connection to a section corner. There were various minor details in connection with the work.

I think I was given my first order for making a patent survey about June 1st, 1892. I made it promptly and sent my notes, plat and report to the Denver office. I very soon became acquainted with what

is generally known as "government red tape". The Denver Surveyor General's office had numerous examiners, clerks and draftsmen hunting very diligently for mistakes. And the most trivial of mistakes would cause the whole thing to be sent back to the deputy surveyor for correction. They would not make any corrections there. Even a misspelled word might cause a return of notes. And no erasures were permitted. And the entire report must be in the Deputy's own handwriting. No typewritten copies accepted. Because of the many rigid and sometimes ridiculous rulings, a Deputy's fees were considerably higher than otherwise.

The usual minimum fee for a patent survey of one lode claim at that time was \$50.-. The government made no rulings regarding a deputy's charges for his work. On the contrary they did something to aid him to collect his bill. When the survey was approved by the Surveyor General, duplicate copies and maps were returned to the Deputy who did the work, not to the applicant, thus giving the deputy a chance to demand his fees before delivering the approved notes and maps to the claim owner.

The owner after getting possession of these approved maps and papers would make his application for patent in the following way: He had to post up one of the maps with a notice on some conspicuous place on his claim in the presence of a witness or witnesses. He had to arrange with some newspaper in the district to publish for 60 days his notice of application describing the claim. And then he must send to the nearest U.S. Government Land Office his notice of his application together with the duplicate copy of notes and map made by the Survey General. At the end of 60 days advertising, or any time

thereafter he could send to the Land Office his final papers and affidavits, together with the money for the land at the rate of \$10 per acre for actual area applied for. A full lode claim (1500 by 300 feet) contains 10.3 acres.

Then, if no adverse claims had been filed against his application, he would be given a "Receivers Receipt". The local Land Office would then send all papers and money to the "General Land Office" in Washington. There a lot of investigators would hunt down industriously for any flaws in the proceedings. If none can be found then the claimant is sent his Patent which is simply a warranty deed from Uncle Sam.

The above is very briefly the method of getting title to a mining claim. But when once you get it, Uncle Sam defends it. Unless some one can positively prove that frauds and perjuries were used by applicant, the title cannot be broken.

I soon had more patent work than I could attend to, and Mr. Noble came down from Leadville to help me for about two weeks. Shortly after I hired a skillful experienced transit-man to help me out on the field work. Pay was \$5.00 per day. Other assistants got \$3.00 per day. And a day was as long as you could see to work.

Prospectors and business men were coming into town every day on foot or horseback or by stage. The town was building up rapidly, especially the main business street called Bennett Avenue. Good lumber and furniture were being hauled in from Colorado Springs, the nearest large town. Capitalists, mine promoters and lawyers were also getting numerous and all the indications of a booming western mining camp were evident.

No expert experienced geologists had yet appeared, but many old prospectors and mine owners were of the opinion that the ore deposits so far discovered were superficial and would not extend to very great depths. Owing to the lack of the necessary machinery, most of the workings were comparatively shallow. Probably the deepest shaft was not over 100 feet deep and there were as yet no steam hoisting engines. All we knew about the geology was that the rock was a volcanic conglomerate or "breccia" (bricksha) and that it extended over a large but unknown area, and was surrounded by a fine-grained red granite.

Very few prospectors had the means to develop their claims sufficiently to ascertain their real value, and so were willing to sell for a fair cash price. Some claims were thus sold in the early days for a few hundred or thousand dollars, that afterwards proved to be worth millions.

And now I must tell of my real estate deals in Denver, which later on proved to be so unfortunate. I had begun investing in some cheap residence lots in the winter of 1887. I did not have much capital at that time but later on in the summer of 1887 I sold my two lots in Minneapolis for \$3000. (half cash) and then bought 12 suburban lots in Kountz Heights Addition at \$200. each. They gradually increased in value but I did not sell them. In the summer of 1888, I had acquired enough money to buy 12 more in another locality at \$150. each. I also bought, partly on credit 2 lots close in and surrounded by good dwellings at \$1500 each.

In the summer of 1889 I sold the two \$1500. lots at a good profit and bought 12 lots at \$300. each. Upon two of these lots I built a

home at a cost of a little over \$3000. On these last 12 lots there was a mortgage of \$1200. I deeded this home and 12 lots to Ada as before stated and my family moved into that home about October, 1889. The first home of our own.

And now I had a piece of good luck. About September 15th I received from Mr. Smith the sum of \$3000. as payment in full for the balance due me for my South America trip.

About that time I sold my 12 lots in Kountz Heights for \$400. each. For this I got in exchange from the buyer his equity in a new home and his note for \$2000. secured by a second mortgage on the Kountz Heights lots upon which he proceeded to build several small dwellings. The new home was a nine room pressed brick house in a good location near city park and only two blocks from an electric car line.. It was valued then at about \$7000. and there was a mortgage on it for \$3500. My family at once moved into the new home and we had it nicely furnished. There were very fine dwelling houses all around it.

And now there was a presidential election coming up. President Harrison was nominated by the Republican Party for a second term and ex-President Cleveland was again nominated by the Democratic Party. Colorado had always been a strong Republican state and most of us thought that Harrison would be re-elected. It was generally known that Cleveland was in favor of the repeal of "Bland Silver Purchasing Act". This act had been passed a few years before, and required the government to purchase four million (4,000,000.) ounces of silver per month from U.S. silver mines. That was then about the total production of the country, and it resulted in maintaining the price

of silver at about \$1.25 per ounce. Because of this, the silver mining industry had prospered greatly and became one of the chief industries in the state. It had also been of especial benefit to the city of Denver. There were four large smelting establishments there and other industries related to mining. Denver had become the financial and distributing center for several of the mining states and the future looked promising.

But after the election of Cleveland the outlook was not so rosy. Still no one suspected a financial panic the next year, followed by several years of a severe business depression.

1892(October)

Sometime in October, 1892, I had an opportunity to buy in Cripple Creek a small but substantial building and lot for \$600. cash. This building was in a good location for my work. It was 25 feet wide by 50 feet deep. I divided it into 2 equal parts and rented one part to a lawyer, Owen Prentiss for \$25. per month. I finished off a small bedroom on my side and furnished it, thereby saving office and room rent and getting an income too. This place I occupied for about two years. I think it was about this time I bought another (new) transit for \$300. I had been boarding (meals only) with a Mrs. Cady for \$1.00 per day. Good well-cooked meals too. I don't know how she did it.

About October 1st I employed a new transitman and draftsman, Ted Lowe at \$75. per month and lodgings with me.

By the end of 1892 some 3 or 4 other U.S. Deputy Surveyors had opened offices in the district and competition became rather keen. As well as I can remember their names were as follows: Warren, Smith, Brewster, Hills, Luckraft, Miller, Leffingwell and myself. There were a few other surveyors who were not U.S. Deputies and had no regular offices.

I went home to Denver the day before Christmas and stayed until after New Years and had a very pleasant vacation and rest with my dear wife and children. Ada had had the new home nicely furnished and everything was very comfortable.

I balanced up my books to the end of 1892 and sent to Page and Noble at Leadville their $1/3$ share of the net profits. I don't remember the amount, but I remember there were a lot of unpaid bills, some of which I never collected.

The town of Cripple Creek was in a sort of basin surrounded by a circle of hills much higher. The elevation of the town at business center on Bennett Avenue is 9400 feet above sea level. The surrounding hills were from 500 to 1500 feet higher. To the north were "Mineral" and "Carbonate" hills, to the east were "Gold" and "Ironclad" hills and beyond them were "Raven" and "Bull" hills. To the south were "Anaconda" and "Beacon" hills and beyond, the "Squaw" Mount and "Battle" Mount. All of these hills (as afterwards determined) were within the 'mineral bearing' or eruptive area.

Most of my work during this winter and spring was on patent surveys. It kept me outdoors more than half my time and it was a cold job.

In the spring of 1893, I began preparing a map of the mining claims in the district. I was unable to get all the data necessary for making an accurate map, but it was better than no map at all. It was platted on a scale of 500 feet to an inch and showed the approximate position of the summits of the principal hills, the section lines, the patent survey claims and many of the location surveys. It was quite a job and took most of my spare time for two months but it paid off. I made a careful tracing of this map and sent it up to Denver and had about 50 blue prints made from it. At that time no one in Cripple Creek had the facilities for making blue prints. There was a good demand for those blue prints and I think they were all sold within a week for \$1.00 each. After that I kept a

supply on hand.

And now in late spring every one became conscious of the probability of an approaching calamity in the way of a financial panic and business depression. And when the House of Representatives voted for a repeal of the Bland Silver Purchasing Act the panic began. It was especially severe in Colorado and Denver. Silver mining was the chief industry of the state and when the price of silver dropped from \$1.25 to 0.60 cents per ounce it compelled fully 3/4ths of the silver mines to close. That compelled many smelters to go out of business. Of course it affected directly or indirectly nearly every kind of business. All of the banks in Denver had to close their doors. The three largest and strongest were only closed a few days. They were the First National, the Colorado National, and the Denver National.

I had a small deposit of about \$200. in the First National and I went to Denver to see about it. The runs on the banks were still going on and the business streets were filled with white faced and anxious men and women. I knew one of the tellers in the First National Bank and asked him about things. He said "Don't worry. This bank has over a million in U.S. registered bonds and Mr. Moffatt has wired New York Exchange to sell them at once at market. The money will soon be here and then we will have sufficient to pay all depositors in full if they want it." And so I was relieved for the time being.

Like most others I did not see the long long business depression, lasting some seven years, that was to follow. Although Cripple Creek was a strictly gold producing district, this panic caused a temporary

depression there. This was because investors and capitalists were scared about investing in anything. It delayed the completion of the railroads into the district and retarded the development of good mining claims. Still most of us had faith in the future of the camp. Those who could not get sufficient money to equip and develop their claims proceeded to get them patented and make their title secure, which was a very wise precaution because during the next few years there was a great deal of claim jumping and litigation.

The city of Cripple Creek had given a franchise to an eastern company to put in a water supply and sewer system, and the company had gone to work on it and completed it in the latter part of 1894. Up to that time we depended largely on water hauled from a large spring about one mile west of town. It was delivered at your house for \$1.00 per barrel and you furnished the barrel. Many people depended on the rain water. The little stream flowing through the town was polluted by stock grazing above town.

About August 1, 1893, Ada and I started for Chicago to visit the World's Columbian Exposition. I had long before made up my mind to see that show and although finances were low, we decided to go. We left Alta and Ralph with a lady friend in Denver and took Russell with us and sent him to his grandfather at Minneapolis, from Omaha and went on to Chicago. We stayed there for about two weeks and saw about everything we cared to see. I enjoyed that trip very much, and although I have seen other Expositions since, I have never seen anything I enjoyed so much. We returned to Denver by way of Minneapolis and took Russell home with us.

A short time before I went to Chicago I had employed another

assistant to take charge of my office while I was in Chicago. as he worked for me and my partner for several years after, I must tell about him now. He was a young English engineer who had come to the U.S. about a year before. His name was Frank Parkinson. He was about 28 years old at this time. His father had been a coal mine owner in England, but had met with some financial reverses and so Frank had come to the U.S. He had lived with a brother in Florida until April 1893; then hearing of the Cripple Creek mining camp he decided to "go west, young man" as Greeley advised. He had taken out his first naturalization papers and decided to become a citizen of the U.S. He had a fairly good technical education and also some experience in underground surveying and mapping. He was a short stocky bulky fellow of great strength and endurance. But he was a typical "Johnny Bull" and decidedly set in his opinions and prejudices. He soon learned the work to be done and was always careful and industrious.

Towards the end of the year Page and Noble decided to turn the whole business over to me because they had now acquired valuable interests in Leadville. Mr. Page, a few years before, and in partnership with several others, had taken a lease and bond on some mining ground in Leadville called the "Little Johnny". They had worked on it at times for two years and had spent over \$40,000. before finding any ore at all. Then in the latter part of 1892, at a depth of some 1200 feet they had struck some rich gold ore. Development then was carried on rapidly, and by the end of 1893 they knew they had a real Bonanza. To make a long story short, this mine within the next 15 years produced a total of 75 million dollars in

gold and paid in dividends about 36 million dollars. Mr. Page owned a 1/8th interest in it.

Shortly after this I sold my office building in Cripple Creek and rented an office of two rooms over a book store on Bennett Avenue. I made a profit of \$200. on my trade. But it was not so in Denver. Real Estate there dropped about as fast as silver did. I went to Denver some time in November and tried to dispose of a few suburban lots I had, but no use. Still some of the real estate men advised holding on, saying that values would come back in a year or two. Well it turned out to be 10 years on vacant lots.

Near the end of 1893 Mr. John S. Luckraft came to me one day and suggested...yes urged...that we go into partnership. I had known him for some time. He came to Cripple Creek shortly after I did and was doing a very fair business, but was not very expert in making patent surveys. I took the matter under consideration, made some inquiries about him, and decided to go in with him.

Mr. Luckraft was an Englishman of good family. He had been a lieutenant in the English Navy where he had served as midshipman since he was 15. About 1877 his father died leaving him a legacy of around some 10,000. pounds sterling (\$50,000.) and he resigned from the Navy, took his money and came to the U.S. He had heard many stories of the money to be made in stock raising in the west, and he came direct to Colorado Springs. I think he had some friends there.

Colorado Springs then as now had a great many English families. They used to call it "Little Lunnon". Many of those families had made large fortunes in mining and stock raising. It was the richest town per capita in the state. The population then was about 20,000.

North Cascade Avenue was known as "Millionaire's Row" Mr. Luckraft went into the stock business with cattle, but he knew about as much about stock raising as the average cowboy would know about navigation. Luckraft like most naval men was a very jovial, convivial chap and frequently gave champagne suppers to some of his friends. His stockraising was looked after by his partners and employees. They proved incapable or dishonest or both. At any rate within a few years that legacy had nearly disappeared.

About this time he married a wealthy young English woman of Colorado Springs. Or rather, her mother was wealthy. She purchased a nice little home for them there and went back to England. Luckraft managed to earn a living at various jobs until Cripple Creek was discovered. He had had some experience in surveying as assistant to the county surveyor. So he decided to open an office as a surveyor in Cripple Creek. He was well known and generally well liked by most of the business men of Colorado Springs and especially by his English friends. Colorado Springs capitalists and others were heavily interested in the district. It was the nearest city to the camp. They had 'grub-staked' prospectors and bought claims and were now engaged in building a railway to the town of Cripple Creek from Divide on the Colorado Midland Railway, a distance of 25 miles. These same men would have lots of surveying and engineering work in the future and Luckraft would be able to get much of it. And so we entered into partnership beginning January 1, 1894 on equal terms, 50-50 on profits.

