MR. WILLIAM ROY BANDY
921 Monroe Avenue
Helena, Montana 59801

April 14, 1972

Following is a list of names used in Life Narrative Mrs. Mace may need when writing story.

Jim Yule
Frank Cool
R. Y. Lyman
Ernest Parker
Bill Lumis
John Keefe
Jim Bascom
Daddy Price Cook
Finn Garret "
Mike Hannifan
Sidney Kain
Jack Morris
Ariel Barney
Ed Wilson
Blackie Postle
Bert Wackert
Elmer Wix
Surveyors Al Harris
Guy Richardson
Charley Seelye
Dan Mumbrue
Phillip Inch
Glenn Sawyer
Karl Suhr Teamster
Frank Montibeller
Sidney Lain
Don Thompson
Marvin Thompson
Mike Glosser
Paul Glosser
Stanley Arkwright
Don Robertson
J. Scott Harrison
Sam Moss
Jim Minnie
Big Scotty
Seib Hottenstein
Tingley
Ted
Lert Cavanaugh Cook
Mrs. Maude Proderick
Inez Estes, ~~xRandyxxx~~

Places

Flat Willow
Musselshel ?
Tongue River
Powder River
Kane,
Daniel
Cirque, A circular valley with precipitous walls at foot of Mt.
Opal. town
Lame Deer
Busby
Two Leggeh Cr.
Little Big Horn
Kelse P lotter, map making
~~Yaak~~ River
Utica, town
Yogo town
Kootenai River
Judith Gap
Pitchfork
Irma Hotel
Shoshone Dam
Hell Creek
Seven Blackfoot creek
Shirley, town
Meeteetse, "
Thermopolis "
De Maris Spring
Bull Whacker Creek
Big Dry, Little Dry creeks
Yaak, River, valley
Pryor Gap, Mts.
Landusky, old town
Cow Island
Haxby P.O.
Alzada
Milliron
Ekalaka, town
Hungry Horse
Cripple Horse
Bay Horse
Kaysee

Hele[illegible]ril 7,1972

Dear Mr. Drew:

I am sending you 26 pages of the manuscript sent to me January 21st 1972 This 26 pages joins on to page 55 of the manuscrip you ~~you~~ sent me covering the period from the beginning to October 1 1908, when I killed the deer on Carter Muntain.

These 26 pages takes to April 1911, when my wife went to cooking for the survey camp. I have corrected these 26 pages ready for typing again.

However: we have omitted that part of the narrative covering the period April 1911 to August 1912. That part should start next after page 26.

According to my records the 1911 to 1912 period is covered by Cassette C-9 0 or C-60 sent to you July 8th 1971

If you do not find it I will write something to fill in to make it consecutive. This is an important period, being the first two years of our married life when she was in camp.

Pages 26-27 to 38 of the above manuscript starts with the 200 mile trip from Sunlight Basin to the Big Horns where we had the Picture - Breakfast on the Big Horns, of Shorty Shoope fame.

I will check over the remaining 27 to 38 pages of her instalment sent me January 21, 1972, and hold them here until I hear from you.

I will check the 46 pages you sent me with your letter of March 28, 1972. Covering the period October 1913 to 1923, in the mean time. They are in fine shape and will not require much changing.

Things are looking up for us, it seems. Thanks a lot for everything.

Glad your are working with the Publisher. I will hurry with my end.

Sincerely yours,

William R. Bandy.

Ray

THE SURVEYOR, A GOOD LIFE.

1971

This is a sort of reminiscence of my activities from school days including descriptions of some practices characteristic of frontier life in the late 1880's and early 1900's. It is entitled, "The Surveyor, a Good Life".

DOWN ON THE FARM

Our farm home in western Missouri was a good place for my three brothers and me to grow up. It was land originally homesteaded by my grandfather, Conrad G. Carr, in the early 1840's. Being 13 miles from the nearest town, we learned to entertain ourselves, and that was easy for us to do with tall maple trees in our yard on which to hang swings, trapese and tightropes to practice on. Timber and pastures where we could hunt rabbits and squirrels and a large creek where we could swim and fish. Good training for the work that lay ahead.

As young boys, we practiced the gymnastics we saw circus performers do. Walking tightropes was the hardest, but sitting on the horizontal bar and deliberately falling backwards and catching by the knees took the most nerve. We learned it was a frightening experience to fall on our back and have our breath knocked out and have to run around with our mouths open, gasping for breath.

Jumping off the barn, holding an old, large umbrella like a parachute did not work too well, either.

Remembered as a disagreeable chore on winter mornings around the heating stove was pulling on the stiff leather boots. They were wet and clammy from the day before and we would have to stomp and kick and even threaten to slit the instep so they would slip on easier. The inventor of lace boots and adhesive tape to cover sore spots and blisters on our feet from stiff boots, which rubbed our heels, sure gave the country boy a good turn. Some of the easy jobs the boys were assigned to on the farm was stacking straw and hay behind the thrashing machine. If one did not stomp around fast, he would get covered with the straw and have chaff down his shirt collar. But we tend to forget those times and remember the good times we had.

GRANDMOTHER

Now I will give some background information on my forebearers. My Grandmother Carr was a widow from the time my mother was nine months old. The Carr family had moved from Belleville, Illinois to the frontier in western Missouri before the Civil War. That was before the counties in Missouri were organized. My Grandfather, Conrad Carr, was the first circuit judge of Vernon County, Missouri and it was organized in 1855. Grandfather Carr died suddenly

on December 31, 1858, leaving Grandmother Carr a widow with three girls and a thirteen year old boy to raise in the wilderness. The closest trading post was Fort Scott, Kansas, thirty miles from the homestead, across Clear Creek and the Osage River and some smaller streams. Grandmother used to tell us stories of hardships in those early homestead and Civil War days. Some of those stories are interesting to illustrate life as lived in Missouri 140 years ago. Travel in those days by country folks was mostly by ox-team and wagon. Missouri was divided over the Civil War issue, being called half slave and half free. Life was not peaceful. Bands of desperadoes ranged the country side, pilaging and harrassing local residents, taking first one side and then the other that best suited their plans. They were known as bush-wackers.

Stories were numerous of how bands of wolves ran the dogs and geese under the house at night and so on. Grandmother told us such stories while we sat around the fire on winter nights. She found it necessary for her to make a trip by ox-team and wagon to Fort Scott, Kansas once or twice a year to buy clothing and other material for the family, and to get certain grocery items they were unable to make or raise on the farm. They raised their own sheep for wool, and had a spinning wheel and loom for making cloth. That old equipment was stored in the attic. She told me of one trip to Fort Scott with Uncle Matt when he

was sixteen years of age. They traveled by ox-team. It was in 1861.

To illustrate the problems encountered on such a trip across the open prairie and across creeks and rivers, she told how it took a week or ten days to make the trip; camping out each night in a strange land. She told how the range bulls would attack their oxen and they would have to drive the animals away with clubs. When crossing a stream in hot weather, the oxen often would try to turn off the ford, going down the stream in search of cool water to cool themselves off and to avoid the flies. Grandmother would have to wade out in the water with sticks and hit the oxen over the head to force them back on the road.

On one homeward trip, a group of soldiers, seeing Uncle Matt, a big chunk of a boy fourteen years old, not in the army, stopped Grandmother and were going to force him to join them, saying he was big enough to fight. She explained that she was a widow and he was her only boy among a family of girls and she needed him to help make the living. An old man by the name of Uncle Dick Butler, living a ways off the road, seeing the soldiers had stopped her, went over and interceded for Uncle Matt. After so long a time, they permitted Uncle Matt to continue. It was a narrow squeak for Uncle Matt, she said.

MOTHER

My mother told an interesting war story. She was a small girl at the time, playing with a kitten on the living room floor one day. A troop of soldiers rode up in front of the house, tied their horses and started for the house. Mother, seeing them coming, started cleaning up the room. In her haste, not knowing what else to do with the kitten, she put it in a pasteboard hat box and set it on top of the cupboard. The soldiers came in and demanded dinner from Grandmother. They sat in chairs around the living room and waited while dinner was being prepared.

The kitten climbed up on the side of the hat box, trying to get out, tumbled off the cupboard onto the floor, with papers flying in every direction. The soldiers jumped to their feet, grabbing their guns, thinking they were being attacked. Seeing the scared kitten, they all had a good laugh.

] When mother was about fourteen years old, she walked a mile across the prairie after the horses one afternoon. Upon reaching the group of horses on the prairie, she saw smoke from a prairie fire in the southwest distance. The wind was driving the fire towards her. A prairie fire in those days was dangerous. She needed to get home quick. Her riding mare, Daisy, would sometimes let herself be caught out on the prairie and other times she would act smart and not let herself be caught. Mother did her best

to make friends with Daisy and sure enough, caught her and climbed upon her by holding onto the mane. By that time, the horses saw the fire coming and they all hit for home just ahead of the blaze. The home folks had seen the fire and had backfired around the house and orchard and saved those places. But the poor pig in the pig-pen was killed.

Uncle Matt told an interesting story of a wolf hunt that he had on horseback.

He jumped this big timber wolf and ran his horse until they came along side the savage wolf, which would look back at him with eyes red and blazing. Uncle Matt had his trusty muzzle loading rifle. The rifle was fired by a small brass cap that fit over the powder tube which was exploded by the hammer striking it. Racing the wolf, he rode up beside it, getting ready to shoot. Uncle Matt cocked the gun by pulling back the hammer, when, Lo and behold! the wind blew the cap off the powder tube and the rifle failed to fire. The lucky wolf ran off into the timber.

THE DUCKS

This one is about Grandma and the ducks. I got a joke on Grandma Carr one day. As was the custom in those days, Grandmother stayed with one part of her family part of the time and then with the other family the rest of the time. This day, when I was about sixteen years old, she and I were left home alone while my family went to town. I saw a

flock of ducks light on the pond and asked if I could take the shotgun and get us a mess of ducks. She said, "Oh, you couldn't hit the side of a barn, there is no point in you going." She did not want me to take the gun off by myself. Finally, Iteased until she let me go, saying, "I will clean all the ducks you can kill". I slipped down behind the dam and peeked over. There were a flock of green winged teal, all bunched up with their heads down, feeding in the shallow water; they did not see me. I fired into the bunch and killed seven of them. Grandmother sure had her hands full. I helped her pick them, saving the feathers for a feather bed.

A PET SQUIRREL

We boys had lots of fun on the farm. Once we were in the woods getting some wood and a small grey squirrel barked at us from a hollow oak tree. The saucy squirrel was not as big as a rgular grey or fox squirrel. He would hang up on the tree about twenty feet above our heads, hanging with his head down, barking at us. We thought he was a young squirrel that would make a good pet. We took turns chopping the tree down. It took us several hours. The tree was ahollow one and the squirrel could go inside awhile and then come out again and scold us for chopping on his home tree. Finally, the tree began to topple over.