During the latter part of 1893 I acquired two pieces of real estate in Cripple Creek in payment of some bills for my work. One

was a lot on Bennett Avenue near Fourth street for the \$100. and the other a lot three blocks south of Bennett Avenue on which was a three room frame dwelling, for a bill of \$150. I and my assistant Parkinson lived in that cottage. The lot on Bennett Avenue, I sold in the summer of 1895 for \$1000. Mr Luckraft had no office downtown so we used the office I was in for some time.

We had a pretty fair business right from the start. Many of Mr. Luckraft's friends who had wanted to help him but were somewhat doubtful of his ability now gave our firm their business.

And now another trouble arose. Owing to the repeal of the Silver Purchasing Act, many silver mines all over the state were obliged to close. Some silver mining districts were almost entirely abandoned.

And so a great many mining engineers and U.S. Deputy Surveyors came from other districts to Cripple Creek. Competition was becoming severe and some were beginning to cut their usual fees. I consulted with 2 or 3 of the oldest men and we decided to call a meeting to discuss the question. There was very little difficulty in getting every one to agree that there should be a uniform scale of charges for most of the work.

A committee of 3, of which I was one, drew up an agreement which was later signed by all the Deputies then in the district. This agreement covered all work done by the day or by contract.

In the Spring of 1894, we had a miners' strike which lasted some two weeks. They were striking for an 8 hour day, instead of 9 hours, and for a minimum wage of \$3.00 for underground men. There was some violence at first, and then the county sheriff of El Paso county came up from Colorado Springs with a small army of deputies, some 200

men. There were some clashes and skirmishes around the hills and near the larger mines. I think 2 miners were killed and several more injured. The sheriff succeeded in arresting 40 or 50 of the worst leaders. The leading mine owners held a meeting in Colorado Springs. They agreed to the 8 hour day and \$3.00 minimum wage but refused to recognize a "union closed shop". It was settled on that basis, and in a few days the miners all went back to work. There were no more serious labor troubles until 1903.

About the end of July, the narrow gauge railway track reached Gripple Creek from Canon City. A few days after, the first train came in and the town held quite a celebration.

1894(June)

About June 1st I fixed up my cabin, sent Parkinson to room elsewhere, and Ada and the children came to Cripple Creek over the new railway. Ada brought some bedding and a few dishes and so we were fairly comfortable. She had rented the Denver home while she was gone, to some friends. They stayed there until about October 1st so I had the pleasure of living with my family some 4 months.

Some time near the end of 1894 the water company completed their system and thereafter we had a bountiful supply of pure cold soft water from the melting snows and ice of the great Pikes Peak range.

There is not much of importance to record for the latter half of 1894. The end of track on the Midland Terminal Railway was still 6 miles from town. Owing to the financial depression they had not been able to sell their bonds at par and besides they had some very expensive grading to do, and some deep rock cuts and short tunnels.

The town was building up as fast as they could get building materials. Bennett Avenue, the main business street (100 feet wide) was built up solidly for three blocks. The blocks were 500 feet long with practically all frame buildings and fully half of them only one story high. There were also many small dwelling houses built. Some other townsites had been laid out to the south and east of Cripple Creek. There was Anaconda, Elkton, Victor, Goldfield, Independance and Altman. Victor was the most important of these. It was at the south end of the district some 5 miles from Cripple Creek, and later on grew to be a town of some 6000 population. Altman, a little town

of about 5 to 6 hundred population, was located at the summit of Bull hill at an elevation of 11,300 feet above sea level. It was distinguished as being the highest incorporated town in the U.S.

Sometime in the summer of 1894 the government sent 2 geologists to Cripple Creek to examine and report on the geology of the district. They were Whitman Cross and R.A. Penrose. They were experienced professional men and had been in the government service for several years. By this time considerable development had been done. There were hundreds of shallow workings all over the district, but comparatively few deep shafts. I don't think there were any more than 500 feet deep, and probably few over 300 to 400 feet deep. Those 2 geologists with a few assistants were there about 3 months.

They came to me for copies of my map which showed the position of all patent surveys and the principal shafts where ore was being mined and shipped. They made a great many barometrical observations to determine the comparative elevations of the different shafts and hills. A full report of their work was printed and issued by the government early in 1895. All of the engineers and mine owners could get a copy by just asking for it.

I will attempt to give a brief summary of it. The district was an eruptive area of an irregular elliptical shape some 5 miles long in an northerly and southerly direction and 2 to 3 miles wide. This was caused by an eruption or series of eruptions by a group of active volcanoes extending over many years or centuries. When these eruptions finally ceased there was left a vast mass of shattered eruptive rocks of many kinds; granite, porphery, andisite, phonolite, basalt etc. This mass was gradually solidified or cemented by the

percolation of silicified solutions. It formed a volcanic conglomerate, commonly called breccia (breck sha).

And still later, perhaps millions of years, other disturbances cracked and fissured this mass of breccia. The largest fissures were filled by basalt, phonolite, quartz etc.. Hot waters and vapors from below carrying minerals in solution, deposited the minerals in the many dykes and crevices as they neared the cooler rock near the surface. This process went on for centuries, perhaps millions of years. (A million years more or less doesn't worry a geologist any.) As no fossils of any kind were ever found in this rock, it seems probable that the disturbances occurred long before there was any life upon the earth. Geologists also believe there was a vast amount of erosion. Perhaps some of the hill tops had been cut down as much as 1000 feet.

In the summer of 1896 the government sent out 2 other distinguished geologists, Waldemar Lindgren and Frederick Ransom with a large corps of assistants and they made a more complete report. I will tell more of that later on. This is about the end of 1894.

Since my family went back to Denver on October 1st, I and Parkinson had been living in my cabin. I still got most of my meals at Mrs. Cady's boarding house. I went home as usual for the Christmas holidays. We were still living at my home at 1340 St. Charles Street. I went back to Cripple Creek the day after New Years, 1895.

Then I had a cold job for about two weeks of outside work; a patent survey of a group of claims that lay on top of one of the high hills where the wind blew and the temperature was about zero. Well

anyone could stand that all right if they were chopping wood or doing some kind of hard work, but standing behind a transit and writing down notes in a book is something different.

And now about February 1, 1895 I went to the Surveyor Generals office in Denver to work for about three months. This is how it happened...A few months before, President Cleveland had appointed a new Surveyor General in place of the Republican incumbent E. C. Humphrey. The new official, Mr. Thomas D. Robinson was an old friend of mine. Of course this resulted in a change in nearly all the employees of the office. Because of this change there was much confusion and delay in the work of the office. Mr. Robinson needed some expert help to examine some very complicated patent applications and offered me \$150. per month for a limited time. as our business in Cripple Creek was rather quiet at that time, my partner said that he and our 2 assistants could handle it. So I went to Denver.

At this time my sister Lana on her way home from California, stopped over a few days at Denver to visit us. I had not seen her for some 3 years and was glad she came.

And so for about 3 months I worked in the Surveyor Generals Office. I was thoroughly familiar with that business now and could do a lot more than any of the new examiners.

But I was greatly worried about the Denver real estate situation. it did not improve at all. It got worse. Experienced real estate men advised holding on. I did so for a few years and had to let go some of it. I succeeded in Paying off the incumbrance of \$1200.- on our home, but lost \$2000.- plus a lot more for taxes and interest. No doubt many others had the same experience.

Some time in April, Ada took Ralph and went down to Galveston, Texas, and spent about 3 weeks at the sea shore. I don't think she had ever seen the sea shore before.

I went back to Cripple Creek about May 1st, 1895 and found plenty to do. Soon after Mr. Luckraft had a cablegram from England that his mother was very sick, so he decided to go back at once. He took his wife and little girl, Isabel who was about 5 years old, and started in the latter part of May. He did not return until about October 1st. I was very busy all that summer and had to hire another transit man, Dan Hooke, who had worked for me several times before on railroad surveys. I still had Parkinson and 2 or 3 chain men.

Many new and rich strikes of ore had been made and more miners and prospectors employed. The two railways were both doing a fine business hauling in building materials, mining machinery and tools, coal and supplies of all kinds and hauling out ore. All of the towns were growing especially Cripple Creek and Victor. Some of the best mines then were the Portland - Independance - Strong Gold Coin - Elkton - El Paso - McKinney - Gold King - Moon - Anchor - Victor - Isabella - Work etc.

Our firm had the surveying and engineering for the Isabella, Elkton, El Paso and Work mining companies. Later on we had several other companies. These were all incorporated stock companies and at Colorado Springs they had opened a Stock Exchange where nearly all the stocks of Cripple Creek were listed. As usual there were many companies whose stock afterwards proved worthless. But unscrupulous promoters gave out very glowing reports on them, and unloaded stock on the unwary investor.

Sometime in August, 1895 the Portland Company made an unusually rich strike on the 500 foot level. Several car-loads were shipped that gave returns of \$600. to \$1000. per ton. This started a boom in the stock market. Portland stock, which had been selling around 50 cents per share went up to \$6.00 per share in about 2 months. As the news spread, it caused some excitement among mining investors all over the country and they began coming to the district from all directions, especially the western mining states. The hotel accommodations were quite inadequate but they managed to find some place to sleep, and restaurants and rude lunch counters were numerous.

I sold quite a lot of blue prints of my map of the district. I had enlarged it and brought it up to date, and I had shown on it the general outlines of the eruptive area. I was also called upon to make examinations and reports on some of the properties, a work which paid very well. I was sometimes asked to make favorable reports on claims where no ore or even any veins had been discovered but I declined to be a party to any swindling schemes. It was possible of course that ore might be found in any claim within the eruptive area, but it afterwards turned out that not more than one in ten found pay ore. There were numerous veins large and small running in every direction. Some had rich ore, some low grade ore, and some no ore at all. Claims located at some distance from the eruptive area on the granite area never found any ore at all.

Mr. Luckraft and family returned about October 1st, 1895. They had had a fine time in old England visiting their relatives and friends.

In the latter part of the year a large, two-story frame building

had been finished on the corner of 3rd St. and Myers Ave. We rented three large rooms on the corner of the second floor for \$50.00 per month. It was the best office we had yet had. I also rented a room in the same building and furnished it for a bedroom for myself. I had sold my cabin a few weeks before at a good profit. The lot I had bought on Bennett Ave. in 1893 for \$100.00, I sold in November, 1895 for \$1000.00. A year after, that lot was sold for \$3000.00.

The two main business streets, Bennett and Myers were built up solidly for 4 or 5 blocks and hundreds of dwellings erected. Two newspapers were printed and a large fire-proof hotel costing 150,000.- was being erected at 4th St. and Bennett Ave. Yes, the year 1896 was starting out finely.

The population of Cripple Creek was estimated at 10,000 or more, Victor at 6000 and the entire district, including towns, at 25,000. There was the usual influx of saloons, gamblers, bar-tenders, bad men and swindling propoters. There were also lots of claim-jumpers and their partners, shyster lawyers. They were really just as bad as any other criminals.

Some time in January, 1896 I received a letter from my brother-in-law, A.C. Jaquith asking if he could get a job with me as assistant. I wired him to come at once and sent a check to pay his fare. He was then about 28 years old, and had been married when he was 20 to Miss Clare Josten of Cassville, Wisconsin who was about the same age. He had worked for me about a year (1885-1886) on the construction of the Burlington Railway in Wisconsin. He proved to be a very efficient assistant and was with me until July 1905.

Some time in January, 1896 Ada and the children came up for 2

week for a visit with me.

Sometime in February, 1896 an unusually good strike of rich ore was made on the 5th level of the Elkton mine and shortly after, an adjoining mine. The Raven Mining Co. claimed to have the apex or top or outcrop of this vein, on which the strike was made. A lawsuit was threatened and I was employed by Elkton Mining Co. to make a complete survey of the underground workings of both properties. I made the necessary surveys with complete maps, sections and projections. It showed to the satisfaction of both parties that there were no grounds for a suit. Some few months afterwards those two companies were consolidated.

On April 6th, 1896 a fire started in the building next to our office about 9 A.M. It so happened that my partner and myself were working in the office that day. The wind was blowing away from our building and the volunteer fire company went to work at it, so we did not worry much at first. But it seems there was a lot of inflammable material in that building, and the wind blew harder and extended to buildings beyond, a continuous row of frame buildings. And finally the rear end of our building caught, and we soon saw we would have to move.

We hired an expressman and loaded up with our most valuable possessions; instruments, notes, desks, maps, and took them to Mr. Luckrafts's house on the hill. Meantime the fire had jumped across the street and was spreading rapidly. The water supply failed and nothing could be done to stop it. I managed to get into my room and saved most of my clothes.

Storekeepers were frantic and were offering expressmen \$25.00 per

load to save their most valuable goods. Well that fire just kept burning until it ran out of material, and the whole eastern half of the business part and many dwellings too were in ashes.

We had lost pretty near all of our office furniture and I had lost all of my bed room furniture and bedding. I slept that night on a cot in Luckraft's living room. Tents, cots and bedding were rushed over from other towns in the district and most people managed to find some place to sleep. Next day Mrs Luckraft and her little girl went to Colorado Springs to stay with some friends, and we fixed Mr. Luckraft's front room as a temporary office.

A few days after the fire I went to Denver to attend to some business at the Surveyor Generals office. While there I was astonished to hear that another fire was sweeping Cripple Creek. Yes it was. When I returned I found that nearly all the rest of the business section was in ashes besides many dwellings near the business streets.

Rebuilding began at once. Hundreds of carpenters, bricklayers and others came, living in large tents with cots. Many temporary frame sheds were built at first, but the city council decided that on Bennett Ave. from 1st St. to 6th all buildings must be brick buildings. Building materials of all kinds came up from Colorado Springs, Denver and Pueblo by train loads, and within 6 months the town had been almost completely rebuilt.

We, with a few friends in Colorado Springs, built a brick building of 50 feet frontage by 90 feet deep on Bennett Ave. between 4th and 5th Streets: No. 445 Bennett Ave. The upper floor was divided into office rooms and the ground floor into three store

rooms. This building cost us a little over \$9000.- and Mr. Luckraft and I owned a 1/4 interest we called it the "Ivanhoe" building. We moved into this building as soon as it was completed and occupied the four front rooms on the 2nd floor for offices. Three of these rooms had doors connecting each other. We had all the conveniences available at that time: toilet rooms, electric lights, telephones etc. I fixed up and furnished a back room for a bedroom. We occupied these offices until I left Cripple Creek in 1926.