As it fell, the wily squirrel sailed off of it and landed on another, taller tree nearby. He scampered to the top and laughed down at us. It was our first experience with a flying squirrel. We felt pretty cheap.

We had good times fishing in Clear Creek, with Pa and Ma. We used a red and blue cork to tell when we got a bite. We could tell a perch bite from a cat by the way the cork would bounce up and down. The perch would nibble on the bait and the cork would bounce up and down. When he got a good hold, he would pull the cork down and start for the middle of the stream. Then we jerked with all our might and threw the poor fish into the grass back behind us. A catfish usually gave a couple of nibbles and then would start for the middle of the creek, taking the cork down slowly. We then would jerk him out and had to be careful that we didn't get our hands stuck by the horns on the side of his head. In the fall of the year we would pick hickory and hazel nuts in the river bottoms. When we camped overnight, the owls would scream at us and hoot. We would cover our heads and wait and listen.

THE CHURCH

A landmark of our neighborhood was Sulphur Springs Baptist Church which stood on Clear Creek three quarters of a mile east of our house. Originally organized in 1867, the first edifice was an arbor constructed from local poles cut

on the spot and set in the ground supporting a frame, and covered with branches. My Grandfather Carr donated the land for the church. Grandmother Carr was a charter member. Later, a large one-room frame building was built and served the community as a church for sixty years. The church was on a bluff overlooking Clear Creek. A spring of crystal clear sulphur water on the creek bank was developed by setting a hollow log, two feet in diameter around the spring so the water flowed from a spout. That favorite drinking place was visited by the many church goers. Father and Mother attended church faithfully. Mother played the organ and father led the singing. During my boyhood, preaching was held every third Saturday and Sunday of the month, and Sunday school was held every Sunday morning. We attended regularly. Brother Wolf, a sandy whishkered preacher from another neighborhood was Pastor. He usually spent Saturday night once a month at our house as he came down to preach on Saturday and Sunday. I took care of his buggy team when he was at our place. I liked him very much, considering him a sort of Moses who could do no wrong. While we boys bucked somewhat at going to Sunday school every Sunday, we did attend and I am glad that I dod. So, thus we associated with the leading people of the neighborhood and learned to visit and sing with a group. The teaching and example of our christian parents

served many times to influence me to keep to the right path when I was tempted to go to the left and follow the wild bunch. I lived in construction camps in Wyoming when I was twenty years old midst many temptations of that day. I am sure my early training had a good influence. Some of my fondest memories are of standing around the organ singing while Mother played childhood songs.

THE CALL OF THE WEST

By the time I was in my middle teens, my brother Elmer had graduated from college and was teaching school in far away Colorado. His exciting letters telling of deer hunts, mountain trips and other adventures made me long for the day when I too, could go west. My father's passing away when I was seventten caused a change of plans. I would be needed at home to help Mother run the farm. I did manage within the next few years to attend college and get a diploma in bookkeeping and banking by the time I was nineteen years old. As I waited, my longing to gotto Colorado or Wyoming grew greater and greater. In my mind, I dreamed of greater opportunities in the west awaiting one willing to work. I was not interested in obtaining an office job or work on the farm in Missouri if I could find something better.

After the corn was laid by in 1904, I was able to get away from home and go to Kansas and work in the wheat fields for the harvest. That was the highlight of my teen-age days.

I was promised that job in Kansas by an old friend of the family, Will Collins, who had married a Kansas girl who inherited a wheat farm near the town of Larned, some three hundred miles west of our home. I had barely raised enough money to buy a railroad ticket to Larned so I took enough lunch to last me until I reached Larned, expecting I would see Mr. Collins when I arrived there. Alas, upon arriving, I was told Collins' lived fourteen miles out in the country. A grocery store man told me they usually came to town once a week, maybe on Saturday, which was three days away. I was stranded in a strange town without money. Being afraid I might get lost if I attempted to walk across the prairie to Collin's place, I decided to wait until Collins came to town or until I caught a ride with someone going out that way. In town, I joined up with three other boys who were also strangers looking for work. That night they invited me to sleep with them in a boxcar on the railroad siding where they had been sleeping. I still had enough money left to get supper with, but no more so I went without my supper that day. The next day when they started to look for some-place to eat, I made the excuse tha- I was not hungry and had to see a fellow down the street. I was ashamed to tell them I had no money. The second day, an older boy suspected the truth and asked me if I was broke. I said yes and he gave me fifty cents. I spent most of it on a plate of beans. The best beans I ever tasted.

The next day Mr. Collins did come to town and I started eating again. I had a wonderful job driving a header barge and stacking straw and wheat at $2.00 per day with board and room. I had been working in Missouri for fifty cents a day, helping a neighbor build fence. When wheat harvest ended, I joined a thrashing crew and got $2.50 per day working from sun up until sun down and sleeping in the straw stack. We ate at the mess wagon out in the field and I enjoyed the work very much. I went home with $125 and felt like a millionaire.

On the train home an unbelievable but true thing happened. I saw the boy who had staked me when I was broke. And I paid him back his fifty cents. He did not want to take it, he said, but I insisted. I appreciated his generosity. I used some of the wheat harvest money to pay my way at college during the winter of 1904 and '05.

WESTWARD HO!

Fortunately, in the spring of 1905, Elmer, then working on a Government survey project in Wyoming, secured a position for me with the outfit he was with, to start the first of June. I then did my best to get the home crops planted by the last of May so I could leave the farmwork to my younger brothers, Ray and Willis, and go to Wyoming. It was a joyful day for me that first day of June in 1905 when I left home on the jerkwater train to Kansas City to take me to Garland, Wyoming. With a basket of sandwiches and

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fried apple pies Mother had prepared for me to eat along the way.

Leaving Kansas City on the Burlington train, I enjoyed hearing the car wheels begin their rythmatic clickety clack, clickety clack over the rail joints with increasing tempo as we pulled out of the yards with clanging bells and hissing steam. I then realized I was at last on my way to the promised land. We passed through Kansas, Nebraska, Wyoming and on to Toluca, Montana. Toluca consisted of a red section house on the sagebrush prairie thirty five miles east of Billings on the Crow Indian Reservation where I changed trains to the Cody branch line running through Pryor Gap to Cody, Wyoming, my destination. Getting off the train at Toluca, not a house could be seen as I gazed at the low sagebrush hills. Viewing that pastorial scene, with two families of Indians in native costumd sitting on the ground near the station, I realized I had arrived in the plains country. Talkngg in a low mumble, the Indians stared curiously at another boy and me as we strolled timidly by. A squaw led her brood to the station water pump and proceeded to wash their faces, using her bare hands. Then not having anyone to pour water on her own hands, she washed her face by filling her mouth with water and spewing it on her hands. Later, we all climbed aboard the mixed train made up of

boxcars and a combination express and passenger coach where we passengers rode. Attached to the rear was a Pullman sleeping car which had been added to the train at Toluca. Pulling the train was a small squat engine with a large flaring smoke stack puffing clouds of coal black smoke. All Indians were permitted to ride free on the train while crossing the reservation. They appeared to be taking full advantage of the priviledge as whole families piled on and off at every stop.

PRYOR GAP

We soon reached Pryor Gap where I received my first view of the mountains. That famous defile, according to legend, served as a natural passageway for ancient tribesmen who traveled north and south between mountain valleys to hunt buffalo. Strengthening the theory that this was an ancient passageway is the presence of ancient prehistoric stone monuments at various intervals throughout the gap. The age of the monuments which were about ten feet in diameter and three feet high was indicated by the stunted gnarled, pine, cedar and juniper trees growing on the mounds. Seeing so many new and interesting sights on this, the last leg of my journey, had whetted my curiosity to see as quickly as possible the place where I was to be working the next few months. Late in the afternoon, the engineer blew his whistle signaling the approach to the

town of Garland, Wyoming. Rushing to the window as the train rounded a long curve, I received a glimpse of the main business section which consisted of half a dozen white fronted store buildings on the west side of the main street. On the other side was a livery stable, some feed yards and a warehouse. The newness of the town which was only three years old, impressed me.

THE CAMP

Upon leaving the train, I noticed just south of the railroad siding, a high railroad tressel and coal chute used for refueling the train engines. Mr. Norton, the station agent informed me that just south of this tressel was the Government survey camp where I was headed. Taking my baggage, I walked under the tressel to the largest in a group of tents where I found Miss Rhoda Huber, the camp cook, busy in the cook tent. Rhoda, a friendly girl from Lovell, Wyoming, smiled and made me welcome, saying they were expecting me. Miss Huber said the men were all in the field and would return to camp in time for supper, a meal I was anxiously looking forward to after my long train ride. Floating fragrance of a beef roast wafted from the oven and the aroma of freshly baked bread lying on the table had already convinced me that I was going to enjoy my temporary home. The canvas kitchen, a most important part of any camp, had a home made cupboard set on boxes in the back. And a

sheet iron cook stove was in the front. The lid of the mess box formed the cook's table. Lights for the camp were furnished by tallow candles placed where they would do the most good, some of them were stuck in the tops of ketchup bottles. Water, not only for the camp, but for the whole town of Garland was brought in tank cars by the railroad company.

The purpose of this cadastral survey which was being made at that time was to divide that unoccupied public domain land into townships and sections as a first step necessary in the task of bringing irrigation water to the land and making it available to prospective farmers. The camp came alive suddenly when the field men, about twenty five in all, came walking in, tired and hungry. As they washed up, they joked and told of the day's events. The meal, which seemed one of the best that I had ever eaten, was served immediately, round-up style, as were all camp meals. After supper, I was directed to sleep in one of the nearby bunk tents. I rolled out my bdd on the bare ground, as did everyone. Then beddd down for my first night in a survey camp.

In those days, each employee supplied his own bedding, towels and such other personal items as he required. Personal baggage was limited to such items as could be carried in a bag or seamless sack called a war bag. My main objection to the warbag was that anything I wanted

was always in the bottom. If I needed a clean pair of socks, I would put my arm down in the bag, feel around for the socks, but encounter such items as gloves, underwear, shirts and perhaps a piece of mosquito netting. After yanking up a few of these unwanted items by mistake, I would give up and empty the whole bag out on my bed. I threatened to make another opening in the bottom of the bag to save time. As a forerunner of today's fancy toilet case, I picked up a used two pound Union Leader Tobacco can, in which were my Arbuckle brand razor, shaving soap, brush, hand mirror, needles and thread and a teaspoonful of flaxseed my thoughtful mother had given me in case I got a grain of sand or chaff in my eye.

During the night we were serenaded by coyotes yapping and barking in every direction. Some of them appeared to bite their barks up into small pieces, causing one to sound like several.

COYOTES

Coyotes were as much a part of Wyoming as sagebrush and badlands. The coyotes used to serenade us most every evening. Theyseemed to be more plentyful just before a storm. In fact, folks used to predict stormy weather when the coyotes were unusually noisy.

One would start to howl, then another across the valley would answer him, and pretty soon, they would be howling all around. One coyote can sound like a half dozen when he gets toyyapping, barking and howling all the same time. There used to be one out north of Garland, between Garland and Polecat Bench near the Coal mine that would bark at us during the day as we worked in the hills. They said she must have a den of pups over there.

I remember one day Troy Troutman was sent over in those hills to set a corner. He sure gave her a scare. On his way back, the coyote was on a hill between him add us. She was so interested in us that she never noticed Troy slipping up on her. He had a long handled shovel with him, and he kept behind the hills as much as he could and got up pretty close. Just as she stuck up her nose and started to let a howl out of her, he threw the shovel at her! He said she sure cut the howl off right in the middle and got out of there in a hurry!

The coyotes could tell when one did not have a gun. They would be gentle. If you had a dog with you, that is, an ordinary shepherd dog, they would come up close, maybe within 100 feet or so. Maybe the dog would get brave and run them over the hill, pretty soon here the dog would come running back with the coyote right behind him. If you were driving along in a wagon, the coyote might follow along playing hide-n-seek with the dog for miles.

Many of us miss the nightly serenades of the coyotes, now that the Government trappers have practically eradicated them.

Wolves were not nearly as plentiful as were the coyotes, but now and then you would see the big gray fellows. When you would hear them howl at night, that long mournful sound would sure send the cold chills up and down one's back. There was a pack that lived in the "breaks" on the west side of Heart Mountain. I saw seven at one time over there as we were working above them on Heart Mountain.

COYOTE PUP

When I was working at Wiley Tunnels, we got a coyote pup for a pet. While setting grade stakes for the shovel up near the South Fork we saw a coyote den out in the sagebrush below the ditch. The old coyote was lying by the hole, and some young ones about as big as a cotton-tail rabbit played around her. They saw us and the young ones ran in the hole while the mother barked and ran slowly away.

We planned to surprise them some day and get between them and the hole. One day we slipped carefully up the ditch and peeped over and saw the coyotes were out around the den, not seeing us. Getting ready above their den, we suddenly ran down the loose gravel bank, shouting and kicking gravel.

Some young ones ran away from the hole and hid in the sage-brush.

Seeing one, I threw my mackinaw (coat) over him and managed to hold the pup from biting me until a boy brought a gunny sack. We took the pup to camp and put it in a pen made of chicken wire. We fed it milk and meat from the kitchen. It grew and got gentle enough to stay around camp. He enjoyed slipping around nipping a cat's tail, if any excitement like a dog fight occurred, the coyote would run around, bark and howl like a wild one. It go so it would slip up and nip children's heels, so we took it away and turned it loose.

THE OUTFIT

Samuel W. Brant, better known as the Colonel, and his son, Arthur, headed up the organization I had joined. The Colonel, a contract land surveyor of long experience was a cheerful man with gray whiskers and twinkles in his eyes. Being blessed with a jovial disposition, he was the life of the outfit, in camp or on the trail. By showing a friendly interest in each of his employees and inquiring into their welfare, he kept the morale of the party high.

Going all day long in mid-summer on one quart of water was the most disagreeable feature of the work. Until a newcomer got used to conserving his drinking water, he usually

suffered from thirst in the afternoon. Experienced hands would refrain from drinking until noon, thus conserving a full canteen to sip on while eating lunch and having a few swallows in the afternoon when his mouth got dry. When extremely thirsty, I was not choosy about the kind of water I would drink. I have often greedily drunk from stagnant pools having a heavy green scum, dead bugs and grasshoppers floating on the surface. In such cases, I managed to make out pretty well by bellying down and blowing back the scum, quickly dunking my face in the murky water well below the scum and drinking my fill, straining the water through my teeth. No ill effects were suffered from drinking such water unless it had a build-up of alkali. Strong alkali water standing in pools having a muddy bank could be identified by being crystal clear. We found that standing, murky water was usually safe to drink.

THE ASSIGNMENT

Our job was to divide the public lands into townships and sections according to the Rectangular System of Surveys devised by Thomas Jefferson and George Washington and others soon after the time the Northwest Territory, and the Ohio Purchase lands were acquired by the United States, and a plan for surveying the vast area was needed. That plan called for the division of the acquired lands up into townships six miles square, and the townships further divided

into thirty-six sections, one mile square. The township and section lines were to be run north and south, and East and West as near as possible, taking into consideration the curvature of longitudinal lines. Corners were to be set every half mile. The directions of the lines were to be determined by observations of the Sun and the North Star, Polaris. Measurements were to be made with steel tapes graduated to chains andlinks. Up until 1910, corner monuments were of stone of wooded stakes marked to show what section corner they represented. Chisels were used to mark the stones, and timber scribes used to mark the wooden posts. My first job on the survey was cornerman. I had to learn the technique of how to hold a chisel to make neat marks on a stone, so as not to chip the stone, or dull the chisel too fast. I was advised to hold the chisel slightly off the surface of the stone and tap it lightly with a small hammer. Stones so marked will retain the marks indefinitely. Smooth river granite boulders make the best looking corner monuments, the marks remaining white for years. Small cottonwood stakes marked with a scribe have been found in the dry desert plainly marked after a lapse of 80 years. A wooden post marking the SW corner of the original Crow Indian Reservation was found sound and plainly marked more than 90 years later. Some of the wooded post corners marking the north boundary of the State of Wyoming through the Cooke City area, that were

established in 1879 were found in good condition 60 years later. Cypress stumps marked for corners in Florida swamp lands in 1828 were found in sound condition 100 years later.

Pits 18 inches square and 12 inches deep, dug in the ground to witness section corners have been found 70 to 80 years later by skimming off two inches of the surface of the top soil with a sharp spade, and observing the different color and texture of the accumulated soil drift in the old pit. That method is still standard practice for searching for an obliterated corner monument, which had been witnessed by pits.

The establishment of good, permanent corner monuments is the most important function of a land surveyor, because the position of the original corner monument marks the position of the corner point regardless of the accuracy of the measurements or alignment of the boundary lines.

The directions of section lines surveyed in 1905 by U. S. General Land Office surveyors in 1905 in Wyoming were determined by transits and open-sight compasses provided with Burt Solar Attachments. The official Manual of Surveying Instructions specified that the solar apparatus be tested each day to make sure it was in adjustment. That test was made at noon local mean time if the sun was shining. The test was made with the instrument on the meridian with

the proper declination of the sun set off on the declanation arc, and noting the reading of the latitude arc as the sun crossed the meridian. A notation of that test was made in the official field of that day's work. On Sundays, the instrument was tested both morning and afternoon by noting and comparing its indications with an meridian established by observations of Polaris. Thus, it will be seen that the dedicated instrument man would have to remain in camp over Sunday, or have someone else test his solar for him. When working in timber, everything depends on the adjustment of the instrument if you are going to be sure of satisfactory closings.

SURVEY SITE

The country we were working in in 1905 was wild and untamed. As we tramped over the uninhabited region setting section corners, herds of wary antelope raced ahead of me, their white rumps bobbing as they kicked up the dust. Circling back, they would pause to gaze at me while the old bucks stomped and whistled their challenge.

Occasionally, I could see a slinking coyote sneaking up a draw, glancing over his shoulder, seeking the safety of a distant hill where he would turn and let out a high-pitched wail just to let me know that he considered me an intruder.

Or I might flush a black and white-faced badger, who would waddle off on his short bow legs, stopping to turn and boldly stare me in the face, hissing his defiance before backing into a prairie dog hole to peep out at me over the edge of the mound.

Sometimes I would encounter a treacherous rattlesnake, already coiled and facing me, blocking my path. Fortunately, a rattler almost always gave a warning buzz before striking, giving one time to stop and prepare for battle.

Above all this could usually be seen a hungry golden eagle, circling high above the ground, leisurely scanning the prairie, ready to dive and grab some unsuspecting rabbit or other rodent he sees. Rattlesnakes and scorpions were plentyful and coyotes serenaded as every night.

Other natives of the wind whipped desert greeted us: First being the happy yellow-breasted meadow lark with a black spot on his chest. He was singing from his perch on a greasewood. I at once noticed his song had a different ending than did his cousin living in my native Missouri. I later learned the Wyoming lark was known as the Western Lark, and had a slightly different song. Also present was the graceful bob-o-link fresh from his winter quarters south of the Caribbean Sea. He being black with a white spot on his wing. He was doing his usual stunt of flying straight up 30 to 40

feet high, then gracefully floating down as he sang his standard song quoted by the poet as being "Bob-o-link, bob-o-link, spink, spank, spink".

Sometimes during the lunch hour when on line some of the boys enjoyed some great fights between stinging scorpions and the ever busy ants found throughout the prairie. The big scorpions had a habit of prancing around with their sharp stinger pointing up, apparently daring anyone to get close. To test him out, a hole was gouged out in the top of an ant-hill, four or five inches deep and a big scorpion dropped in the depression. The fierce ants would gang up on the haughty scorpion, who would wave his stinger and fight for his life. The ants always won by pulling off his legs and throwing him off the hill, piece by piece.

To quiet a raging rattlesnake down, they one time spit tobacco juice in it's mouth. The snake got as stiff as a poker and appeared dead, but a check later in the day showed the rattler had recovered and crawled away.

Garland's most interesting attraction for me was the long freight teams pulling wagons loaded with sacks of wool, Ten or more horses hitched two abreast in a long string were driven by one man riding one of the wheel horses which was next to the wagon. It was marvelous how one driver could turn the outfit around in the street and maneuver the heavy wagon into position for loading wool onto freight cars. He did it

by using a jerk line to guide the lead team. The swing team hitched to the front end of the tongue played an important role when going around curves, often they would have to step over the draw-chain and pull at right angles to keep the wagons from going off the roadway.

In Garland, one of the Norman residents had a rather ingenious arrangement for increasing his earnings. I was told he had three wives; one of them ran a lunch counter in Garland, another wife stayed on his farm at Cowley, Wyoming, ten miles south; the third wife cooked for the coal miners he had working a coal mine at the foot of Pole Cat Bench ten miles north of Garland. He would divide his time between the three places. It would be more difficult for him to do it then when he had to travel horseback or by wagon.