1896 The Water Situation.

The first deep shafts sunk, were on or near the summits of the different hills. Many of them got to a depth of 500 or 600 feet before encountering any underground water. Shafts lower down and near the granite rim on the west side of the eruptive area would sometimes encounter water at 50 to 100 feet. I will explain the reason for this later on. Work on the government's 2nd geological survey was rapidly progressing all this summer and their employers frequently asked to see our maps and sections which we were glad to show them.

Some time in June my sister Lana sent me an invitation to attend her wedding to Charles Colver and I had made all preparations to go when I was subpoenaed to serve as a juror in the U.S. District Court in Denver. I hardly knew what to do about it, but went to Denver and asked a lawyer-friend of mine there if he, the judge would excuse me if I explained the situation to him. He said he knew old U.S. District Judge Moses Hallett very well. He was a very stern, arbitrary man and would probably refuse to excuse me for any reason except severe illness certified to by a physician. So I went to see

the judge anyway and told him the facts. He smiled blandly and remarked; "You will have to serve on the jury, Mr. Countryman, unless you are sick." So I did not attend my sister's wedding but I sent her a wedding present of \$500.00. I was in Denver about a month on jury duty for which I was paid the handsome wages of \$3.00 per day. As soon as I was dismissed I started for Minneapolis. After a short visit there, Mother and I went to Chicago for a few days to visit Lana and Charles who were living there for a time. From Chicago I went straight back to Cripple Creek, as Ada and the children were taking a short vacation in Manitou.

1896(July)

About July 15 I made a trip to Aspen, Colorado to make a patent survey of four claims for Peter Busch. That was about the roughest bit of mountain climbing and surveying I ever did. Later on in September I made a trip to Hahns Peak, a mining region some 215 miles west of Denver. I had to ride in an old Concord stage coach for 2 days over rough steep roads. I went to examine some mining claims there for some Colorado Springs investors. I did not think they were worth much. While there, I had some fresh venison to eat and was given a hind quarter to take back with me. I sent it to Ada when I reached Colorado Springs.

About September 20, the American Institute of Mining Engineers held their annual meeting at Denver. From there they made several visits to the different mining districts of the state. One day a special train came up to Cripple Creek carrying some 150 members of the Institute.

Luckraft and I were on the local entertainment committee. I had been a member of the Institute for over 10 years but had never had a chance to attend a regular meeting. They stayed two days and nights and visited most of the largest mines, held 2 evening sessions at the National Hotel and had a good time generally.

I think it was about this time I invested \$1000. in mining stock for Father which he sold after a few months at a small profit. About October 1, 1896 we opened a branch office in Colorado Springs. Mr. Luckraft took charge of it but after a few months we decided it did

not pay and closed it up.

Some time in the latter part of November, Ada came up for a few days visit and we looked around for a house to rent. They were hard to find, that is a suitable one, because the town has not been fully rebuilt since the big fire.

About Dec. 10th I went to Denver to meet Father who stopped for a day or two on his way to California.

About the middle of December I rented a small four room house and sent for the family. They came up for a few days with their clothes, bedding and a few other articles. The house I rented was quite comfortable for just Ada and the children and I continued to occupy my own bedroom next to our office. We have rented the Denver home furnished for \$35.00 per month.

Another presidential election had been held in November and a Republican, Maj. McKinley had been elected over Wm. Jennings Bryan, Democrat. Mr. Bryan had been strongly in favor of the "Free and Unlimited Coinage of Silver" at the ratio of 16 to 1. For that reason many of the western mining states, that had always voted Republican, now voted for Bryan. On the other hand, eastern Democrats voted for McKinley. Right there in Cripple Creek it didn't make much difference to us but the state of Colorado went Democratic for the first time in its history. The Republicans had been asserting that a great "wave of prosperity" would sweep over the country, but if it did we did not notice it in Colorado. Denver real estate did not recover a bit, and I let go some of my vacant lots, for taxes and interest did not decrease and I was busy earning living expenses. business in Cripple Creek was only just fair, because

there was too much competition. More than half of our work now was underground surveys, with occasional reports and estimates of value of ore in sight.

About February 15, 1897 I met with quite a serious accident while working underground on the 5th or 500 feet level of the Elkton mine. I was looking up a raise some 50 feet above when a loose rock about the size of a man's fist fell and struck me squarely on my chin, knocked me over senseless and split my lower lip to the bone, a gash an inch long, and loosened some of my lower teeth. My assistant and a miner carried me out to the shaft and hoisted me to the surface. They phoned to town for a rig to take me back to town. It was about a half hour before I came to. Well, they took about a dozen stitches on my lip, put on a poultice and in a few days I was about over it.

Father had been out in California for three or four months investigating the prospect in fruit raising, but I guess he doesn't think favorably of it.

Business is rather quiet but we manage to make a living. Patent surveys are scarce now because nearly all the claims worth the cost have been patented. The water question is becoming quite serious. Nearly all the deep mines are pumping from their lower levels and with good coal at 6 or 7 dollars per ton it adds considerably to mining costs. We have no electric power as yet; just a small plant to furnish electric lights.

1897 : The government's 2nd geological report has just come out and is very interesting. They have also issued a complete set of topographical maps (contour lines 10 feet apart) over the district. It also gave the exact elevation of the collars (top) of all the

principal shafts and tunnels. This government report was of great value in many ways to both the mine owners and the engineers.

A company has begun to build an electric trolley car line from Cripple Creek to Victor, a distance of about 6 miles by the road. It is really needed because there is considerable travel between the two towns. The fare is 10 cents. The railway company has been charging 25 cents, and no regular service either.

About the latter part of the year, the Elkton mining Co. had a mine pumping expert come up from Denver to advise them about their pumping machinery. They were then pumping 2000 gallons per minute, day and night, from their 500 foot level. It had been gradually increasing for some time as developments advanced and they were becoming alarmed. The expert said he believed there must be a large natural underground reservoir nearby, to the east of their workings and advised them to buy and install a better and larger pump, before sinking their shaft any deeper, because their present pump was taxed to near its capacity.

About the end of 1897, several of the largest mines began to pay their first dividends to stock-holders. I remember the Portland, Strong, Gold Coin, Elkton, El Paso, Victor and Isabella were among those who paid substantial dividends. Besides these, there were many small dividend payers and also many individual owners who were making profits. The larger mines had also spent most of their first earnings in development work and the purchase of mining machinery, tools, and the erection of steel buildings and the construction of spur tracks from the railway to their ore hopuses. I think I went home to spend Christmas holiday, but do not remember now.

About the middle of January, 1898, I met my sister Lana (now Mrs. Charles Conger) in Colorado Springs; she had come out for a vacation and to improve her health.

About February 1, my partner Luckraft left for England with his wife and daughter.

And now, a new excitement in the mining world; a tunnel into Beacon Hill through the granite rim to the contact with the eruptive rock strikes a tremendous flow of water. This was at an elevation lower than any of the nearby shafts. The Superintendent of the El Paso Mine and myself fixed up a rude weir at the mouth of that tunnel and measured the flow. It was about 18,000 gallons per minute...a small creek. That flow continued for 2 or 3 weeks and then gradually declined in a few months to a small trickle. I also noted that there was also a sudden and increased drop in the water level at the El Paso, Elkton and McKinney shafts. This tunnel set me to thinking over the water and mine drainage problems. I will refer to this later on.

Some time in April, 1898, the Spanish American War began and we were all greatly excited. There was a general shout of "Remember the Maine". Several Cripple Creek boys enlisted and I knew one who didn't come back. When the news came from Manila of Admiral Dewey's destruction of the Spanish Fleet, we had a general holiday and celebration.

My partner returned from England about May 15, and stated the English people were all in favor of the U.S. in this war.

About June 1st, I took my two dear little boys and went back to Minneapolis on a vacation. On the way we stopped off at Omaha with

some friends for about 3 days, to see the "Trans-Mississippi Industrial Exposition". It was a very interesting show, especially in the way of livestock and farm machinery. Among the most interesting things I saw for the first time was a "horseless carriage" as the automobile was then called. It was looked upon by most people as just a curiosity, a mechanical freak so to speak. Probably very few dreamed that it would ever be anything more than that.

They were all at home in Minneapolis at 14th Ave. S.E. and were glad to see us, and we had a good time. A short time after our arrival we were invited to go out to a farm near Northfield, Minnesota where my Aunt Lizzie with her two children Seth and Ima were living with their Aunt Mrs. Dixon. My boys had a grand time of it. They had never lived on a farm before. When we returned to Minneapolis we found that there was a new arrival, a Miss Constance Conger; another grand daughter, my first and only niece, and my children's only cousin. Then father and I took a trip down to Hastings to see the relatives there and we went out to Prior Lake one day on a fishing trip but had no luck.

Everywhere there was great excitement about Spanish War news. No one seemed doubtful about a final victory, but few thought it would come before the end of the year. Bands everywhere were playing Sousa's great tune "The Stars and Stripes Forever". About July 3rd we heard of the victories of the American Army at San Juan Hill and El Caney in Cuba, and there was great rejoicing. Shortly after, we returned home to Colorado.

About this time I took charge of engineering work on the "Moffatt

Tunnel", a large tunnel not intended for drainage purposes but for development and transportation mainly. It was eventually driven for over a mile and renamed "Ophelia Tunnel". I also did some work the latter part of the year in laying out some long branch lines, spurs and switchbacks for the Midland Terminal Railway.

In November, 1898 I joined the Masonic order; The Cripple Creek Lodge No. 96 A.F. and A.M. I have been a member of that lodge ever since. (And on June 11, 1917, I became a life member at 60 years of age, exempt from all dues thereafter.)

I can think of nothing more of importance for the year 1898, so will start 1899, the last year of the 19th century.

1899; "The month past (Dec 1898) has been about the heaviest snow fall we have had for many years. Here in the Cripple Creek District the snow is 2 to 3 feet deep on the level and drifted badly in some places. It has greatly interfered with shipments of ore especially such mines as have no railway tracks to their ore houses. Up on the main range, snow is said to be from 15 to 20 feet deep, which insure plenty of water for irrigation of farms next summer."

An old mining lawyer, a friend of mine, has been elected governor of Colorado and takes office June 2nd. His name is Charles S. Thomas. Some ten years later he is elected U.S. Senator. Governor Thomas was considered one of the best mining lawyers in the west. I had become acquainted with him while acting as expert witness for his cases in several law suits.

I think about the first of the year I joined the "Cripple Creek Club". It was composed of the leading business and professional men

of the city, also many of the mine owners and superintendents. We had the entire 2nd floor of a large business building. The entrance fee was \$10.00 and monthly dues were \$2.00. It was a pleasant place to spend evenings and to get better acquainted with men worth knowing.

We now had considerable underground work to do. The most delicate part of such work was known as "plumbing the shaft". The compass or magnetic needle was of no use, underground except as a general guide. It is not even an accurate guide on the surface. But inasmuch as we had to determine the exact true course of our survey lines underground, about the only way to do it was to "plumb the shaft" from the surface down to the level we had to survey. This was done by dropping two plumb lines from fixed points at the top of the shaft and as far apart as the size of the shaft permitted. We used very fine, but strong steel wires upon which we would hang at the bottom plumb bobs as heavy as the wires would safely support. Then we would hang these weights in a bucket of oil or water and gradually bring them to perfect rest. We also had to make sure that the suspending wires did not touch anything during their entire length. It would frequently take an hour or more to bring these wires to a perfect rest. Then a transit man at the surface would determine the exact course of the line connecting plumb bob wires, while a transitman underground would carefully set his transit with the 2 plumb wires. Every move in the process had to be conducted with greatest care, checking every angle and measurement. It would usually require half a day under the most favorable conditions.

Sometimes a very rich ore-shoot in a vein would extend from one

property into another and so the boundary line had to be determined on every underground level to an inch or less.

This is just one of the many difficult jobs in underground surveying. Measuring and estimating the tonnage and value of the ore 'in sight' was another difficult job. Some of the mine owners wanted that done every 3 months or oftener.

About June 1st, 1899 I went back to Minneapolis on a visit and vacation, taking my little daughter Alta with me. While there, and at some time in June the railroads gave a special rate of about \$12.00 for the round trip to St. Louis. Mother, Aunt Lizzie and I went there for a few days visit to my Uncle Oc. whom I had not seen for several years.

After I returned to Cripple Creek my partner Luckraft went up to Encampment, Wyo. for some 2 months or more. There had been a discovery of rich copper ore there which created quite an excitement. Prospectors and others were rushing in and taking up claims. Mining engineers and surveyors were in demand and did a good business in the summer time.

There is little more to record for 1899. Just the ordinary work routine.

About October 1st the great Boer War in South Africa began, and of course my partner and most other Englishmen were greatly excited about it. There were in Colorado Springs and Cripple Creek quite a few young Englishmen who were 'second' sons of good families, and who for one reason or another had been sent to the U.S. In many cases they received a regular monthly allowance of money from home. They were generally known as "remittance men". It was usually just about

enough to keep them if they were very economical. Some of them managed to live on it. Others would do a little work, and most of them were always in debt. I knew several in Cripple Creek. In fact 2 of them had worked for me at various times. When this Boer War broke out several of them went to Canada or to England to enlist.

I went home for Thanksgiving, and later on for the Christmas and New Year holidays. Some time about August Ada had moved from her own house to an apartment on S. Broadway, one of the principal N. and S. streets of the city, and much nearer the business center.

And so ends the year 1899. And it was also the end of the 19th century too. Some contended that it was, and others claimed that Dec. 31, 1900 was the end.

1900(January)

Beginning 1900: Another Presidential election year. Business had generally begun to improve early in 1898 but the Spanish American War had caused a short setback. Now the coming election also caused some hesitation. But gold mining was not affected. The total output of the district had been steadily increasing, and during the year 1900 it amounted to a little over 20,000,000 - twenty millions-. The peak was reached about 1905, when it amounted to 22 millions. The town of Cripple Creek had a population of about 12,000 and other towns about as follows; Victor-6000, Goldfield-2000, Anaconda-1500, Elktown-1200, Altman-800. Many people lived outside the limits of these towns, so the total population of the district was near 30,000. There were nearly 6000 miners employed.