NEW SITE

Completing cadastral surveys around Garland on June 30, 1905, the surveyors moved to Cody, Wyoming, where they were split into three groups, Being familiar with horses, I was designatdd on this move to drive the lead wagon of the caravan. The other crew members walked along the railroad. Arriving at Eagle Nest about noon, I paid twenty five cents each for watering the horses at a trough. It was the first time I had ever paid for watering horses. The charge was not unreasonable, however. The roadhouse people had to pipe the water across the road to a trough to provide for watering

stock. We camped for the night at the Corbet Bridge on the Shoshone river, twenty-five miles from Garland. The men having walked the distance, complained it was difficult to walk on the railroad track. The ties were too close to step on each one and too far apart to step on every other one. They preferred to walk off the grade along the fence. Everyone slept well that night having rolled their beds out near the roaring river which was flowing near bank full due to melting snow. It was good to see the river full of water after working in the desert. We reached Cody the second day and put up at the Heart Mountain Inn. The crew bought such articles of clothing they needed from Dave Jones, Outfitter for Men and Boys, and groceries were bought from Jake Swobe genial manager of the Cody Trading Company. The crew also attended the Cody Rodeo on July 4th, a new and exciting experience for most of us.

Leaving Cody the next day, I was assigned to a crew going 85 miles southeast to Worland, Wyoming to survey a correction line called the Eleventh Standard Parallel which we were to survey for 60 miles straight west as a base line from which we could later start section lines running north. The base line we were to survey started at a corner which had been set the year before on Fifteen Mile Creek northeast of Worland. I was promoted to chainman and worked with Arthur Brunt as my chaining partner. Measurements of a section line were made with steel tapes, one chain, or 66 feet long,

graduated in 100 links marked 1 to 100. No written field notes were kept by the chainmen. They kept track of the distances in the number of pins stuck, one pin being stuck in the ground for each chain for every chain of distance. It was therefore imperative for the chainmen to keep a close check on the number of pins used. Plus distances of less than a full chain were called "Plus" or "Mark" so many links as mark 35 of 50 links as the case might be. Chainmen would alternate the leadership along the line every 10 chains. One chainman wouldalways lead out from the corner, and at the end of 10 chains, he would call out, Tally One. The other chainman would then count his pins as he came forward, and say "Tally One, ten pins". He would then take the lead for 10 chains, and call out, Tally Two, and so on; Tally Four being for the quarter-section corner and Tally Eight for the section corner. Careful counting of the pins at each tally was required. Chainmen would remember distances to items of topography along the line and give the information to the instrument men as he could or at the corner.

In prairie country, section lines would be run in 'stair-step order' so the party would not have to deadhead back a mile every time they ran east on a random. The chainmen would signal back to the cornerman at the quarter-section corner, the proper move to get the corner set at mid-point.

Arthur Brunt was my chaining partner. Two sets of chainmen were employed on that baseline because of its importance.

We ran up Fifteen Mile Creek, over Tappan Mountain, and across the Grey Bull River below Meeteetse. The line ran through a desolate badland country where many wild horses were seen. The wild horses were not afraid of us on foot, but would run from any rider in sight. Water was scarce and Colonel Brunt riding his horse,Tamarack, often went ahead scouting for new campsites where water was available, and guided us into the new camps at quitting time. Camp was moved every other day, so we never knew where to find the next one. It was often a weary crew that tramped through the badlands on hot afternoons with empty canteens and tongues sticking to the rooves of our mouths. Many times I felt like I would give a month's wages for a cold drink of water. After reaching the Grey Bull River in August, the water situation was much improved.

It was my good fortune to have Mr. Arthur Brunt take an interest in explaining the technical side of surveying to me. In spare time on evenings and Sundays, he taught me how to read the verniers on the transit and solar compass and to make simple calculations such as computing declinations of the sun; the azimuth of polaris at any hour angle, figure triangulations, and how to close sections by latitude and departure. That standard parallel project was completed early in September 1905, when we set the last corner stone, a standard township corner near the top of Carter Mountain.

My party was then transferred six miles east to the valley along Meeteetse Creek where the remainder of the season was spent subdividing the townships on the north side of the standard parallel we had just completed. The parties were disbanded the last of October and I returned to my home in Missouri.

A PROMOTION

Purchasing a set of books on surveying and civil engineering from the International Correspondence Schools in Pennsylvania, I studied surveying during the winter of 1905 and 1906.

Returning to Wyoming in April, 1906, I was put in charge of a survey party of my own. Thus beginning a new chapter in my career as a surveyor.

My party consisted of two experienced chainmen, former colleagues, Sam Hutton and Luther Glasgow, my camp tender was former cowboy, Ed Meyers, his wife, Edith was cook. My cousin, Troy Troutmen from Missouri was my cornerman and Tommy Jones from Lovell, Wyoming and Dave Schafer, a man from Iowa were my flagman and axeman.

In 1906
A NEW CHAPTER

In 1906, a frightening experience occurred when I was surveying a meander line along the south bank along the Shoshone River through the two thousand foot deep canyon separating Rattlesnake Mountain on the north from Cedar Mountain, west of Cody. I was carrying my transit southward along a narrow one foot wide ledge on the north face of the cliff, 900 feet above the canyon floor. A high, rotten stump blocked my way and to pass it, I must quickly swing my body out and around the obstruction. Grasping the stump with my left hand for support, I swung outward. The stump

gave way, leaving me teetering on the brink. I could not move my feet on the narrow ledge to balance myself. Looking down, I could see the lilliputian-like wagons on the roadway 900 feet below. For what seemed like eons, I stood balancing myself on the face of that awful chasm. Quickly putting my arm out toward the south, I shifted my center of gravity enough to spring forward to safe footing and a deep breath. The Lord had his hand on my shoulder.

AN UNUSUAL AFTERMATH

Unknown to me at that time, axeman Tommy Jones and Dave Schafer happened to be watching me from a short distance away. Two years ago, Tommy Jones, then 92 years of age, whome I had not heard from for 61 years, saw my name in the paper and wrote to me from Pocatello, Idaho. Among other things, he recounted this story. He said Dave and he stood aghast as they saw my dilemma, their hearts were in their mouths.

EXTRA EXPERIENCES

On July 1, 1906, I was appointed U. S. Deputy Surveyor for the State of Wyoming by Mr. A. P. Hanson, the U. S. Surveyor General for Wyoming. That appointment gave me the authority to make official surveys and resurveys of public lands and to sign the official field notes.

EXTRA EXPERIENCES

During the first few months of my work on the survey, being fresh from the corn and hay fields of Missouri, I had everything to learn about surveying. I was interested in learning as fast as I could but I had to ask a lot of questions. For instance, I could not understand how they found the distance across a creek or lake that was too deep to chain across. Triangulation called for the use of tables foreign to me. But stadia was even more mysterious. How could one look through a telescope at a man holding a level rod on the opposite bank and tell how far away he was? It turned out to be simple enough after the engineers explained it to me. Like most engineering problems, it is largely a matter of using common sense to solve them. Another thing that still mystifies me is how a team of horses can follow one lone wagon track on a dark night, which they had previously made across a level salt-sage flat, without a bush or tree to guide them. We were often caught out after dark, many miles away from a newly established camp in the desert, far from any road. The only marks to gude us home were the tracks we made going out. Yet the trusty team would follow their single track back across the lonely desert where we could see nothing to gudde them. Not a-1 horses will do that, though. I remember one time some of us rode horses through strange timber elk hunting, where there were no trails except game trails. Starting home in pitch dark, we kept getting lost. We tried first one horse

then another by giving it its head, but we would soon get tangled up in the trees and have to get off and light matches to find an opening. Finally, I tried my horse and he unerringly followed our tracks back through the trees. I just gave him his head and I bent forward over the saddle horn, ducked my head to keep from getting scraped off by the overhanging limbs I could not see. He took us right out. That was on Green River above Daniel, Wyoming in 1913.

Our team on the survey got used to following a crew on line. Soon they would stop at a mound of stone if they saw one alongside the road!

DEAFENED HORSES

One time we deffened our team temporarily by firing at antelope over their heads. After we ceased firing and clucked to the horses, Babe and Charley, they just stood there looking around! I did not understand why they did not start. I shook the lines and they walked off as though nothing had happened.

That episode was on Pole Cat Bench northwest of Garland, Wyoming in 1905. Several of us were shooting high powered rifles at antelope about a half mile away. They were shooting from positions in front of the horses. I was driving, and stood up and shot out over the horses heads with a .32 repeating Winchester, black powder. I think we shot about 32 times. The poor horses were deafened, by the fusillade.

At the close of the season in 1906, I took the teams and wagons to George Mueller's ranch at Burlington and put the horses on winter pasture, then started out looking for a winter job.

At the Eagles Nest Camp of the Bureau of Reclamation, Mr. E. F. Taber, project engineer, offered me a job as teamster to drive the engineer's crew to and from work on construction of the Shoshone Canal. Although it was quite a reduction in status, I accepted it. I saw an opportunity to learn something about irrigation engineering. It turned out to be a lucky break for me.

In addition to taking care of the surveyor's team and driving the surveyors out to work six days a week, my duties also included hitching Mr. Taber's buggy team to the buggy. Taber's team was nervous and spirited. The right hand horse watched me and when it saw me hook the last trace, it began to prance. If not permitted to go at once, he would back up, rear and throw his head. I would hold the lines taughasas Mr. Taber eased himself into the buggy seat. I hastily hooked the last trace, handed the reins to Mr. Taber and away he would go in a cloud of dust. I suppose Mr. Taber was satisfied with my work. He said if I would like to learn more about irrigation engineering and surveying, he would teach me evenings and nights. That was good news! With my correspondence school books, I soon learned the principles of how to run curves, cross sectioning and computing areas and how to compute the grade and capacity of canals.

On February 1, 1907, I was named survey-man for the Bureau of Reclamation and relieved of my teamster duties. I was given a crew, a plane table and transit and assigned to make a contour map of the Ralston Reservoir. That job was completed to the satisfaction of the engineers in April 1907. In April, I again left the Reclamation Service and resumed my survey contract with the U. S. Land Office in the Dry Creek Basin. That field work was completed on June 30 and I again joined the U. S. Reclamation Service. This time at Camp Colter on the Garland Flat where I located and cross sectioned portions of the Franie Canal, Lateral F, and other laterals on the project. I staked out the concrete drops along the Garland Canal that followed the railroad. On September 15 of the same year, the survey work closed down and I was sent to the Eagles Nest Camp to work as a Carpenter's helper on the Eagles Nest Flume.

TO REMINISCE A MOMENT

In later years, it gives me a feeling of pride to drive through the Powell, Wyoming valley and see the beautiful homes and bountiful crops on land I remember as the Garland Flat, home of the jack rabbit, prairie dog and badger. Well remembered are the problems confronting me when I staked out for the carpenter's the forms for the concrete drops along the Garland Canal. Each drop had a different design due to bridges, and turnouts.