The general eruptive area had been pretty well prospected, and most of the pay mines discovered and developed. There had also been many consolidations of mining properties, so it is safe to say that not more than a dozen companies were producing 3/4 of the total output. The monthly payroll amounted to 4 or 5 hundred thousand dollars so the saloons flourished. There were 60 of them in the town of Cripple Creek.

Sometime in the early part of 1900, a strike of very rich ore was made on the 700 foot level. Four car loads (about 80 tons) returned nearly one million dollars or an average of perhaps \$12,000. per ton. It caused great excitement and the price of the stock shot up from 60 cents per share to \$2.50 per share. But that's about all

there was of such ore.

About this time a sale of the "Independence" mine was made to an English company for 10 million (\$10,000,000.) in cash. The owner, W.S.Stratton, was one of the first prospectors in the district and had always refused to consolidate with other adjoining claims. He had developed it steadily, and had probably cleared 2 to 3 millions before he sold it. He soon after bought a large hotel in Denver and erected one of the largest business buildings in Colorado Springs. He also bought several good mining claims in the Cripple Creek district and organized the W.S.Stratton Mining and Development Co. He died in 1902 after a long drinking orgy, leaving most of his fortune to the "Myron Stratton Old People's Home" to be built in Colorado Springs. He was one of the best known figures in the early days of Cripple Creek.

Early in 1900 Ada and I arranged to take a trip to California for a few weeks. Ada had not had an opportunity to do much travelling since we went to the Chicago Exposition. I think she had made a trip to Galveston in 1895 and also one to Pilot Knob in 1898. The children were now old enough to take care of themselves while we were gone. So we started about Feb. 15th, going first to San Francisco. There we met Father who was a travelling agent then for the Case Threshing Machine Co. We spent nearly 2 weeks in Frisco and vicinity. One day I went down to Los Gatos, a little town 60 miles south of San Francisco to see Mother who was staying with Mrs. Pearson, an old Hastings friend. About Mar. 1 we went to Los Angeles. We got some very comfortable rooms at the Hollenbeck Hotel. at that time one of the best hotels in the city. At that time Los

Angeles was a very beautiful little city of some 100,000 population. Its leading business was tourists and citrus fruit shipments. From Los Angeles we made short trips in every direction to places of interest; Riverside, San Gabriel Mission, Mt. Lowe, and to Catalina Island where we stayed about 3 days and went fishing in the ocean. Ada had never been on the ocean before. We returned to Los Angeles for a few days and started for home over the Santa Fe Railway across Arizona and New Mexico, reaching Denver about the middle of April. We travelled first class in Pullman cars all the way. Total cost of trip was about \$600.00 for both. We were glad to see our children again, all well and happy.

I went right back to Cripple Creek and went to work again. we now had as assistants only Jaquith and 2 others, chainmen. Our work was largely underground for a few large mining companies. As I remember now they were the Isabella, Elkton, El Paso, Granite, Work and Index and occasional jobs for smaller mines. Along in May, reports of activity in the Encampment copper district in Wyoming decided us to open an office up there and I was to go up there and take charge of it. So about June 1st I took a complete surveying outfit and started.

I stopped a day or two in Denver and then took my oldest son Russell, then a boy of 14 years of age, and went to Cheyenne the capital of Wyoming. We stayed there a day or two and became acquainted with the Governor and Surveyor General of Wyoming. I had letters of introduction to them. Mr. Hansen, the Surveyor General, gave me a commission to make patent surveys anywhere in Wyoming. From Cheyenne we went on to Rawlins on the Union Pacific Ry. main

line, and from there by stage to the south about 40 miles to the little town of Encampment. It was some 12 miles north of the Colo.-Wyo. boundary line at the junction of the North Platte and Encampment Rivers. The town had been laid out about a year before, and had probably 300 to 400 permanent inhabitants. There were 2 hotels, several stores, a post office, 4 saloons, a bank, livery stables, blacksmith shop etc. etc. I obtained temporary office space with an assayer and Russell and I went to the Rankin hotel to live. This was run by a Swedish widow woman, Mrs. Bohn and was a very good one for a frontier mining town.

The mining excitement had started here the year before when a sheep herder named Haggerty had discovered a vein of rich copper ore in the mountains some 12 miles west of Encampment. It was a rough rugged country covered with heavy pine timber and almost inaccessible. They managed to get a rough but passable road to it, and hauled several wagon loads to Rawlins, a distance of some 52 miles by road. They finally loaded a railway car (some 30 tons) and shipped it to a smelter in Denver. That ore was about 25% copper and worth at that time some \$80.- per ton.

The news soon spread and created great excitement in copper mining circles. Haggerty sold 3/4 interest in the claim to 3 other men for \$50,000. These men were named Rundel, Deal, and Ferris. A company was formed called the "Ru.-De.-Fe.-Ha." Copper Mining Company using the first two letters in each of the owners names. Soon after some Pittsburg capitalists acquired a controlling interest and organized a new company called the Penn-Wyoming Co. and proceeded to spend considerable money in developing the mine, building roads, and

bringing in machinery.

So in the Spring of 1900, prospectors, promoters, investors, business men and the usual type of men eager to make some easy money were flocking in. Claims were being located over a large area near the top of the range and surveyors were in demand. I was busy most of the time from the day we got there until about Oct. 1st when I left. Winters are long in that country and there is a snow fall of 10 to 20 feet in some places. I had to have 2 assistants, besides Russell most of the time. Russell went back home about Sept. 1st to go to school. I think he enjoyed the experience even if it was hard work and hard living.

After a short stay in Denver I got back to Cripple Creek again by the middle of October. Everything there was about as usual. Considerable excitement over the Presidential election. McKinley is re-elected with Teddy Roosevelt as vice-President and that suited me very well. I think that Gov. Thomas was also re-elected governor of Colo.

January 1, 1901: Is this the beginning of the 20th century?

At the beginning of 1901 we took Jaquith in as a partner. He is to have 1/4 of net profits in lieu of salary. Jaquith has built himself a nice new home in the upper town and has been living in it for several months. It cost him \$1700.-. I loaned him \$500.- to complete it.

In the early part of 1901 an old friend, Mr. W.P. Lawson of Denver died suddenly. We had been associated on the Burlington Ry. for some five years, 1883-1888.

During the early part of January, while making a survey on the 600 ft . level of the Elkton mine where water was spurting in from every crevice in the rock, I got very wet. A few days later I had an attack of inflammatory rheumatism. The local doctor said to go home to Denver and have treatment by a specialist. I did so, but got no relief. My hands, feet, arms and joints were badly swollen and I suffered dreadfully. Medicine seemed to have no effect. I finally had an Osteopath try his hand, and after 8 treatments I was entirely relieved and have never been bothered since.

About May 1st Ada and the children packed up and went back to Pilot Knob, Mo. Her step-mother had died the year before and I think she intended to keep house for her father. But she could not get along with her youngest sister Alma, then about 24 years old. At any rate Ada wrote me about June 1st that she was going out to Oakland, Ca. to live. I answered that I was absolutely opposed to it because it would mean that I could never see my children without taking a long and expensive trip, besides losing much valuable time. However she decided to go and sold her house and 8 lots in Denver, that I had given her in 1891, for about \$3600.-. I met them in Denver in the latter part of June, said goodbye to all, and did not see them again for nearly a year.

I went up to Encampment, Wyo. again in July and was there about 3 months mostly on patent surveys, returning to Cripple Creek about Oct. 1st.

Mr. P.H. Jaquith came to Cripple Creek sometime this Fall to live with his son Al. He had sold his home and store in Pilot Knob, Mo. where he had lived and been in business and postmaster too for over

40 years. He died in C.C. some two years after, in 1903. This is about all I can remember of importance for 1901.

1902; In January, 1902, I took a trip to Spokane, Wa. for some mining men of Colorado Springs. I went to examine and report on a gold mining property some 45 miles north of Spokane. I reported unfavorably on it.

I carried on the usual work at C.C. There is considerable agitation by union labor racketeers to form a union and closed shop but nothing comes of it.

About April 1st I went to Kingman, Ariz to make patent surveys of a group of 8 lode mining claims, some 12 mile north of Kingman. I also made examinations of gold mining prospects about 25 miles south of Kingman in the desert. I had some unpleasant experiences. I suffered from heat and lack of good water. I was at Kingman about 6 weeks, then went on to Oakland, Ca. to see my family. They were comfortably located in a dwelling on 16th St. I there became acquainted with the Henderson distant relatives of Ada's. Mr. Henderson was a cousin of her father. I spent about a week in Oakland and then returned to C.C. Went up to Encampment again in early part of June and opened office in a fine new building. Had two office rooms and bedroom on 2nd floor.

In a few days Russell arrived from Oakland to stay with me all summer. I was busy on patent surveys most of the time. Many large companies were now having their claims patented in order to perfect title and avoid adverse litigation. Aside from the "Rudefeha" or Penn-Wyoming and a very few others, I couldn't see anything to get

excited about. In many of the properties I surveyed, I couldn't see any signs of copper ore whatever either on the surface or in the workings. Many of the companies formed were plain swindles in my opinion, just for the purpose of selling stock to suckers. Unprincipled promoters, self-styled "mining experts", glittering prospectus, shyster lawyers were reaping a rich harvest. "There's a sucker born every minute" as Barnum said.

The Penn-Wyoming Co. had begun to spend lots of money in developing their mine. They were also constructing a cableway, 16 miles long from their mine down to Encampment, where they were building a large Concentrating Mill and Smelters. They were employing several hundred men. Many other companies were doing development work on their claims. 1902.

There were several large livestock ranches in the vicinity and considerable building was going on in the town. Another company was building a hydro-electric plant on the Encampment River to furnish light, power and water to the town. All this made for quite a lively little town of perhaps 1000 inhabitants, mostly men. There was also another small town at the Penn-Wyo. mine called Dillon and another at the top of the range called Battle Lake. I had a few opportunities to go fishing. There were lots of the mountain trout in both the Platte and the Encampment Rivers, and these fish, from on to three pounds are about the finest flesh food that I know of. Mutton and spring lamb were also plentiful and cheap. There were two stage arrivals daily from Wolcott, a station on V.P.Ry. 35 miles north.

There are no noteworthy incidents to be recorded.

Russell left for Oakland about Oct. 1st and a few days after , I

returned to Cripple Creek. Business had not been so good in C.C. They had been working on the El Paso drainage tunnel and Jacquith had been looking after that.

Luckraft had not been very well and had not been able to do much but office work. A short time after I returned, he took his family back to their home in Colorado Springs. He stayed there most of the time until the end of the year, and then we ended our partnership.

I gave Jacquith a full 1/2 interest in the profits thereafter but I was the sole owner of the outfit.

"See my paper on history of tunnel drainage in Cripple Creek, also newspaper clippings."

We were very busy with the El Paso tunnel much of our time now. It was about 1 mile in length, 4 feet wide, 6 feet minimum section, and was being constructed for drainage purposes only. It was being driven through the granite rim rock to the contact with the breccia or eruptive or mineral-bearing area on the western side of the district. It was being paid for by the three largest producing mines on that side; the Elkton, McKinney, and El Paso. Mines that had for several years been obliged to pump large quantities of water.

This tunnel reached the contact near the El Paso shaft about June 1903. The tunnel was about 600 feet below the top or 'collar' of the main El Paso shaft. A large flow of water, 15,000 to 16,000 gallons per minute, was developed. That approximate flow continued for fully a month, then gradually decreased. The Elkton shaft was nearly one mile to the east, and McKinney shaft was 1 mile to the north of the end of the tunnel, but within a short time the effect of tunnel drainage was clearly seen at both those mines.

I think the results of this tunnel confirmed the theory advanced by government geologists and myself. That is, that the entire eruptive area was a vast underground reservoir. The entire eruptive mass was full of cracks, crevices, vugs, small underground caves, all filled with water which had filtered downward from surface precipitation for centuries. The granite rock surrounding was impervious, yes water tight. At the lowest points in this enclosing granite there were springs, sometimes flowing and sometimes dry.

The situation might be likened to a water-soaked sponge set in a glass bowl. In this case the bowl would be about 5 miles long and 2 to 3 miles wide, and vast but unknown depth. And the top rim of the bowl would vary greatly in height. Whenever a hole is drilled through the side of the bowl to the sponge, the water drains gradually from the sponge to the level of that hole.

In the latter part of March, 1903, my old partner Mr. John S. Luckraft died suddenly at his home in Colorado Springs. In many respects he was one of the finest Englishmen I have ever known. Soon after his death his wife sold her home and with her daughter Isabel, now 13 years old, went back to England for good.

1903(June)

About June 1st I went back to Encampment, Wyo., leaving Jacquith in charge of the Cripple Creek office. There was much patent surveying to be done there, as many of the original locators and prospectors had sold their claims to companies, and these companies wanted to patent such claims in order to perfect their titles. They could sell their stock to better advantage. I didn't see anything that looked very promising to me except the Penn-Wyo. property. That company was still at work on the cable-way, mill and smelter, and hoped to have all in operation by the end of the year.

I returned to Cripple Creek about the 15th of September, 1903. I found conditions there in a turmoil because of union labor agitators. The Western Federation of Miners with its officers, organizers and agents were making great efforts to unionize all the metal mines of the West.

The mine owners of C.C. had never asked applicants for work whether they belonged to a union or not. They did not ask him anything about his race, religion or politics. All they asked; "Are you an experienced miner?...able and willing to do a fair day's work for a good day's wage?" They all believed in the "open shop" policy. Probably 90% of the miners were satisfied with their wages, hours and other conditions. There was no other mining district in the West where they could do better. Cost of living was lower than in most camps.

But the agitators and organizers had been busy for months, with

the alluring promises of higher wages, shorter hours, etc. as soon as all the miners had been unionized. and now the haughty union officials, Moyer, Heywood and Pettibone etc. began making demands, accompanied as usual by threats. Meantime the mine owners had formed an "Association". They refused to accede to the demands of union officials regarding the "closed shop" idea but they were willing to give a small increase in wages to certain classes of labor.

But the union agitators were not satisfied and proceeded to call a general strike. But many miners, even union miners refused to quit. Some mines closed down entirely. Others carried on about half time with non-union labor. There was considerable violence and sabotage. A mine superintendent was murdered and his body thrown down an abandoned shaft. Many non-union miners were beaten up.

The county sheriff was unable to control the situation and asked the governor of Colorado for help. He sent up at once about 100 men of the national guard with orders to stop all violence and sabotage. These men stayed about a month when all trouble ceased and the mines resumed work on the "open-shop" basis as before. The mine-owners by this time had employed quite a number of detectives and agents (some of them miners) to watch the known union agitators. And so comparative peace reigned until July 1904.

This and a few other similar jobs kept me busy until about May 15, 1904 when I heard from my partner's wife, Clara Jacquith, that he was very sick and to come at once. So I started for Cripple Creek right away. He was indeed very low with pneumonia, in a critical condition. But he recovered, and in about 6 weeks was able to resume work.

Meantime, about June 1st, the Union labor leaders had started

more trouble. They had called out all union miners and had attempted to close all mines that refused to yield to their demands. Some mines closed down, some ran part time, and some kept at work with non-union men. Many strike-breakers and non-union miners came in from other districts.

And now, an era of violence and murder began. Non-union miners were waylaid at night and their hands and arms broken. Others were beaten up so badly they could not work for several days. One important mine superintendent was murdered and his body thrown down an abandoned shaft. At the Independance shaft the brakes on the hoist engine drum had been tampered with. The cage coming up with 8 non-union miners was jerked into the shieve wheel, the cable broke and 8 helpless men and cage dropped to the bottom of a 1200 foot shaft, a mass of bones, flesh and blood. None could be identified. Violence and destruction of property occurred nearly every day. Mine owners and their superintendents were threatened frequently by anonomous letters. The sheriff and his deputies were unable to control the situation, and finally the governor of Colorado sent up about 100 soldiers of the state troops. They managed to quiet things for a few days and then the crowning act of violence occurred...

At the town of Independence at the south end of the district, the night shift miners were waiting in the railway depot for the "work train" to take them home to Cripple Creek at about 4 A.M. There were some 50 men in the waiting room or on the platform. Just a few minutes before the train was due, a violent explosion took place right under the waiting room. The building was literally torn into kindling wood. 15 men were killed outright. Nearly all the others

were badly injured. Some died a few days after.

It was later ascertained that some 200 pounds of the strongest dynamite had been exploded by means of an electric firing battery concealed about 100 feet from the depot. All the people of the entire district were thoroughly incensed by this terrific outrage and even many union miners denounced it. A mass meeting of all the citizens was called for that afternoon at Victor. Thousands assembled on an open square in that town. Yes, I was there and saw it all. Some speakers addressed the crowd, and finally a leading lawyer, Clarence Hamlin took the platform and declared that all union miners and adherents must be driven from the district and kept out.

Then more trouble began. There were many union miners scattered among the crowd including their leaders and agitators. One of them took a shot at Hamlin and missed him, and then a general row and shooting began right among the crowd. Two men were killed and several wounded, but just then the company of state soldiers arrived on the double quick, and all the union miners ran to their hall on the 2nd floor of a large business building nearby. The soldiers quickly surrounded the building and got up on the roofs of adjoining buildings. They fired right into the windows of the hall, killing 2 of the union miners and wounding several others. Very soon one of them stuck a white flag out of the window in token of surrender. Then they slowly came down the front stairway one by one with their hands up. They were disarmed, hand-cuffed and marched to jail, about 75 or 80 of them.

Then all the leading mine-owners, and business men, and managers held a meeting and decided unanimously that no union miners would

ever again be employed in the Cripple Creek district.

And not long after that it was decided by the local and county authorities that all union miners must leave the district within 30 days. In the miners union hall they had found all the union records and many incriminating letters from the chief officers of the union in Denver urging them to commit these outrages.

Within 30 days all union men (members of the Western Federation of Miners) were deported and no union miners were ever employed thereafter. There were a few other labor unions in the district but they did not sympathise with the miners.

And that was the final end of union miner troubles in the Cripple Creek mining district. Some 45 men, besides some 8 or 10 union miners had been killed. More than \$100,000. worth of property had been destroyed. To say nothing of many indirect losses.

By the first of August my partner Jaquith had recovered sufficiently to resume work, and I returned to Wyoming. I was fairly busy there until about October 1st when I returned to Cripple Creek.

Some time in October Jaquith had been employed by a large Colorado Springs land company to go to the "Sangre Christo Valley" in the south western part of the state, and lay out a system of dams, reservoirs and canals for the purpose of irrigating a large tract of land in that valley. He was gone for some four months as well as I can remember. He spent considerable time on plans and estimates before returning to Cripple Creek.

1905; In March, 1905 I took part in a Republican Convention to nominate city and county officials. Jaquith was nominated for

● Alderman in his ward and elected by a good margin on election day.

Some time early in April I started for Oakland over the U.P. Ry. for a visit with my family. I spent about 10 days there. During that time Ada, Alta and I took a trip down to Santa Cruz and Monterey, resorts on Monterey Bay. I then went to Ontario in southern California where Lana was still living with little daughter Constance and Aunt Lizzie. Father and Mother were also there and a few days later my sister Gratia arrived from Minneapolis. So we had a very pleasant family reunion for a few days. Then I returned to Cripple Creek by way of the Santa Fe Ry.

After spending some six weeks there, I went back again to Encampment, Wyo. I was fairly busy until about the middle of August when I had to return to Cripple Creek.

● Jaquith had not been very well and much of the time could not look after his work. He had been offered an opportunity to go into the auto-mo business with his brother-in-law at Des Moines, Iowa and wanted to settle up our partnership and leave.

On going over our bills we found a total of nearly \$1000. in unpaid bills, very little of which was ever collected. And by the way I may say here that when Mr. Luckraft died we had about \$3000. in old unpaid bills, and scarcely any of it was ever paid.

I returned to Encampment about September 1st leaving business at Cripple Creek in the care of an old and capable assistant A. H. Hoberton. I think I returned to Cripple Creek about November 1st 1905 for the winter. I forgot to state that before going to Wyoming

● in September I attended the National Encampment of the G.A.R. in Denver for a couple of days. There were some 25,000 of the old "boys

in blue" and they had numerous parades and meetings. Most of the veterans must be over 60 years now but can still march. They no doubt enjoy these annual meetings.

The El Paso Drainage Tunnel which had been completed in June, 1903 had fully justified the cost of its construction, as it had lowered the general water level in the El Paso, Elkton and McKinney mines some 200 feet by the end of 1905. And it proved that there was a common underground water level over most of the eruptive area.

I kept advising the mine owners to begin the construction of a much deeper drainage tunnel, for which I had submitted 3 different plans with estimates. I felt certain it would be badly needed, before it could be completed. I had estimated that it would not cost to exceed one million dollars to drive as far as the Elkton shaft, some 4 miles from portal of the middle plan. But there was some difficulty in agreeing upon the amount each company should contribute to the cost and so the work was postponed again.

End of 1905

1906; I can think of nothing of importance during the early part of 1906. As I remember now I was just fairly busy and had only 2 permanent assistants, A.H. Hoberton and Frank Parkinson. Most of my work was underground surveys and the maps and reports in that connection. I was the consulting engineer and surveyor for the following large mining companies: Elkton, El Paso, Isabella, Granite, Work and Index, besides occasional jobs with smaller companies and individuals.

About the latter part of March the El Paso Company in extending

their 1000 foot level easterly on the main vein, opened a large crevice, an underground water course which rapidly flooded the lower workings and rose up the shaft for 200 feet above the bottom level. Fortunately all the men on the lower levels were able to escape.

April 18, 1906 came the great earthquake and fire in San Francisco. Naturally I was greatly alarmed about it, as Oakland is just across the bay 5 or 6 miles. But reports seemed to indicate comparatively little damage was done there. Our Masonic Lodge raised \$400. to send for relief and the city of Cripple Creek sent about \$2000. Besides there were many private donations of smaller sums.

I went up to Wyoming again the latter part of June and made several patent surveys, also a preliminary survey for a railway from Wolcott, Wyo. (on the Union Pacific main line) to Encampment. This Ry. was built several years after. Returned to Cripple Creek the latter part of August.

My wife came from Oakland September 8 and visited her many friends in Denver for about a month and then came up to Cripple Creek and spent a week with me.

About November 1st I went out to Ely, Nevada where large deposits of low grade copper ore had been discovered. I made patent surveys of a group of 12 mining claims for a Colorado Springs company. Was gone for some 3 weeks. Awful cold job.

My daughter Alta came from Oakland about the middle of December and spent about a week with some friends in Denver, and I went down there for a few days' visit with her. She went on to Minneapolis and spent the next six months or more with her grandparents.

That is all for 1906.

1907; My youngest son Ralph came back from Oakland about the first of the year to stay and help me until August, when he expected to enter the University of California at Berkeley. I was greatly pleased to have him. I also had an old employee that had worked for me for several years, F.J. Parkinson.

Along in February the leading mining companys finally decided to start a deep drainage tunnel. About 6 of those who were mining at great depths contributed some $3/4$ of the total. They accepted my plan for the "Gatch Park Slate" for the portal. It was estimated to cost not over one million dollars to drive to the Elkton shaft, a distance of about 4 miles.

Before starting actual work I had to make special surveys, showing just where the tunnel would cross many different mining claims, and secure the right-of-way for its entire length. I also checked the central line position of a very long traverse line and triangulation, and located the position of an intermediate shaft about 8000 feet from the potal of the tunnel. I could not run out the exact center line of the tunnel because of numerous side canyons and inaccessible bluffs. All this required about all my spare time for some 2 months.

I remember now that I sent my daughter Alta a fine ladies gold watch for a birthday present on March 14, 1907 (her 22nd birthday).

About May 1st I went to Encampment, Wyo. for a week or two, and from there I went to Austin, Nevada for some 2 weeks to examine some old mining properties for a Denver company. Austin was a queer old frontier mining town. It was discovered in 1861 and there was quite

a rush to it by the "49-ers" and other pioneer prospectors. It had produced over 60 million dollars in gold during the 10 or 12 years following its discovery. The free-milling and rich ores had then become exhausted, and the cost of mining and milling the low-grade ores was more than they yielded, and so the district was gradually abandoned, except for a few placer prospectors and sheep ranchers. The town had been the capitol of the state of Nevada for several years during the mining boom. It was connected by a narrow-gauge Ry. with the Union Pacific Ry. 125 miles to the north.

By this time in 1907, the many improvements and greatly reduced costs in mining, milling and smelting had again attracted attention to the old camp. I was sent to investigate general conditions and see if any of the old abandoned properties could be acquired at a reasonable price. I was unable to report very favorably on conditions.

I went from Austin on to Oakland for a short visit to my family and then returned to Cripple Creek. I stopped at Denver on the way back to see my daughter Alta who had just come back from Minneapolis and was visiting some of her old friends.

While I was away the Tunnel Company had awarded the contract for driving tunnel to an association of about 12 miners for -I think-\$18 per lineal foot. After working at it for about a week or two they had given it up. They could not make ordinary wages. It was tough hard granite.

Then the El Paso Mining Co. took the contract at \$25. per foot.

The section was to be 10 feet high by 7 feet wide. After driving some 1100 feet they had to give it up. They were losing money.

About this time a special excursion train came up from Denver and Colorado Springs carrying a large number of people; stockholders, mining men, newspaper correspondents etc, and they drove down to the portal of the tunnel. They "christened" it for us, naming it "Roosevelt Tunnel;" after our President, Teddy Roosevelt.

Work on the tunnel was discontinued for some 2 or 3 weeks until a new contract could be let. I took advantage of the opportunity to make a visit to my family in Minneapolis, and was gone some ten days. About August 1st my son Ralph went back home to Oakland and began his first year at the University of California at Berkeley. I missed him so much I was homesick.

I will state here, that about the end of the year 1914, I wrote a brief history of the tunnel and drainage problems of the district up to that date. I also made maps and numerous cross-sections and other data in connection with it. This article I read before a small audience of mine-owners, managers, and college professors at Colorado Springs. A copy of that article is among the papers of this biography. It was also printed in some of the leading mining publications and newspapers of Colorado Springs and Denver. It gives some idea of the work I did in connection with the drainage of the district, especially during the years 1900 to 1915.

Sometime in September I made another trip to Encampment, Wyo. to finish some patent surveys there. I think it was my last trip to that district. The mining results there had proved very disappointing, and work had ceased on all but about 2 or 3 properties. Only one mine had ever made any profit and its pay-ore had been entirely worked out in about 7 years.

The last contract on the Roosevelt Tunnel had been let to Mr. A.E. Carlton, President of the First National Bank and mine owner, at \$28. per lineal foot. He employed an experienced tunnel man (James McElwee) as manager, installed new and better machinery, and the work progressed very satisfactorily from that time on until the tunnel was completed to the El Paso shaft, nearly 3 miles.

I was employed as surveyor and inspector at a salary of \$150 per month. I had to pay my 2 assistants out of that, also the cost of a horse and buggy to drive down to the portal from town, some 5 miles. I usually made one trip per week, and at the end of each month made a full report of the progress of the work. The road down the canyon to the portal was impassable to autos, and difficult for a horse and buggy.

By the way, that summer was the first time I had ever taken a ride in an auto. Mr. Carlton had bought a large Packard touring car, costing \$5000. He invited me to drive over to Victor and back with him. We got over there all right, and about half way back when it stalled, and he could not get it started again. Had to telephone a livery stable man to come with a team and pull us home. There were no garages in the district then and probably not more than half a dozen cars. The roads were rough, and the grades steep, and it was hard on tires.

This is about all for 1907. I am still in my old offices at 445 E. Bennett Ave.; Phone 249. Same offices and same phone number for about 30 years.

1908

Not much of importance to relate. Am fairly busy. Have one permanent assistant (Parkinson) who works on a monthly salary, and 2 others who work by the day when I need them.

At this time, as for several years previous and many years later, I did the surveying and mapping for 5 different mining companies on a regular monthly salary. They were the Elkton, El Paso, Granite, Isabella, and Cresson mines. All large producers and dividend-payers. I did work for several other companies at such times as they asked for it and usually at the rate of \$15.00 per day for the time actually required plus wages for assistants.

I frequently had to determine the exact position of a surface boundary line on a level or drift hundreds of feet below the surface. Where a vein of very rich ore extended from one property into another, the position and course of the boundary line at that point was very important and had to be established to within an inch. Sometimes it was a joint survey made by the engineers of each company working together. They had to agree on results.

I did not visit either Minnesota or California during the Christmas holidays. My father had retired from business in the latter part of 1907 and he and mother had gone to Florida for the winter.