On October 1, 1907, Mr. George W. Zorn, Chief Engineer for the Big Horn Basin Development Company at Wylie, Wyoming, called me by telephone and employed me as field engineer with that company in charge of surveys on construction of three irrigation tunnels and the main canal from the South Fork of the Shoshone River to Oregon Basin south of Cody. There were about 6,400 feet of tunnels and ten miles of canal along the north slope of Carter Mountain. The tunnels were excavated thirteen feet in diameter with a grade of 25 hundredths of a foot drop per 100 feet, and the canal had a bottom width of 60 feet with one foot fall per mile. The general plan was to bring water from the South Fork of the Shoshone River by means of the 60 foot canal for a distance of more than 30 miles to Oregon Basin. There it would be spread upon the land in the Dry Creek Basin. There were to be four tunnels along the canal, cutting through high spurs, and ridges. Work on that canal and the four tunnels were just getting underway when I arrived on the scene in the fall of 1907.

Now on my occasional visits to Cody, Wyoming, the old familiar scars on the foothills to the south remind me of the days long ago when as a youngster there I had the good fortune of playing a small part in the construction of those tunnels.

WYLIE RANCH HEADQUARTERS

This was my first job at tunnel work. I was on my own with major responsibilities. I stumbled on this job through Mr. Zorn, then Chief Engineer of the outfit who heard of me through the Brunts. The company was known as the Big Horn Basin Development Company with heddquarters at the Wylie Ranch on Sage Creek south of Cody. My duties consisted of doing survey work on the tunnels and canal during construction, my headquarters were at the main camp at the east end of number two tunnel. To reach this camp from Cody, the first time I caughta ride on Dad Redding's freight wagon. The road was long and dusty. It led southwest across the Irma Flat and wound up over the hills at camp. The trip, about 15 miles, took most of the afternoon. Dad entertained me with his jokes on the way. The camp was approached by going down a steep grade on the east side of the ridge. I still remember the grade because we had to push Walter Wylie's automobile up the grade, a few chugs at a time to get it off to Cody. My first view of the camp that was to be my home for the next two years was from that ridge.

It was a thrilling sight to see new buildings spread out on the sagebrush slopes below. The fact that they were constructed of rough lumber covered with tar paper failed to dampen my enthusiasm. They were such an improvement over the flapping, dusty tents tha had been my shelter that summer while in the desert. The camp structures were grouped around the two

main buildings; the combined cook-shack and dining room and the offices and commisary. The stables and power house were situated down the coulee. I was glad to learn that I would have a 12 x 16 foot shack all to myself for an office and living quarters. In it were a home-made table, two stools, a flat top stove with a bench and water bucket close by. After putting up my cot and rolling out my bed roll, I had all the comforts of home. Luxurious in comparison with the dirt floored tent and sagebrush stove I had been sharing with two other boys on the survey. Electric lights replacing the tallow candles were an added blessing. A. L. Phillips, the superintendent, was a dynamic fellow with a forceful personality. He understood all phases of the work and ran a very efficient camp. W. B. (Billie) Edwards, a likeable fellow from Chicago, was chief clerk and was in charge of the commi-sary. Billie, as he was affectionately known, was a close friend of mine for years.

The tunnel excavation was carried on 24 hours a day at each of the six headings. We worked three-eight hour shifts. At the height of activity, an average of 250 men were employed at the various camps. In addition to the tunnel camps, additional camps were maintained at a coal mine on Sage Creek, a sawmill on Carter Mountain and a ditch crew on Sage Creek, a steam shovel on the South Fork. During the winter months the camp buzzed with activity. Carpenters busy with axe and saw lined the tunnel excavation with timbers to

hold back slack and shale and rock. The clank, clank of the blacksmith could be heard as he sharpened driller's tools and a steady stream of muck, shale, and rock poured from the tunnel mouth. Horse-drawn dump cars hauled muck from the tunnel. Freight teams pulled wagons loaded with supplied from Cody. Lumber came from the sawmill, and coal came from company mines on Sage Creek. Electric wires were continuously extending as tunnel headings advanced with 200 sweating miners at work, blasting their ways through the mountain. In addition to the crew, each camp had its quota of cooks, flunkies, stable boss, camp tender and time keeper and the crum boss who looked afterthe mucker's bunkhouses. Compressed air drills and dynamite were used in tunnel excavation. Mucking and loading the dump cars was done by hand. The tunnels were horseshoe shaped timbered and lined with concrete. The finished inside diameter was 12 x 13 feet, making it necessary to excavate a hole about 16 x 17 feet. Two of the tunnels were approximately 1/2 mile in length while the others were each a little over 400 feet long. The two long tunnels hdd curves at each end so one could not see out after the first four or five hundred feet under the ground. In midwinter, three of the tunnel crews were working beyond the sharp curves. Thus, placing the entire responsibility of the alignment beyond the curves on me to make the proper calculations by trigonometric formulas. This being my first

experience with underground work, I spent some sleepless nights, turning and tossing in bed as I reviewed the procedures. I was well aware that a mistake or a misplaced decimal point by me might prove disasterous, not only to my reputation but also to my employer. To make matters worse, when the two opposite headings began to approach each other within two hundred feet or so, the sound coming from the opposite end seemed to be coming from the side of the tunnel instead of directly ahead. There was some good natured ribbing from the crews and the suggestion that the other crew might be by-passing us. I put up a brave front, but when the break-through finally did occur, I showed my true feelings of a lack of complete faith by being the first one to look through the hole, although I had stayed up all night on the graveyard shift waiting. Before the break-through occurred at the number two tunnel, preparations were begun for lining the tunnels with concrete. Concrete aggregates were found in deposits of gravel on top of the bench above the west end of the number two tunnel. A mixing plant was built and the material screened and placed in bins on the edge of the bench over each end. Then it could be moved by gravity as needed down the chutes to the mixers at the mouth of the tunnels below.

The break-through came on number two tunnel on the morning of April 12, 1908. The drilling crews had been hearing the shooting on the opposite heading. They knew they were getting closer and closer together each day. The tension did not get

until on April 11th when I told them the crews were only twelve feet apart. From then on they raced to see who could be the first to break through. The night of the 11th, I stayed up with the crew on the east side, thinking they would break through when they shot an hour before midnight. However, they failed to break through, so I decided to stay on with the graveyard shift until they shot at 7:00 a.m. Mike Flannery, a big Irishman was boss of the graveyard shift. About 25 or 30 holes were drilled on the heading and bench of each terminal during each shift. Those holes were loaded with heavy charges of dynamite. It was set off by an exploding cap which was placed on the end of an old-fashioned fuse and stuck into the charge of dynamite. Those fuses were lit by hand. The fuses were cut long enough to give time to light all of the 25 or 30 fuses and run to safety before they started to explode, we hoped. I helped Mike ignite 28 fuses for the shot at 7:00 a.m. Hand lighting so many fuses takes considerable time even with two working at it. The first ones lighted continued to spew sparks and smoke around one's feet while he was busy lighting the remainder. It was hard work for me to keep my mind on my business with a dozen or more fuses spewing around my feet. I was ready to run for it when Mike said, "That's all" and started to yell, "Fire, Fire", Running down the tunnel out of range of flying rocks, we crouched down behind some posts and counted the shots as they exploded. Finally, Mike said, "That's all" and we rushed back into the

smoke and gas to see if we had broken through. We had miscounted the explosions. Just as we approached the heading, another charge exploded right in front of us. Fortunately, it was a lifter and down deep in the muck and did not throw rocks on us. Waiting a few seconds, we climbed over the loose rock. We could hear voices ahead! We knew the breakthrough had occurred! By that time we were choking on smoke and gas. We stuck our noses down into fresh air pouring in from a small opening in hhe face of the tunnel. A few questions put to the opposite crew assured me that we had struck head on. My worries were over! Throughout the winter and spring of 1907-08, all phases of the work progressed satisfactorily.

LIFE IN CAMP

Occasionally, personal altercations between workmen enlivened the camp. One morning the Chinese cook and the big white flunkie got into a fight over who should fill the hot water tank on the back of the kitchen range. One using a cleaver and the other a heavy iron dipper, they made quite a mess. Theffight broke up when the chinaman bit a chunk out of the flunky's leg while the flunky pounded the cook's head, whhh was between his legs, with the heavy iron dipper. The chinaman came running toward me with a bloody apron wrapped around his hmd and neck. At first glance, it looked like his head had been cut off. To top it off, our pet coyote, seasing something was wrong, set up an awful howl, running from place to place!

MY FIRST DEER

Matching wits with a Carter Mountain buck: I was determined to get him even if I had to run him down. To shake me, he used all the ingenious -ricks of the trade he hdd learned or inherited. But in so doing, he also acquired a healthy respect for my persistence. Here is the story of my first deer.

It all happened in Wyoming 62 years ago. And as evidence of my perserverance, I still have his mounted head hanging in my den, but here is the story:

In September 1908, I took time off from my tunnel work and went up to the Company Sawmill on thennorth slope of Carter Mountain deer hunting. Deer are much more plentiful now then they were in those days due to the improved game laws and better enforcement. At that time it was necessary to go into the higher elevations of the timbered mountain slopes to find black-tail and mule deer. And even there they were quite scarce, especially the bucks. One might hunt for days without getting a shot at a buck deer. Bill Pierce, the operator of bhe Company Sawmill invited me to go deer hunting with him when the season opened in October. It was an ideal arrangement with a place to stay and a hunting companion. I had a 30-30 Winchester carbine which I had used to shoot coyotes. I rode up on Dad Redding's freight wagon.

I was in high spirits on that crisp October morning when Mr. Oaks, a local carpenter, and I started out for the mill aboard Dad Redding's freight wagon. They were going after lumber for the Company, so we could get a free ride. Mr. Oaks was,in my mind, of considerable affluence because he had a new 32 Winchester Special rifle, which had just come on the market. This, in comparison with my second hand 30-30 Winchester sort of put me in the back seat. There will be more about Mr. Oaks and his rifle later.