About March 5, 1908 I went to Austin, Nevada to make Patent surveys of a group of mining claims there for a Mr. George Kilbourne who was publisher and editor of the Nevada State Journal. at Reno, Nev. I stopped at Reno to see him and the Surveyor General of Nevada

and then went on to Oakland to see my family.

While there I bought a home for them at No. 652 Chetwood St. for \$6500. It was a nice two-story 8-room frame house in a good location and was considered a bargain. I afterwards deeded the house to my wife and I think she lived there until about 1916 or 1917.

I returned to Cripple Creek about March 28 and had to work hard for a few weeks to clean up accumulated business. I don't remember any important events for some time after that.

1908 was a presidential election year and in June Taft and Sherman had been nominated by the republican Convention and Bryan by the Democratic Convention. As usual I worked and voted for Republican candidates.

About July 5th I started for a visit to my relatives in Minneapolis, going by the Rock Island Ry. route. I stopped for a few days at Des Moines, Iowa to visit my brother-in-law, A.C. Jaquith and wife who had been living there since leaving Cripple Creek in 1905. He was then running a tobacco and cigar store. He drove me all around the city in his car and I had a very pleasant time. Then went on to Minneapolis where my parents and sister Gratia were living in her new home at 4726 Fremont Ave. S. I think my niece Constance Conger, then about 10 years old was also there. Returned to Cripple Creek about July 25th.

About August 1, I started for Encampment, Wyo. to make some underground surveys and examinations for the Penn-Wyoming Copper Co. This company had a mine of rich copper ore in the mountains 16 miles west of Encampment. Spent about 10 days there and then returned to Cripple Creek.

My father and mother had spent the winter of 1907-1908 in Florida. In September and October of 1908 he made a visit to New York State to the place of his birth and the scenes of his boyhood days. He wrote me several interesting letters about it, and sent me a copy of the Land Grant from King George 2nd to our ancestor Conrad Conderman dated about 1740.

In September I made another short trip to Oakland stopping a day in Reno, Nev. on my way back.

The presidential election on Nov. 3rd resulted in the selection of the Republican candidates Taft and Sherman which pleased me much.

Father and mother went out to Oakland the latter part of November and stayed with my family there for a few weeks. I went out to Oakland just before Christmas,, spent the holiday with my family, and then went down to Ontario, California for a short visit with my sister Lana and parents.

1909; I left Ontario about January 15th for Colorado going by way of the Clark road (a branch of the Union Pacific Ry.) to Salt Lake City. There I spent 2 days with some old friends. Left Salt Lake on a night train for Denver at 6:30 P.M. I was in the 3rd sleeper from the rear when about 3 A.M. next morning we struck a broken rail and the last 3 sleeping cars left the track. We ran along on the ties for about 100 yards before the train could be stopped. The last two sleepers turned over on their side just before it stopped, and broke loose from ours. Nearly every one in them was badly shaken up and bruised, but no one was seriously hurt. Our car managed to keep upright, but we were all tumbled around and badly scared. We were

going up a steep grade (in Wyoming) and so moving rather slowly or the accident would have been worse. A wrecking crew soon arrived and got the cars on the track again, but we lost 5 or 6 hours time before reaching Cheyenne.

Reached Cripple Creek about January 20, 1909 and for 2 or 3 weeks I had to go my best to get my work all brought up to date.

About the middle of February I made another trip out to the old mining district of Austin, Nevada to examine some gold mining claims for Colorado Springs mining men. Austin was a very old gold mining town (1861) situated some 125 miles south of the Union Pacific railway station of Battle Creek, and connected by a narrow gauge Ry. which ran trains every other day. It had been worked very vigorously for several years until all the rich ores had been exhausted and then abandoned for many years. After examining several of the old mines that had been reopened, I could not see anything favorable and so reported. The weather was cold and stormy and the hotel accommodations unpleasant and I was glad to get back.

I now made some careful "check-up" surveys of the drainage tunnel. An intermediate shaft had been sunk on the center line to a depth of over 700 feet, and some 8000 feet from the portal. From the bottom of this shaft drifts had been started in each direction, one towards the portal of the tunnel and the other in the opposite direction. These drifts had been driven about 100 feet each way. I had made a preliminary survey of the course at bottom and established points for tunnel men to go by. but these points had been "shot out" so they must be re-established and set right and permanently. We dropped two plumb lines from the top of the shaft, 4 feet apart and

set exactly on the center line of the tunnel. These lines were of very strong but pliable steel wire, not much larger than a coarse thread. A weight or iron plumb-bob of about 25 pounds was attached to each line at the bottom of the shaft. Those wires kept stretching slowly for several minutes. When they had ceased stretching the weights were each put in a bucket of oil to stop swinging. It was fully half an hour before they became perfectly still. Then a transit was carefully set up exactly on the line of wires, and permanent points set in the roof of the drifts about 50 feet from the shaft in each direction. This all sounds simple enough, but it took 2 engineers and their assistants an entire day to do the job. This same method was used in making underground surveys of all the principal mines.

They were making good progress on the drainage tunnel now, working 3 shifts on 3 different headings. And now, (one day in April I think) I had a very narrow escape. I went down to the tunnel one day each week with two assistants to set points for the tunnel boss for alignment and grade. We went down the intermediate shaft and had started towards the El Paso heading which was about 1000 feet from shaft. We had gone perhaps 200 feet towards the heading when there was a sudden terrific explosion at the heading, or breast of drift. It put out all our lights and made us stagger to keep on our feet. One of my assistants, a few feet ahead of me, was struck by a small fragment of rock but not severely hurt.

What had happened? There were 3 men at the heading, a machine man, his helper, and a mucker shovelling broken rock into a car, some 20 feet back of the others. They had drilled into a "missed shot".

That is a hole drilled and loaded by the preceding shift which had not exploded. The machine man had thoroughly examined the rock before he began drilling. His helper, who was standing close to breast by the drill was instantly killed. In fact he was torn all to pieces. Some fragments of flesh and bones were found 100 feet back from breast. The machine man was so badly hurt that he died within half an hour. The mucker was also badly hurt, but we got him out, took him to a hospital and he recovered in a few weeks.

Had that explosion occurred a few minutes later, my assistants and myself would all have been within 100 feet of the explosion, and most likely would have been severely injured, if not killed.

My son Ralph came from Oakland about May 15 to spend his vacation with me. He had been two years at Berkeley, University of California. He was with me until about the middle of August.

At this time I was working on a very important jopint survey, in addition to my regular work. There were two adjoining mining companies in a dispute over the ownership of a very valuable "shoot" of rich ore about 500 feet below the surface. More about this later.

About this time (May or June of 1909) I made an investment in Florida lands. A Colorado Springs company had acquired from the state of Florida a large acreage of swampy land near the town of Lake Worth on the Atlantic Coast some 10 or 15 miles south of Palm Beach. They had platted the land into 5 and 10 acre tracts. They were offering a lot in the town of Lake Worth, and a 5 acre tract nearby for \$500. They promised to dig large ditches to drain the swamp land and bring it under cultivation without further expense to the purchaser. They were selling such tracts rapidly and I bought a 5

acre tract on the approval of a friend who claimed to know all about it. Will tell more about this later.

My investments in Denver real estate made some 8 or 10 years before, had not turned out very well, chiefly on account of very heavy taxes. Most real estate investors had now gone to the "boom" in Los Angeles and other California cities.

During June I had to put in considerable time at the trial of an "apex" suit of the Minnehaha Mining Co. vs. the Ophir Mining Co. The former company was suing the latter for \$500,000. for ore mined by the Ophir Co. from a vein whose top, or outcrop or apex was within the surface boundaries of the Minnehaha claim. I made the necessary maps, cross sections and models to prove the Minnehaha claims. The case was tried in District Court in Colorado Springs. I was chief witness for the Minnehaha Co. and was on the witness stand for about 2 days. Two very prominent attorneys of Denver were employed in the case; Mr. Charles B. Hughes, former U.S. Senator from Colorado for the Minnehaha Co., and Chas. S. Thomas, ex-Governor of Colorado for the Ophir Co.

This was only one of the many mining suits in which I was employed as an expert witness.

Sometime in July, the heading from Portal of the drainage tunnel and heading from shaft came together and the connection was almost perfect. In going through the tunnel afterwards one could not tell where the connection was made. I was highly gratified at this, because I had worried somewhat about it on account of the many obstacles and other difficulties I had had in laying out the lines.

Sometime in August I made another and my last trip to Encampment, Wyo.

My son Ralph left me about the middle of August and went back to Oakland and to the University at Berkeley, California. I missed him very much as he had been a great help.

About the 15th of September I left for Oakland, California to attend the wedding of my dear and only daughter Alta which took place September 20th at our home at 652 Chetwood St. She was married to Ward Blackburn, a very fine young man whom she had known for several years. I gave her a wedding present of \$500., and I think some other small gifts. (She and her husband have lived together quite happily ever since, most of the time in Los Angeles, California. They have two fine sons Billy and Jackie, now in 1943, young men and in the service of their country as aviators in World War 2.)

I did not go away for the Christmas holidays. So this is about all for the year 1909.

1910; Early in 1910 (Jan. and Feb.) I met with some severe financial misfortunes that I don't like to tell about or think about so will just state it briefly. After the severe financial and stock market panic in the fall of 1907, I began speculating in stocks on a small scale, buying on margin, as it is generally called. I had not gone into it very heavily until about the beginning of 1909. With few exceptions I had usually made some profit on each deal. Prices had generally been rising with a few small reactions, and so I began to go into the game on a larger scale.

By the end of 1909 I had a credit balance with my brokers (at prices then prevailing) of about \$25,000. The leading financial

papers and other authorities thought the market would continue strong and probably advance still more, so I did not sell. In the early part of January a slow decline began, but every one said it was just a temporary reaction, and a recovery would soon begin. On the contrary a sudden and rapid decline began and before I could realize it and sell out, my profits and more too had been completely wiped out.

The real cause or chief cause was that the government (Attorney General) had been quietly preparing anti-trust suits against about 180 of the leading corporations of the country. As usual, insiders knew about it first and quietly sold out their holdings. And they also sold short before the general public became aware of what was going to happen.

Along about the middle of February, I began putting all my spare time on surveys, maps and other preparations for one of the most important apex mining lawsuits in the history of the district. The Index Mining Co. was suing the Work Mining Co. for 2 million dollars. Accusing the Work Co. of mining ore of that value from a vein whosae top or apex (at the surface) was within the boundaries of the Index Co. ground.

This "apex" law is a very intricate and difficult thing to understand, except in its most simple form. So I will not attempt to explain it here. I had to prepare several maps on different scales, also many cross sections showing exact positions and shape of the ore body that had been taken out at a depth of 300 feet to 500 feet below the surface. I also constructed a model of the workings with wires, glass plates and sheets of celluloid and mica on an exact scale.

Everything possible was done so I could make clear to a jury just what had happened. I was the chief witness for the Work Co. but they also had numerous other witnesses and geological experts.. The Index Co. also had a large number of witnesses. I think the trial began the latter part of May and lasted some two weeks.

It was in the Federal District Court in Denver with Judge Moses Hallett. The jury disagreed. It was remarkable in one way for the distinguished lawyers on each side. The Work Co. had Charles S. Thomas, an ex-governor, also an ex-U.S. senator of Colorado. The Index Co. had Charles Hughes, also an ex-U.S. senator of Colorado. During the trial I was on the witness stand several different times and usually 2 or 3 hours at a time. A lawyer usually tries to get a witness to contradict himself by asking some tricky questions.

One of the geological experts employed by the Work Co. was Mr. Horace V. Winchell of Minnesota. He was on the witness stand but once for about an hour.

This case was tried again several months later before Judge Riner in Denver U.S. District Court. He rendered a verdict in favor of the Index Co. but placed damages at about \$400,000. I don't think they ever recovered but a small part of that.

I can think of nothing out of the ordinary for some time after this. The drainage tunnel had been completed to the El Paso shaft by the first of August, 1910. A description of the work done after that time will be found in my report or history of the tunnel drainage of the Cripple Creek district.

About the first of September my daughter Alta and her husband made me a nice visit for about a week. They were just about to start

for Japan where her husband was to do some work for the Ingersoll-Rand Mining Machinery Co. He was connected with that Co. for some 25 years thereafter.

I can think of nothing more of any importance during the remainder of the year. I know I did not go to either Oakland or Minneapolis for the holidays. I spent most of my evenings at the Cripple Creek Club which I had joined about 1905. It was made up of the leading business, mining and professional men of the district.

1911

Routine work of all kinds going about as usual.

About March 1st I met with a serious accident at the bottom of the intermediate shaft of the drainage tunnel. I had just stepped on the cage at the bottom of the shaft when a heavy iron frame, used to hold cars in place when hoisting, got loose and swung down, striking the ankle of my right foot and sweeping me right off the cage. It cracked the bone of my ankle but did not displace it. And I was severely bumped and bruised in several places.

They took me to the doctor in town as quickly as possible and he put my ankle in a plaster cast and I went around on crutches for some 2 weeks. I could feel a weakness in that ankle for several months after.

I heard from my sister Lana, sometime in May, that she and her little daughter Constance were going to Germany for a year or more.

Sometime in June, 1911, my son Ralph came from Oakland and spent a few months with me.

My assistant, Frank Parkinson, who had worked for me most of his time since 1893, left me and went to seek his fortune in a new mining district called "Porcupine" in Canada.

About the middle of October, I went to a new mining district in the north east corner of Wyoming called "Sundance", and made patent surveys of a group of 23 lode mining claims. It was on the western slope of a low range called the Bear Lodge Mountains and about 40 miles west of the nearest railway station at Belle Fourche in South Dakota. I had to travel that distance on an old time Concord stage.

I was there about 3 weeks and had a tough time of it for the weather was cold. But I was well paid for the work and so could not complain.

A few miles to the west from where these claims were located was one of nature's great curiosities known as the "Devil's Tower". A circular mass of rock some 300 to 600 feet in diameter rising to a height of over 1000 feet. It was visible for miles in every direction.

1912; Not much of importance to relate. The drainage tunnel had now proven that a large part of the district was being drained through it. I made careful measurements of the flow at portal nearly every week. By means of a weir and an electric current meter I could get close results. I estimated the discharge at this time (in January) to be about 12,000 gallons per minute. Observations in some of the deeper shafts showed the subsidence of the general water level to be about 12 feet per month.

Sometime in the summer of 1912, my brother-in-law and former partner quit his business in Des Moines, Iowa and returned to Colorado. I had been able to get him a good position in the office of the U.S. Reclamation Service in Denver. He made good there and in a few years was considered an expert in the designing and construction of dams. (In the year 1927, he was offered and took a position in the reclamation service of Mexico at a salary of \$7,500. per year. He died there about a year after.)

Sometime during the spring of 1912, one of the greatest strikes of rich ore in the history of the state was made in the Cresson mine. This company had been mining their ground for nearly 15 years

and had shipped lots of ore to the mills and smelters. But most of it was of such a low grade that they had made but little profit and paid only a few small dividends. This strike was made on their 1200 foot level and within 100 feet of the main shaft. Drifting north on their main vein, they had broken into a vast underground cavity about 100 feet long , 60 feet high and 10 or 12 feet wide. On all sides and floor of this cavity the quartz was full of "Sylvanite" crystals. Sylvanite is about 1/3 pure gold, a telluride of gold. On the floor of this cavity, the ore was especially rich, consisting largely of sylvanite crystals.

This ore was most carefully mined and sacked underground, the sacks sealed and hoisted to the surface. There it was constantly kept in the care of armed guards, loaded into box cars and the cars hauled to smelters in Denver under guard. Four carloads of such ore (about 100 tons) yielded almost 2 million dollars (\$2,000,000.) or say an average of \$20,000. per ton or \$10. per pound.

In addition to this, they shipped a great many carloads of ore that averaged \$300. to \$500. per ton. (All together this mine had produced up to 1930 about 75 millions gross; \$75,000,000.).

Before this time many rich strikes had been made in several other mines, notably the Elkton, El Paso and Isabella, but none of them could be compared to this one.

Here it may be well to tell of a practice called "high grading" carried on by many of the dishonest miners. It was simply the stealing of small quantities of rich ore. Miners working in drifts or stokes would frequently come upon small deposits of very rich ore and fill their pockets with it. They would take this ore to equally

dishonest assayers who would pulverize and smelt it in their assay furnaces, extract the gold and pay the miner about 1/2 or less of its value.

For some time the mine owners and managers did not realize how extensive this abuse had become. But finally the number of assay offices had increased to such an extent that they became aware of it. Several of the largest companies had their own private assayers who did no other work. And it was well known that aside from that, the 5 or 6 old established assay offices could do all of the legitimate assaying easily. When therefore some 10 or 12 new assay offices had been opened in the district, it soon became apparent what their business was.

If the miner could not sell this rich ore he stole to someone, he would not steal it. The mine owners then employed detectives to watch these fake assayers and any miners who went to them. Quite a number of miners were discharged. A few were prosecuted but it was difficult to get a jury that would convict. Most of the large mines then built "change rooms" at their shaft houses. All miners had to change their clothes when coming off shift and submit their dinner buckets to inspection. The jewelers of the district all agreed to buy no gold from the assayers. The Director of the U.S. Mint at Denver also agreed to buy no gold from any one but the regular mills and smelters that were treating the ores. This, to a large extent, put a stop to ore stealing.

I can think of nothing more especially important during 1912.

I did not visit California or Minnesota during the Christmas holidays, as I had done many previous years. My daughter and her

husband are in New York City. My wife and 2 sons are in Oakland. My parents and sister Gratia are in Minneapolis and my sister Lana and daughter are in Ontario, California. And my only brother "Ampy" is in Cincinnati, Ohio. Yes we are pretty well scattered.

1913; I can think of very little of importance to relate. Just the regular routine. Almost all of my work now was underground surveys and maps and reports. As I remember now I was doing such work each month for the following mining companies: Isabella, Elkton, El Paso, Granite and Cresson. Of the numerous surveyors and engineers of the early years only a few were still there. I believe the following were the only ones left besides myself; James Smith, Victor Hills, Frank Willis, Edward Arthur and Fred Crosley. There had also been numerous changes in the superintendents of the mines. I had begun doing the work at the Elkton mine in 1894 and since then there had been 6 different superintendents. It was about the same with most of the other large mines. Any changes in the election of a president by stockholders would usually result in a change of mine superintendent.

Business generally all over the country was very quiet. The wars in Europe had developed a fear that something more serious was coming up. In 1910 Italy had attacked and defeated Turkey and taken Libya and other territories from her. In 1912 Servia-Greece and Bulgaria had formed an alliance and attacked Turkey, defeated her quickly and taken large slices of her European area. Again in 1913, these same countries began to quarrel about their share of the loot and Greece and Servia united to give Bulgaria a good trimming.

Meantime in this country, because of a bad split in the

Republican party the Democrats had won control of the government and President Wilson had been inaugurated March 4, 1913.

In the latter part of 1913 I was employed with another mining engineer, to make an examination and estimate of the value of the Cresson mine. I spent all my spare time for over a month in measuring ore bodies and taking samples for assay. My recollection is that we estimated the total gross value of the ore then "in sight" or "blocked out" to be 13 million dollars.

Nothing more of importance in 1913.

1914; I cannot remember anything of especial importance during the early part of the year.

The Roosevelt drainage tunnel had now drained a large part of the district down nearly to the tunnel level. It had not been driven any since 1910, when a heavy flow of water was developed a short distance east of the El Paso shaft. The large mines (from one to two miles further east) would soon be wanting to sink their shafts below the tunnel level. So it was decided to extend the tunnel further to the east and connect it with all the main shafts by means of drifts, driven from the tunnel to such shafts.

I was again employed by the tunnel company to do the engineering work. The El Paso shaft had been connected with a cross-cut from the tunnel, and a raise from that to the bottom of the shaft. This raise was made the exact size and shape of the shaft, and the connection was so accurate they could extend the shaft timbering right down to the tunnel level without breaking a rock.

I think it was during the summer of this year I made another trip

to Lovelock, Nevada to examine a group of mining claims fir Colorado Springs mine owners.

And then the great explosion over in Europe was started. A useless, worthless Hapsburg Crown Prince of Austria was assassinated at Sarajevo on Austrian territory by an Austrian citizen or subject. Servia was at once accused of a conspiracy against Austria and war declared.

It gave Germany's Kaiser and his Prussian military clique just the pretext they had been waiting and hoping for. Also preparing for. They wanted to smash the French-Russian Alliance and demand large indemnities and territory from both countries.

Well every intelligent school boy has read the full history of World War No. 1 which was called a "war to end wars" or by some a "war to make the world safe for democracy".

There were quite a number of prominent German-born citizens in Cripple Creek and I am sure a large number of them sympathized with Germany and her allies. I believe most of the Irish and Scandinavians also sided with Germany. The fact is that the German government had 2 or 3 agents or spies in the district, but we did not know who they were until after the U.S. entered the war. Then they all skipped out for Mexico.

Sometime in the fall of the year 1914 my parents went out to Ontario, California and I went down to Colorado Springs to meet them there for a few hours visit between trains. I think they spent a few years following in California.

About the middle of the summer of 1914 my sister Gratia had a very severe auto accident near St. Paul. She and some lady friends

with her were badly hurt but all recovered.

I do not remember anything of importance, aside from my regular tasks.

The drainage tunnel was nearing the Elkton shaft about 1 mile to the east of the El Paso shaft. It was about 160 feet below the bottom of the Elkton shaft and was to pass some 50 feet to one side of it. At just the right point, I had to show the tunnel superintendent where to start a cross cut to get exactly under the shaft. And then show just where to start a raise that would connect exactly with the bottom of that shaft. This seems simple enough, but there were many difficulties and some obstacles.

Water was coming down everywhere like a heavy shower. Streams of water were shooting out from both sides. In spite of rubber clothing and boots, I usually got wet. Frequently our lights went out. We used acetylene gas lamps. There were no electric flash lights then. But in spite of these difficulties, an exact connection was made with the bottom of the shaft.

Sometime in May, 1916 my wife came from Oakland and spent about five months with me at Cripple Creek.

And the war in Europe was going on with dreadful slaughter and no decisive gains by either side. About the end of the year the Germans renewed their unrestricted submarine warfare. Any ships bound for British ports might be torpedoed. But the Kaiser made a slight concession; he would kindly permit any American merchant ships to proceed to a British port providing..it carried no war or food supplies of any kind, and followed a well defined and narrow sealane when approaching the English Channel. Such a ship must also be

distinctly marked by large colored bands painted on the hull. And if ordered to do so, they would have to stop and permit their cargo and passengers to be examined. Of course this aroused the U S. government. President Wilson protested and wrote many threatening notes. (He seemed to love to write notes.) His protests were ignored and submarine horrors continued.

We severed diplomatic relations with Germany and her allies. The President called a special session of Congress and in April, 1917, war was declared.

Quite a number of the young men and boys in the district enlisted soon after and were sent to Fort Logan, near Denver for training. I knew most of them. And a few never came back. The Germans who had been boosting from Germany so vociferously began to keep still and a few of them started hastily for Mexico.

Max Burgdorf, who had been chief engineer of the Midland Terminal Railway since its construction in 1895 took an apoplectic fit and died suddenly. He had worked for me as draftsman in 1886 and 1887 on the surveys of the Burlington Ry. He had been a lieutenant in the German army before coming to this country.

I was offered and accepted his place. Just then there wasn't much work in connection with the job, but within a year there was plenty. The Midland Terminal Ry. was shortly afterwards consolidated with the Colorado Midland Ry. and I was also made chief engineer of that with a salary of \$250. per month for both. The Colorado Midland Ry. extended from Colorado Springs to Glenwood Springs, a distance of about 215 miles. The Midland Terminal Ry. extending from Divide to Cripple Creek was about 25 miles long. This railway work, in

addition to my regular work, kept me very busy. The railway co. also paid the wages of my assistants whenever I needed any.

1917 (continued)

Shortly after this country entered the war, the government took over the operation of nearly all the railways in the country including the Colorado Midland.

At some time late in 1917 I was surprised at receiving from Washington an annual pass over all railroads west of the Mississippi River operated by the government. That meant about every railway system of any importance. I had had for many years before this, an annual pass from Cripple Creek to Denver. I often wished that I could make full use of that government pass but I was too busy. I don't think I used it until Christmas, 1917 when I took a trip to Ontario, California to see my parents and sister Lana.

1918

Just the usual underground surveys and maps for several different mines.

Early in the year I had to make a difficult survey for a change in the main line track of the Midland Terminal Ry. of about 2 miles. Some large bodies of low grade ore on the properties of the Portland and Independance mines were to be mined and milled and the railway tracks had to be moved.

The drainage tunnel had now been connected by raise with the bottom of the Elkton shaft, and preparations made to hoist the rock from the tunnel through that shaft.

I now had to make a change of a few degrees in the course of the tunnel, to make it run directly toward the Vindicator shaft about 1 and 1/2 miles distant to the east. The Vindicator was one of the deepest, also the most easterly of shafts in the district. That sounds simple enough. But just imagine having to make a very difficult and accurate survey on the surface, in the night time with a heavy rain coming down. That would be a fair comparison.

About August 1, 1918 I took a trip to Minneapolis, where we had a family reunion at my sister Gratia's home at 47 (?) Girard Ave. S. My parents, sister Lana, my brother and his wife, and I think my aunt Lana were all there and we had a very pleasant time. It was the first time I had seen my brother Ampy since 1901 at the time of my parents' Golden Wedding.

Sometime in the latter part of 1917 or early in 1918, my son Ralph and son-in-law Ward Blackburn enlisted in the U.S. Army. I

don't think either of them ever went over to Europe.

On several occasions in 1918 I was on a committee to sell Liberty Bonds in the Cripple Creek district. A large part of the population were working people and could not buy much at a time. But many would buy a \$100. bond on installments. I think that before the end of the war I had bought myself some \$600. in bonds.

In the Fall of 1918 the entire country was afflicted with an epidemic known as the "Spanish Influenza" or just "Flu" as it was commonly called. It was very contagious and is said to have caused some 500,000 deaths in the whole country within a few months.

It was especially severe in the Cripple Creek district.. Many of the miners were troubled with silicosis, a partial congestion of the lungs caused by breathing air full of very fine rock dust. Their stoping machine drills pounding rapidly against hard quartz raised this dust.

We were all required to wear gauze masks on our faces when we went outside.

There were fully 100 deaths from Flu in the district, most of them miners. At one time we were all out of coffins and could get none from nearby cities. Many men were buried in ordinary wooden boxes.

And finally ARMISTICE DAY came on November 11, 1918 and were we all glad! The celebrations lasted several days. Some 25 or 30 boys from the district had gone across to France, and 5 or 6 of them never came back. I knew most of them.

1919; Went out to California for the Christmas (1918) and New Year (1919) holidays. My parents were living with my sister Lana in

Ontario. My daughter Alta and her husband were living in Los Angeles, and came out to Ontario to visit us. And then for the first time I saw my two little grandsons Billy Blackburn, about 3 and Marvin, about 1 year old. Marvin was soon after nick-named Jackie and thats the name he is usually called by relatives and friends.

The government had now begun making an examination of all railways to ascertain the real cost of construction or replacement. According to the famous Esch-Cummings Law passed a short time before, the railways must base their freight and passenger rates on the actual cost or value of their property, instead of their "capitalization". Soon thousands of engineers all over the country were engaged in this work.

I had to prepare for the government engineers complete maps of the Midland Terminal Railway (25 miles long) on a scale of 200 feet to the inch, and on sheets of a certain size. Had to employ a good draftsman to help me.

Several months later in the year, a party of government engineers in a special car came along and began making measurements and estimates of the cost of grading, track and equipment of the road. I think I spent fully 2 weeks with them on this job and was glad to have it done with. They found that the actual cost of construction was much more than the capitalization (some 2 millions).

I understand it took them some 5 or 6 years to complete the work over the entire country.

Again I went out to California to spend Christmas-New Year holidays (1919-1920). My parents were living in Ontario with my sister Lana at 1007 Euclid Ave. I also went to Oakland and visited my son Russell and his family. He had two small boys, Walter and

David. My wife and son Ralph were then living in San Francisco. Ralph was working for the Government Maritime Commission, and Russell for the Norwich Union Fire Insurance Co. (Had been for several years.)

1920; I had spent about 2 weeks in my trip to California, and of course was very busy for several weeks after my return. Had left an assistant (A.F.Hoberton) in charge of my business during my absence, but he could do only part of the work.

About this time the drainage tunnel had been driven to a point opposite the Cresson main shaft, which was 1700 feet deep, and the bottom some 150 feet above the tunnel level. This shaft was about 1800 feet to the north of the tunnel, and I had to select a point in the tunnel from which to drive a drift, or cross-cut directly under the bottom of the shaft. It took about 3 months to drive this cross-cut. Later on a raise was made from the end of this cross-cut to the bottom of the Cresson shaft and an exact connection made.