Leaving the valley, we ascended the winding dirt road over the foothills of Carter Mountain. Several droves of cattle were passed as they gradually worked their way down from the summer pastures. Shortly, we spied a coyote loping up the slope ahead, not knowing that I had a gun. I was looking for just such an opportunity to try out my 30-30. I had traded for this carbine style gun because it was so handy to carry in a wagon. It had a short barrel that just fit the back of the spring seat under the cushion out of sight. It would always be ready for just such an occasion as this when a coyote showed up. I have surprised many a coyote this way. They are pretty wise about guns, and can almost read your mind as to whether or not you have one. If they can see any part of your rifle, they won't dally around. And if he is pretty sure you don't have a gun, he will fool around and

follow along with the wagon, maybe for miles. If there is a dog, he might run it under the wagon and act pretty gentle. This coyote was not paying much attention to us. I told Dad to just drive on slowly and keep talking to Mr. Oaks and I would drop over on the opposite side of the wagon and follow along until I got closer. Sneaking my rifle out, I slipped some shells into the magazine and dropped off. I walked humped over until I got about 100 yards from the coyote. Then I dropped down on my right knee behind a tall sagebrush as I pumped a shell into the chamber. Resting my left elbow on my other knee, I drew a bead on the unsuspecting coyote as it watched the wagon. Wham! The coyote tumbled over and then jumped up and ran over the rise. I shot again and missed as it disappeared. Running up, I found him dead a few feet over the hill. I had shot him through the body back of the ribs, but he was able to run a short distance. I saved the hide and had it tanned with the head and hair on it to use as a throw rug. The front paws were left on so I could claim the $5.00 bounty. We reached the timber on the way up and we were glad to find some old snow on the ground. That way we could tell if there were any deer in the vicinity. The snow reached a depth of six to eight inches by the time we reached the sawmill.

We got to the sawmill where Mr. & Mrs. Pierce lived, about 4:00 p.m. I had not met Mrs. Pierce before but she proved to be a very friendly and pleasant lady and made us welcome.

They had a spare room with some homemade bunks in it where we rolled out our camp bedrolls. They were glad to have someone from the outside to talk to, especially company people who could bring some of the camp gossip and news of the construction activities. There were no telephones at this mountain camp and of course, there were no radios anywhere in those days, so any news from the settlements were welcome here. By bringing in the news, we were compensating her in a way for the extra trouble our visit was causing. I suppose I was unusually hungry that evening after the long ride and the excitement of killing the coyote. I still remember the fine supper she prepared for us.

The next day was the first day of hunting season and some of the mill workers were going to lay off and join us in the hunt. After supper, we all joined around the big fireplace and spent the evening planning the route we would take the nextmmorning, and preparing for the hikes through the snow. I cleaned my rifle and greased my boots and got everything in readiness for the early startiin the morning. For hunting togs, I had a pair of 16" buckeck lace boots, a Pendleton wool shirt and woolen pants and a Filson coat. The Filson had waterproof double canvas on the shoulders and upper sleeves with a double back for a pocket to carry small game and odds and ends. The boots were not waterproof but I kept them well greased with a mixture of Neetsfoot oil and tallow with two pairs socks on, it made a pretty good deal.

I kept them well shod with Hungarian nails in the soles and hobnails on the heel. This was an ideal set up for long hikes on the rocky hills. I did not sleep an awful lot that night, for thinking about the hunting trip coming up the next day. I kept thinking how I was going to take plenty of time and not pull the trigger until I got good aim. This was all good advice but it generally goes out the window when you stare a buck in the face.

At daybreak, we started out. Mr. Oaks had fallen off the house and stove up his heels and was lame. Because of this handicap the plan was to station him on a hilltop where there was an open space and maybe we could drive some deer by him. The rest of us scattered out and drove through the timber along the slope below the hill. A little sifting of snow had fallen during the night, just enough to tell a fresh track. We soon saw some old tracks, so I knew there were deer in the area, at least. We spooked a bunch and there was a scramble of hooves and brush as they ran ahead of us just out of sight. We could tell there was a good big bunch of them and they were headed toward Mr. Oaks' stand. We didn't have long to wait. All at once Oaks opened up, Wham! Bang! Boom! Several times he shot as fast as he could pump the shells in. After a lapse of a couple of minutes, a single shot rang out. We figured he had enough deer for all of us, and we rushed up the hill to help dress them out. My eyes were bugged out as I plowed through the deep snow to

see what had happened. There he stood, sort of stunned. He was not sticking any deer, or doing anything. We asked him what happened and he said a big bunch had popped out of the brush right close to him and ran by almost 40 feet away. He emptied his magazine as they went by and never touched a hair. I asked him what was the matter with that 32 Special. "They were too doggone close", he said, "the gun wouldn't scatter". "Didn't you get a one", I asked. "Well", he replied, "I think I knocked one down about a hundred yards down the ridge. One stopped down there and looked back and I put a shell in the chamber and let him have it. I think I hit him". We went down there and sure enough, he had killed a two point buck. He was a good shot. It was a case of too much hurry and excitement. He had shot over their backs. I wanted us to go ahead and follow the tracks but the others said no, there was no use following the deer.

I saw a track and I felt it must be a buck. After following it for awhile, I came to where it hdd stood around awhile and from the sign I saw, I was pretty sure it was a buck and a big one. I then buckled down in earnest. There was fresh snow to track with and it was only nine o' clock. He might have got wind of me while standing there, for now he was off and running northwest along the foot of Carter Mountain in long leaps. He headed down across a swampy basin. As I approached the outlet of the basin, I

noticed beavers had dammed up the brook a short distance above me, flooding quite an area of the swampland. Seeing some waves, I stood still and saw two beaver busily engaged in cutting and hauling alders, pushing the stark branches under the water at the head of the dam. Seeing me, they flapped their wide tails on the water with a loud splash and disappeared. I returned to the deer tracks and soon I saw where he had stopped and just stood around in the snow for awhile and then ran on before I got sight of him. This showed me he knew I was tracking him and I would have to be extra careful. He was taking long leaps at first and then he started to trot and I was sure he would be waiting for me pretty soon, now. I took it very easy and when I got the chance to see quite aways ahead, I would stop and scan the brush. After doing this for about a mile, I was looking ahead and noticed something along the trunk of a tree that seemed unusual. It was a good sized pine with some alders growing around the base. Aboutt three feet high, a bulge on one side of the tree did not look natural. I edged closer and it looked like about a half a deer's head. Then analyzing the -imbs and alders I began to fashion some antlers among the branches. Now I could see it all, he was standing behind the tree, facing me and was completely hidden. As I started to raise my rifle, he snorted and went crashing through the brush, completely vanishing from sight. Now I was sure he was

a buck and had a fine rack of antlers. All the more reason for me to keep on trying to get him for a trophy. It was 11:30 a.m. when I came to where he had laid down. I knew he was getting tired so that ch-ered me up. Shortly, I crossed a lynx or bobcat track. It was fresh and the big fellow had headed left into a basin or groove of trees. I branched off on it on the chance that I might run into him. There were plenty of tracks of the local residents here. Squirrels, mice, and rabbits. They had been having a field day here. I had not gone far when he suddenly started to leap according to the tracks and he must have seen me. But no, I saw the reason. An old snowshoe rabbit track joined us here. The cat was about to get himself a breakfast. They had dodged and turned, the lynx tracks cut halfmoons in the snow as they whirled. I heard a magpie and looked up ahead and saw the snow all covered with blood and rabbit fur. About all that was left for themmagpie was some bloody snow for him to pick at. There seemed to be too many tracks and the ground tore up too much for just one cat. I circled around and found where another cat had ran in to join in the feast. There had been a battle royal for looking closer, I could see bunches of tan cat hair. I stood there surveying the carnage and contemplating what a fight it had been when I glanced up the hill at the top of an old blown down tree just in time to see a tawny flash. The cat had been watching me and when he saw me look in his direction, he ran away. I

had to choose between the cat and the buck, so I went back to the buck's track. He was gradually working up the north slope of Carter Mountain, stopping to lay down now and then. He was getting further and further from home all the time and was showing signs of wanting to circle back. Finally, he got to the edge of the heavy timber and the track went up one of those triangular strips of timber which stick like fingers up the side of the mountain spurs. There were open spaces of slide rock between the patches of timber. This was what I wanted. This was a dead end. He had to cross the open slide rock to get either direction. I was quite sure he would go towards home so I kept to that side and watched the upper end of the timber. Then I saw him. A big buck with horns that looked like a rocking chair. Making his way across the treacherous slide rock about 150 yards up the slope. It was only a few jumps across the open space, so I had to shoot quick. I was in the open with nothing to rest on, I drew down on him off hand but it was hard to hold steady, I was panting so much. I got in three shots though, the last one just as he reached the sanctuary of the timber. At the second shot, he faltered and stumbled like he might be hit. He gathered himself and went on. I was ashamed of myself for messing up my only chance. I went up there to take a look, and sure enough, there was blood on the snow.

At least I had hit him. It did not seem to slow him up much, however. He was taking long jumps and there was a little blood every time he hit the ground. In hopes that he might be wounded enough to make him want to lie down and wait, I sat and waited thirty minutes or more to give him a chance to lie down andggetsstiff and sore. As I sat there I noticed a cloud beginning to rolliin from the north. I did not want to get caught out this far from camp after dark, especially in a storm, so I was glad the buck was heading towards home. I was not afraid of getting lost as long as I could see Heart Mountain and Cedar Mountain to the north. But if the fog rolled in, it would be more difficult. Now the old buck began to employ some of the tricks he had inherited from his forebearers. First he tried to double back, this was new to me and I had to learn the hard way. He would run up the hill 50 to 100 feet and then backtrack and lie down. While resting he could watch his track and see me trddging along below, not knowing he was watching me. As I slipped along, peering ahead into every possible hiding place, he would give a big snort and go through the brush, pounding the ground with his hooves. At most, I would just get a fleeting glimpse. To counter this strategy, I took to going above his tracks a ways and still be able to see which way he was going. I thought I would be in a better position to get a shot when he jumped. He had the advantage, though, with those big ears of his. Lying still, he could hear where I was long before I was in sight. As I was crossing a heavily wooded basin off to the right, I heard a giant crashing and

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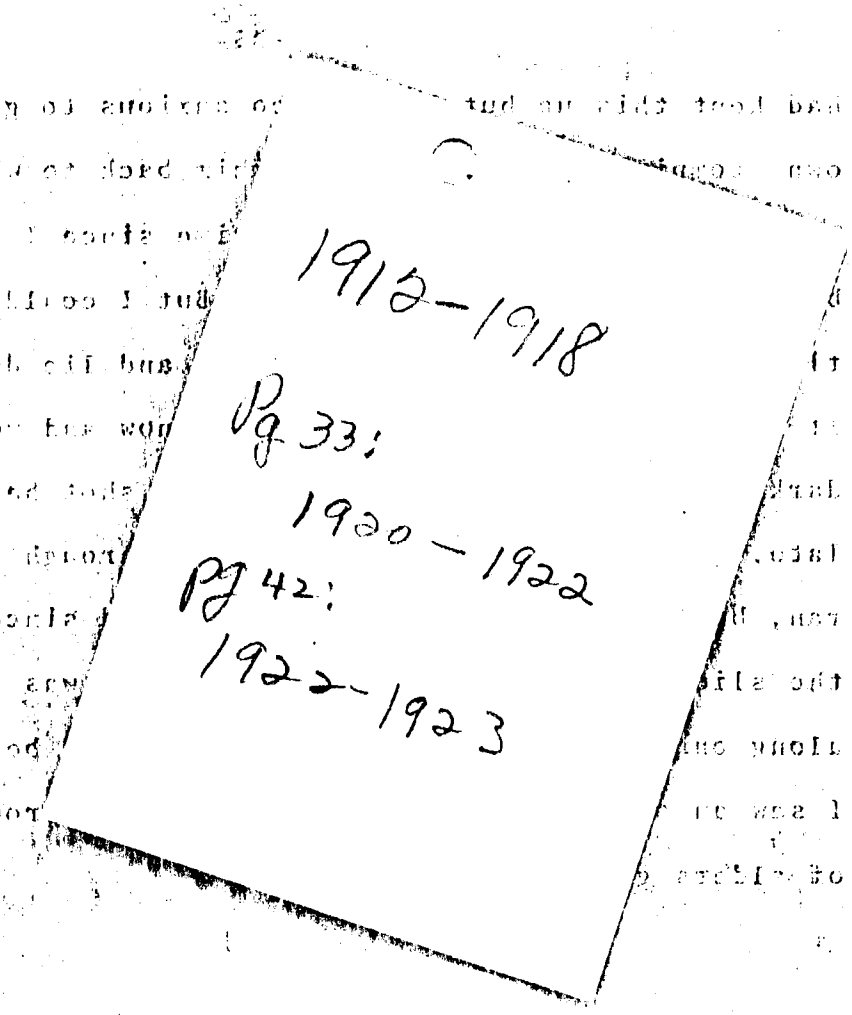
breaking off limbs of trees which sounded like a small hurricane. Alarmed, I waited awhile and not hearing any more, I slipped up that way, dry-mouthed with my scalp tingling. I looked down at the 30-30 to make sure it was ready for an emergency. It looked pretty small just then. Soon, I picked up a fresh bear track that had been digging around logs and stumps looking for slugs and insects. The track was not large enough to be a grizzly, so I settled down some. It must be a black bear, judging from the size of the track. In the soft snow, the tracks resembled the tracks of a barefoot boy. He had got wind of me and stampeded through the mass of timber and fallen logs. I was amazed at how nimble he was to run along on logs above the ground, jumping from one to another like a cat, He was definitely headed the other way, so I rested easy. It was too late to follow him that day at least, so I headed back to my deer track. The buck now tried another stunt. He struck out for the lower foot hills where the snow thinned out but still in ghe general direction of his home range. Getting down to where the snow was in patches, he would try to keep out of the snow so that I could not find his track. I could see enough tracks in the soft, muddy ground to follow him by circling around. I even saw where he deliberately made log leaps over narrow strips of snow to keep from making tracks in it. He might have left me if he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By

William R. Bandy

We continued up the west side of Green River from Schaeffer's ranch with out wagons. The dim wagon trail was covered with a few inches of new snow, making it hard to follow. The hillside sloped towards the river, making it difficult to keep the wagons from sliding to the river. The men rode the high side in many places to avoid turning over here. Before reaching the lake we crossed to the east side of the river and camped by the outlet. It was a beautiful campsite overlooking the lake, which is about five miles long and one half mile wide, covered by timber clad mountains. See photo. On a Sunday morning I obtained a beautiful picture of the lake when the surface was perfectly smooth, showing a perfect reflection of Square Top Mountain in the background. See picture. We surveyed the land fronting on the river from the lower end of the lake. While there, Bill Loomis shot a bull elk up one of the canyons a few miles away. I helped him drag it out of the hills with a mule. We were supplied with plenty of fresh meat for the remainder of the season.

On November 16 we broke camp and moved everything to the stage station at Daniel and disbanded for the season. Bill Loomis, owner of the horses and wagons took them and the remainder of the elk meat and started to drive to his

home at Powell, Wyoming. We shipped the equipment by horse stage to Opal, Wyoming on the Oregon Shortline Railroad. Thence by rail to Cheyenne. We had to ship tents, poles, dishes and all the camp equipment to Opal on the horse stage and then reshipped everything from Opal to Cheyenne by express. It made a lot of work weighing and tagging everything and making out Government bills of lading at each shipping point. Nowdays with a truck, one could throw all the equipment into the truck and haul it without weighing and tagging it all. A very much simpler operation. We were two days on the horse stage going into Opal, spending the night at the Big Piney, Wyoming stage station with wood burning stoves and with no heat in the bedrooms.

After arriving in Cheyenne, I rented a house for us to live in and sent for my wife who was visiting in Missouri. On the way out to Cheyenne, between Denver and Cheyenne, the train she was on got stuck in a snow storm and layed for two days in the prairie, snowbound. No communications by telephone or telegraph for two days and two nights, so we did not know what was happening out on the lone prairie. We knew the train was probably out of food, water and heat by that time. They finally made it through, though with no permanent damage.

During the winter of 1913-14 we lived in Cheyenne and worked in the Surveyor General's Office. The following field men worked in Mr. Jekyl's office writing reports and making platts during the winter of their past year's work. The following men were working in the office at that time with me: Wilfred Utterback, C. M. Pigeon, Stanley Pigeon, Emil White, Burl Richards, Mark Kelly, Homer Saxton and his brother and myself. We had a enjoyable winter with parties and dinners and swapping stories of events during the past season. At a steak dinner at the Plains Hotel during the winter, I recited a story I had written about a bear hunt written up in the form of field notes which had a write-up in the Cheyenne Leader, making me feel pretty good. In the spring I got a transfer to Montana where they needed an engineer with special training in finding old section corners that had been set some thirty years before and were partly obliterated.

My wife and I left Cheyenne on April 15, 1914. She took the train to her folk's home in Missouri to wait until I got located in Montana.

At Helena, I met Mr. J. Scott Harrison, Supervisor of Surveys at his office in the Federal Building. He introduced me around the office to Mr. Forest Smith, Chief clerk, and Melvin Davis, Secretary, Mr. Huber, Chief Draftsman, Mr. Billard. Then we went down to the Montana Club and had a

drink and I met some of the folks down there. Mr. Harrison had a crew lined up for me to leave for Ovando where I would have two crews working on a pack track on Pyramid Peak just off of Montour Creek Trail. My associate draftsman was Hargrave Wood, fresh from the Panama Canal jungles. Matt Denim, a grey whiskered man was my packer, and owner of the stock. Bill Marshall was assistant packer, Brad _____ an old sea faring cook (according to his stories) was my cook. I had fourteen young field men for assistants. We had to ship all equipment, tents, stove, tools, instruments, beds by freight to Drummond and retag and ship everything from Drummond to Ovando by horse teams. The crew traveled by train and stage. At Drummond I bought supplies from Mr. Glascof and hired a wagon to haul the supplies to the foot of the trail on Montour Creek. The man with the wagon refused to let us ride so we all had to walk the six miles out to the foot of the mountain. Ittwas my first pack horse camp so it took us two or three days to get moved up on the mountain. The cook had to cook bread in a reflector oven and meat in a dutch oven. The mosquitoes were terrible and it took us a week or more to send back to get mosquito netting. Old Dunham would forget to get stuff and it would be another week or ten days waiting for something we needed badly. Wood had an attack of malaria from the Panama Jungle but he soon forgot about it when climbing those mountains and fighting mosquitoes.

I stuck it out until June 1 when Mr. Harrison moved us up to Nevada Creek above Helmville. It was not quite so rough up there but we still had plenty of timber to fight. I was glad that Inez was basking in the sunshine down in Missouri all this time. I was not used to the tempo of pack horse transportation but I had little to say about the matter, Mr. Dunham was the boss. In June, it rained for about ten days straight and we never did anything but eat and cut wood. Mr. Wood had a joke for us. He told us when he was walking up the trail to camp, he saw a bear beside the trail. Mr. Wood said, "I just looked the other way like I didn't know he was there".

New Surveys: In August 1914 the demand for resurveys in the prairie part of the state prompted Mr. Harrison to move me from the mountains to reassign me to make surveys down in the prairie country north of Roundup, Montana. Due to my experience in such work in the Wyoming country in 1905-1913.

I turned my outfit up on Nevada Creek over to another engineer and organized another crew at Roundup. We moved out northwest of Roundup on Flatwillow Creek near the NL Ranch. Stanley Archive, a Miles City boy, was my camp tender and owner of the horses and wagons I used for transportation. With wagons we had better camping facilities; stoves, tables, cppboards, etc. My wife came out to cook for the camp again. She was much happier in camp with me. She had been visiting her folks

in Missouri and I arranged to meet her at the Milwaukee Railroad Depot at Roundup.on a certain day. She came into Roundup on the fast passenger train at 1:00 a.m. in the morning before I got to Roundup with the wagon and team. The train just paused a moment to let her off and then just whizzed by, leaving her standing alone in the dark on the platform with her suitcase. She had no idea which way to go to find town. Soon a telegraph operator saw her plight and came out and pointed west up the dark street and said the hotel was "thata way". She lugged her suitcase up the hill and found the hotel okay. She also spoke of the royal welcome she got to Montana. She was not in camp very long before Stanley talked her into going fishing. She was quite a fisherman anyway and she was anxious to go. She caught a 7 1/2 pound cat fish in Flatwillow Creek with a willow pole. The creek was about 15 feet wide and two feet deep. (See picture).

In September we left Flatwillow Creek and moved to Winnet on McDonald Creek. We had to pass through Grass Range enroute and bought some groceries at the Charter Brothers Store, a large store there. While in Grass Range, two local honyokers I had employed got drunk and were not ready to leave town when we got our supplies loaded. They got noisy and I took them back into the back of the store and paid them off and fired them. They began to blubber that they did not want to quit. Two

clerks hearing them, came over and collared them and drug them to the front of the store and threw them off over the sidewalk and into the dust of the street. I climbed on the wagon and drove off as they blinked their eyes. The clerks s seemed to have handled them before. At Winnet,,which was just a post office and one room of Mr. Winnet's house, I hired two country boys, Fred Newsome and his brother and had my full crew again. I never allowed drinking in camp. We camped a couple of miles below Winnet's ranch house on McDonald Creek. One night Stanley took the boys back up to Winnet to a dance on Saturday night. When they came to camp about 1:00 a.m. Stanley drove up by the cook tent. He accidently set his foot in a crate of eggs he had brought to camp and broke several. He did not know that werwere listening. I heard him say, "I will get hell in the morning from the cook". He did not seem to be worrying too much about it. Stanley was just a little bit forgetful. When he went into Sumatra about 60 miles for supplies, it took him four days to make the trip. He came out complaining that he did not have his hat on the whole trip. When he got back to camp and was unloading, he found his hat in the front seat under the cushions, he had sat on it all the way to town and back.