Sometime in the summer of 1920, a question arose with the U.S.Government about taxes on the Cresson mine, and some of the other leading mines. During the preceding 6 to 7 years the Cresson mine had produced large quantities of rich or good ore and had paid out the profits in dividends to the stock holders. But this kind of ore had been just about exhausted, and all that was left was low-grade ore which paid but little profit. The government sent out some young mining engineers from Washington, who looked over the mine, took some samples where ever they could find a little streak of rich ore, also examined the company books and mine maps. They went back to

Washington and reported a large production for several years past and also large quantities of rich ore still exposed. The Chief of Internal Revenue in Washington then demanded a tax payment of \$870,000.00. This of course was exorbitant as the Cresson had less than \$200,000. in their treasury and could not hope to make much profit unless they could succeed in finding a large body of very rich ore.

I was employed by the Cresson Co. to make a report on conditions at the mine and send it to Washington. Then the Chief of Internal Revenue requested that we bring all our books, maps and other data to Washington and explain directly to him. Accordingly the mine superintendent, chief bookkeeper, and myself started for Washington about August 1st with a trunkful of the required evidence. We were there some two weeks, and spent a part of nearly every day at the Internal Revenue building, in explanations and arguments with some of the leading employees.

When we left Washington, I came back by way of Gettysburg, Pennsylvania and spent some 3 days there looking over that famous battlefield of the Civil War. There are hundreds of monuments and markers, all telling of actions at certain points during that 3 days of bloody struggle. I was especially interested in the beautiful monument to the First Minnesota Volunteer Regiment, which suffered a loss of about 3/4 of its number in killed and wounded in this battle.

As regards the Cresson mine-government tax dispute, I understood it was settled a few weeks later by the payment of \$250,000.00 to the U.S. Treasury.

In the summer of 1920 a new mining company had been organized

called the "War Eagle Gold Mining Co.". The organizers, promoters also directors were all prominent Democratic government or state officials as follows; Tully Scott, Chief Justice of the Supreme Court, ? Burris, U.S. Marshall of Colorado, Wm. Mahone, U.S. District Attorney for Colorado, Thos. Robinson, U.S. Surveyor General of Colorado, A.L. Skinner, U.S. Internal Revenue Collector of Colorado, and Thos. Annear, Director of U.S. Mint in Denver. They, with the aid of some Colorado investors had acquired quite a number of mining claims in the district, some of which had produced a little ore and some but very little developed.

Judge Scott had been a practising attorney in Cripple creek during the early years and I was well acquainted with him and Mr. Robinson. They employed me as consulting engineer at \$100. per month. I only spent about one day a week on the average for the next three years or so. They did not succeed in finding much pay ore and finally gave up the work

Sometime in the Fall of 1920 I joined the Cripple Creek Lodge No. 317 of the Benevolent and Patriotic Order of Elks (B.P.O.E.). For many times during the preceding years I had been urged by several of my friends who belonged to that order, to join them. They had a fine Lodge and Club Building (costing \$40,000.) on the corner of 4th and Bennett Ave. I had joined the Masonic Order in 1898, and within the next few years had also joined the Knights Templar and Shriners. The Elks offered much more of social welfare and amusement. The initiation fee was \$25. and annual dues were \$15.. Within a short time after joining I was elected Treasurer of the Lodge, which office I held until I left Cripple Creek in June, 1926.

There was another rather exciting presidential campaign in the Fall. Governor Cox of Ohio, Democratic candidate and U.S. Senator Harding also of Ohio as Republican candidate who was elected by a very good majority.

I again went out to California for the Christmas holidays (1920-1921). Still travelling on my annual government pass. Visited my sister Lana and parents in Ontario, and daughter Alta and family in Los Angeles, also my son Russell and family in San Francisco.

1921; It was on this trip that I last saw my dear old mother in Ontario. She had been in a very frail condition for several years and died about a year later just before her 89th birthday. She had been one of the pioneer mothers of Minnesota and during those early years there she had endured many hardships and done much hard work. Her youngest brother Octavius and only sister Lizzie had passed away a few years before. Both of them had gone to Minnesota with her and father in 1855 when the Territory of Minnesota had a white population of about 25,000.

I do not remember any very important events in 1921. I think the drainage tunnel was completed that year. My work was just the usual routine work of surveys, maps, reports, etc. I did all my office work and only employed assistants for surveys. I seldom left Cripple Creek except for a few short trips to Colorado Springs and Denver.

I remember that on one trip to Denver I went to see my friend Thos. Annear, the Superintendent of the U.S. Mint. He personally took me all through that wonderful establishment and I saw all the various processes used; assaying, smelting, refining, coining and

weighing. More than 100 employees were needed and armed guards were on duty day and night. I was shown one vault where about 25 millions in silver coin and bullion were stored. I was in another vault where \$480,000,000. in gold coin and ingots were stored, something that very few visitors are ever permitted to see. That Mint Building was like a fort. About 6 armed guards were kept on duty day and night.

1922; I cannot recall any events of importance during the early part of this year.

Now that I come to think of it, I haven't stated where I lived, slept and ate during all the years in Cripple Creek. My family had been with me only twice during all that time, about four months in the summer of 1894 and some 5 or 6 months in the winter and spring of 1897.

Up to the time of the great fire of 1896 I had rented bedrooms at various rooming houses and taken most of my meals at Mrs. Cady's boarding house. When we put up our own office building in the summer of 1896, I reserved one room on the second floor, next to our office as a bedroom where I slept during the remainder of my life in Cripple Creek. After that time in 1896, I had most of my meals at the Gibbs House at a cost of \$7. per week. And such meals as they gave you would cost 75 cents to a dollar each at present time. The Gibbs House changed management about 1904, and then I began getting most of my meals at the National Hotel dining room. The National was the largest hotel built in Cripple Creek. It was built in the fall of 1896 at the corner of 4th St. and Bennett Ave., just 1/2 block from

our office building. It was fire proof brick, 100 feet frontage by 150 feet deep, and 4 stories in height, and cost about \$150,000. This hotel was torn down in 1919 because business was poor and taxes high. Theeafter I got some of my meals at the Imperial Hotel on 3rd St. or at Harry Porter's Restaurant. This was one of the oldest and best restaurants in town. Meals were cheap in those days. With a meat order (steak, chops or roast) you would get potatoes, another vegetable, bread and butter, coffee and dessert, all for 35 cents, and all very good.

(What a change now-1943.)

I still made visits about every 2 weeks to the portal of the tunnel to measure the flow of water. It had now decreased to 3000 to 4000 gallons per minute. All the important deep shafts had been connected with the tunnel. Three of them had been sunk below the tunnel level and were pumping up to that level. The tunnel had saved the mine owners of the district several millions in mining costs. The most conservative estimate was 3 times the cost of the tunnel or about 3 million dollars.

Somtime in July, 1922 I went back to Minneapolis. My father was there living with sister Gratia in her home on Gerard Ave, a beautiful poart of the city near the west shore of Lake Harriet. While there Father and I went down to the old town if Hastings to see Aunt Lana, then about 102 years old and that was the last time I saw that dear old lady. A little later I went up to Duluth, Minn. where my sister Lana was spending her vacation with her daughter, Constance and her husband Gilbert Buffington. And that was the first time I had seen him and his little son Edwin, then 2 years old. I think I

spent about three weeks on this trip.

1923; I cannot recall any events of importance during this year. Business was not very good but still I was making a fair living and could not expect at my age to better myself much.

My father returned to California sometime in the fall of 1922 to live with sister Lana in the house in Ontario and in the summer of 1923 he spent a month in the Old Soldier's Home at Sawtelle, near Santa Monica, California.

I also spent a month (July) with Russell and family in Oakland, Cal.

1924; Same old business routine at Cripple Creek. Business generally over the country was quite dull since the decline in 1920 but at Cripple Creek there was very little change, because there is always a demand for GOLD at a fixed price of \$20 per ounce.

In the latter part of 1923 Father had gone back to live with brother Ampy (or Doctor A.M. Countryman) at Cincinatti, Ohio. He had been troubled for some weeks with a sore on his back, which he had not considered serious, but which was then discovered to be a malignant cancer. The expert cancer specialists treated him for sometime with X-ray exposures but could not effect a cure. They finally pronounced it "incurable". Meantime my brother had suffered a severe attack of pneumonia and was helpless. So some time in the early part of 1924, my sister Gratia brought him back to Minneapolis. He gradually grew worse, and about the middle of March I went back to Minnesota to be with him during his remaining days.

He suffered greatly and all we could do was to give him an anaesthetic 2 or 3 times a day to keep him unconscious. He finally died March 30, 1924. He had transferred all his property to Gratia sometime before and she disposed of it in compliance with his will. His estate at the time of his death was probably worth 25 to 30 thousand dollars, but was later depreciated in some of his investments. And so my dear old father passed away in the 92nd year of his life. An honorable, upright Christian man.

Immediately after his funeral I returned to Cripple Creek and resumed my work there.

I was looking after the surveys and maps etc. of the following mines; Cresson, El Paso, Elkton, Granite, War Eagle and Isabella mines, and occasional odd jobs together with the Midland Terminal Railway.

About June 1st I started for California and visited my son Russell and family in Oakland. He had 3 very bright active boys, Walter age 8, Dave 6, and Ralph 3. I always had a good time with them. Took them out to Neptune Beach and to the San Francisco Zoo and ball games.

I went to Los Angeles to see my daughter Alta and her two boys Billy age 9 and Jackie 7. She had a very beautiful home, that had cost about \$28,000.

I went to Long Beach to see my wife and son Ralph. He was then working for the Los Angeles Steamship Co.

I then went to Ontario to see my sister Lana. Her daughter Constance and grandson Edwin, age 4 were there and we had a good time.

I took a hurried trip to San Diego to see some old friends there , and then went back home to Cripple Creek. I was gone nearly a month I think.

Shortly after returning an accident occurred in the drainage tunnel. A cave-in of rock and timbers at the intermediate shaft had almost blocked the flow of water which was rapidly backing up and would soon fill the tunnel back to the El Paso shaft. Something had to be done quickly or all the mines would have to cease work below tunnel level.

I was selected to take a gang of men in from the portal (8000 feet to the blockade) and see what could be done. I soon saw that the big heavy timbers were so firmly wedged in that it would be difficult and dangerous to attempt to remove them by hand. Even if they could be loosened up, there would be danger of its giving way very suddenly and a rush of water and debris would kill or drown any workmen in front of it.

I concluded that the only way to loosen would be with a heavy charge of dynamite. So about 100 pounds of the strongest dynamite was brought in, placed near the bottom of the blockade, and a long slow-burning fuse (30 feet long) was attached. I figured that it would take nearly 1/2 hour for that fuse to burn out, and it would also take that to get out to the portal. The walking was bad, rough and rocky. I had all the men but one go half way out, before that one lighted the fuse.

And he was instructed to go his best after lighting it. He had barely got to the portal when the explosion occurred. Within five minutes a huge wall of water shot out of the portal, carrying logs,

timbers, etc.. I breathed a great sigh of relief that no one had been hurt. The principal mining companies gave me \$50. for doing the job.

On Christmas Day (1924) the Elks gave a Christmas tree entertainment and presents to all the poor children in town, and in the afternoon had a moving picture show for them. There must have been 300 of them.

I will call this all for 1924.

1925; I cannot recollect any very important events of personal importance during this year. My work was almost entirely underground surveys and maps, with frequent reports to the various companies for which I worked.

The chief officials and offices of most companies were in Colorado Springs or Denver and they liked to have my opinion of general conditions at their properties with blue-prints of maps and profiles.

About the middle of December, I started for California, going via Union Pacific to Oakland where I visited my son Russell and family during the Holidays. Then on down to southern California to Los Angeles, Long Beach and Ontario, and back to Cripple Creek about February 1, 1926.

1926; About March 20, 1926 I went to Denver to meet my cousin Joe Chamberlain, wife and daughter. He was my Uncle Oc's only son, about 40 years. I had not seen him since he was a small boy. I spent a few days with him seeing some of the sights of Denver and vicinity.

This is quite a memorable year in my life.

The Cresson shaft had now been sunk to a depth of 300 feet below the drainage tunnel, or a total depth of about 2500 feet. They were pumping large quantities of water up to the tunnel. The 18th and 19th levels were below the tunnel and they were doing a large amount of development work on both those levels. I had a great amount of underground work to do under difficult conditions.

Water was coming down everywhere like a heavy rainstorm. I had to wear rubber clothes; coat, hat and boots, but nevertheless I usually got soaking wet. On reaching the surface I would put on my overcoat, hurry down to the electric car station and go home. I would make a fire in my room and change my clothes at once but I was usually chilled through and through.

I had become 69 years old and unable to endure such hardship. About the middle of April I began to realize that I was "slipping". One morning when I got up I felt dizzy and cold, but I dressed and washed and then suddenly fell on the floor unconscious. How long I lay there I do not know but probably not more than 10 minutes. I resolved to telephone Dr. Hassenplug at once. He came right up, felt my pulse and took my blood pressure.

He said: "I am going to take you to the hospital as fast as I can go." He helped me into his car and started. Before we were halfway there I passed out again and did not regain consciousness for some ten days.

(Note: It was about April 20 that I was taken to the hospital.)

When I did "come to" I found that my sister Gratia had arrived from Minneapolis, and a few days later my 2 sons Russell and Ralph

arrived from California. I was so weak I could scarcely move.

They thought I could not recover, and so I gave Russell "power of attorney" to dispose of all my property.

But I failed to expire just then. On the contrary I began to recover and so the boys went back to California, and my sister Gratia returned to Minnesota. In the latter part of May, she and three lady friends (library girls) left for a tour of Europe and were gone some 3 months.

Finally about the last of May, I left the hospital, settled up my affairs as best I could, sold or gave away all my office furniture and books, etc. and left Cripple Creek for good after a stay there of over 34 years.

I found that Russell after paying all my doctor and hospital bills and his and Ralph's expenses, had the sum of \$13,175.00 to my credit. This was placed in a trust fund in the Oakland Bank, the income to be paid out at the rate of \$85.00 per month to me, and \$50.00 per month to my wife.

Remarks from his sister Gratia: "...he died at 92 years at the Walker Memorial Home in Minnesota. His ashes were buried with his father and mother in Oakwood Cemetery near Hastings."