Our assignment on McDonald Creek and Flatwillow Creek was the first strictly dependent resurveys made in Montana.

I was assigned to that work because I had been doing similar work in Wyoming. The original surveys in those townships had been made in 1880 by unscrupulous contract surveyors and it took a surveyor with special training and experience in finding old corners that had been set in the sagebrush 35 years before, which were small cottonwood stakes set in the ground with pits a foot square dug in the ground on either side of the stake to mark the spot. The poor condition of the public land survey section corners in the open prairie in eastern Montana was not generally known while it was used primarily for stock grazing country, with little attention paid to section corners. Only after homesteaders flocked into the open prairies in the early 1900's did the lack of section corners become a concern.

Fraudulent Surveys

Investigations developed that in the late 1870's and 1880's clicks or unscrupulous and fraudulent land survey contractors managed to get paid for surveys they did not actually make or only partially made and set poorly constructed corner monuments. Government inspection was lax or entirely lacking. Only a few were guilty, however. Over the years the names of good surveyors have become known and stand out. We had come to feel sure that we would find good corner monuments and straight lines when we saw on a platt such names as James and Rodney & Paige, Redding Brothers, Lyman & Elmer Brothers, and many others.

Techniques for searching for evidence of old obliterated corner monuments have been develpped by field experience over the years. The principal ingredients are patience and perserveranco. Learning to read the tracks left on the ground by the original surveyor is a must. If the surface of the ground has not been disturbed, the old pits dug in the ground to witness corner monuments may be found by finding slight depressions filled with coarse or sand gravel drifted in. And bysskimming off the surface of the ground by spade and noting the different texture of the soil in the undisturbed ground. If there are blazed trees, the year the tree was blazed aan be determined by counting the growth rings on the blaze. Thus checking if the blaze was made the same date of the original survey.

Old chisel marks on a stone may be told from recent marks by noting whether there is moss or lichen growing on the chisel grooves.

If a stone, after lying in one position exposed to the weather for many years, is turned over, the fact will be revealed by the close observer by noting the pattornation on the stone.

A surveyor can track another surveyor by the same method an Indian tracks an animal. Another important item to remember is to ask any long resident of the community when the fences were built on the line.

Poor Surveyors

Some of the localities in Montana where I found the greatest errors in original surveys are as follows: On the head of Warm Springs Creek in Jefferson County where bearings were found in error as much as 25° and measurements off more than 600 feet per half mile. Around Cash Creek and Sand Springs, Roundup, Tongue River, 12 miles above Miles City, the original surveys are quite bad. Two miles above Roundup where the corners on the north side of the Musselshell River are about 700 feet west across boundary corners on the south side on the Yellowstone River near the mouth of Tom Miner Creek, great distortion on section lines was found. The surveyor who surveyed the north boundary of the Flathead Indian Reservation across Flathead Lake got the north boundary 800 feet too far south. The person who surveyed the west boundary of the Flathead Indian Reservation was run down the wrong ridge, thus wrongly excluding _____ acres from the Flathead Indian Reservation. The north boundary of Wyoming which was run in 1879 had an unauthorized job of 37 chains to the south running east where it crosses the Clarks Fork River. To name a few errors I can recall at the moment, on the Tongue River south of Miles City, some of the section lines between the north terrace sections running into the north boundary of the township are off as much as 45° from the record. Thus it will be seen that one would have to

search over a wide area for old corners to avoid overlooking one off line so far. You should measure in from all directions before giving up. An alert man with a quick eye will quickly notice the difference between a built mound of stone and a pile of rocks. If an original corner stone is overlooked and is found later by someone else, you may be in trouble, if your client looses land by your failure to find all of the corners protecting his boundaries.

1917 was a big year. To start with, on January 1st, my wife gave birth to a boy in Helena and consequently could not go to camp the coming summer. She remained in an apartment in Helena while I went to camp again in early spring. It was also the year of the beginning of the war.

First of all, I was assigned to survey the badlands south of the Bearpaw Mountains in northern Montana, surveying the townships and sections. I shipped the outfit of wagons and horses and camp outfit to Big Sandy, Montana. Those badlands known as the Missouri River Breaks are recognized as the roughest badlands in the State. And extend from the mouth of the Judith River and Eagle Creek east for about 40 miles to a point five miles east of Cow Creek onto Antelope Springs and Hideaway Coulee south of Slippery Ann Butte and Landusky in the Little Rocky Mountains. The outfit consisted of ten horses, eight tents, three wagons and the necessary camping equipment.

Big Sandy, a one store town at the time, was on the Great Northern Railroad. It had one large general store owned by MacNamara and Marlow, who sold everything from horse feed to salt and pepper to toothpaste. The country around Big Sandy was booming with new settlers arriving and filing on homesteads. MacNamara and Marlow said they had sold a hundred farm tractors that spring. I had a crew of eight men including a cook and teamster. I was ready to start on the sixth parallel north where Don Membrew, whom I knew very well had a starter in 1897.

FIRST CAMP

My first camp was on Eagle Creek about ten miles southeast of town. My job was surveying those badlands and breaking them up into sections one mile square. The iron post corner monument established each half mile was not an easy task. All lines had to be run straight north and south or east and west, leaving little opportunity to go around and take advantage of game trails and cow paths that always follow the easiest way. In addition, the lines must be cleared of brush to permit measuring the line every foot of the way. Thus, it was a case of running straight over hill and dale, along the steep crumbling slopes and across chasms. The cornerman was furnished a saddle horse and a pack horse for carrying iron posts and tools as closely to the line as possible. The cornerman usually had a waterbag from which

we could supplement our supply of water in our canteens. But unfortunately, he could seldom get his horse close enough to the line for us to get a drink. The lack of water during the long hot days in the glaring badlands was a hardship not soon forgotten. A wise man soon learned to conserve the water in his canteen until late in the afternoon, although the task was not easy. Occasionally something happened to break the monotony and help us to forget for the moment how dry we were. It was not uncommon to get a glimpse of a bobcat peeping through the brush or spying on us from the sanctuary of a bushy tree. Sometimes a timber wolf would voice his displeasure by a long drawn out howl that would raise the hair on one's head. One morning after a heavey rain, tracks of two of these blood thirsty brutes showed plainly in the soft ground how they had run, one on each side, of a yearling colt and had chased it into the rough bottom of the coulee where it had stumbled to the ground, never to rise again.

Transportation was a major problem. The heavy California type freight wagon pulled by four or six horses was used for moving heavy items of the camp, and for hauling supplies from town. The dirver was known as a teamster, or camp tender and was chosen with care. He must be experienced not only in handling horses but must be adept at finding his way over strange roads and getting out of tight places. So dependability was the core, because

he frequently made long trips alone with the success of the camp depending upon his return in due time.

Finding a centrally located campsite in the badlands that was accessible by wagon and with water and wood was a job that taxed the ingenuity of the camp tender. He had to be an expert teamster to pilot a four horse team with a heavy load along an untrodden ridge top, threading his way among the sandstone hummocks and between clumps of brush and trees. Lack of drinking water in many places forced the establishment of dry camps where drinking water and sometimes water for all purposes including horses and washing must be hauled from distant springs, or homesteader's wells. For that purpose an old fashioned threshing machine type water wagon was made by members of the crew. The water wagon tank was about ten feet long and as wide as between the bolsters of a wagon and one and a half feet deep. Made of two inch lumber, tongue and grooved, holding approximately 400 gallons of water. The tank was mounted on the running gear of the wagon and was pulled by four horses. I was surprised to find that a full tank of water would weight about two tons. So we didn't always fill the tank full, depending on the road conditions, Hal Stimpson, a farm boy from Vandalia was head teamster most of the time.

Black Coulee

The Black Coulee and Bullwacker breaks were extremely rugged complexes, being cut up by steep sloping gashes

draining into the river which flowed eastward in a narrow valley 700 feet below the surrounding benches. The area was covered with clumps of tangled juniper and knarled, twisted cedars with clusters of stunted wind blown pines. Scarred by signs and scores of bleak frigid winters and equal number of dry withering summers. Vast expanses of varied colored clay and shales laid bare by erosion of past centuries formed the steep slopes which were broken by high cliffs of sandstone, some of which frame overhangs similar to the one in Hideaway Coulee south of Slippery Ann Butte where the notorious trainrobber, Kid Curry secreted himself and his band from the law. Incidentally, the Kid's hideout was ready made with a grove of cottonwood trees in front screening the cabin from view. In the Black Coulee area, camp supplies were brought in from Big Sandy where most of the supplies were purchased from the big stores of MacNamara and Marlow. After getting further southeast towards Cow Creek, we sent to Chinook for supplies purchased from Thomas Ohan Co. Both of those towns were from 60 to 80 miles away requiring five days to a week to make the round trip. A good teamster and good cook are the two key men in a party. The cook keeps the men happy and a good teamster keeps the supplylines open. It has been said that the responsibilities of the chief of a party in the wilderness are similar to those of a captain of a ship. In camp he is both judge and jury and his word is law. Fortunately, it was seldom necessary to exercise it.

We tried to send to town for supplies about twice a month, generally right after we went to a new camp. It is thus seen that with a receipt of fresh supplies limited to less than two weeks and your camp being 70 miles from town that there must be close cooperation with the cook in making out orders for the groceries. One could not run down to the corner store when suddenly discovering they were out of yeast, baking powder, flour or some other vital necessity. It meant a close check of supplies on hand when ordering and likewise the wise teamster must check his road before leaving town for the distant hills. No small part of this chore was the job of running from store to store by the teamster to pick up small items requested by the men in camp, especially since many of them had specified certain brands of toothpaste, etc. Sometimes as a result of the hurried departure for town from the new camp before there was a beaten path to it through the breaks, the driver often was faced on the return trip with the additional handicap of trying to follow his dim tracks back to camp after dark. Experienced horses will usually follow a dim trail, but going with a wagon through the different hammocks, and rocks finding a trail down a ridge top cannot depend on the horses picking out the right trail after dark. There was always an air of expectancy in the camp the evening the freight wagon was due to return, laden with supplies including fresh meat, mail, tobacco and dozens of other personal things the boys had ordered, ranging

from chewing gum to fancy stationary. On such occasions if the wagon was late, the boys would sit aronnd the campfire listening in the still night air for the chuck of the wagon, to the coyote's song and to the creak of leather and for the voice of the teamster urging his tired horses homeward. Arrival of the wagon swinging in along side the cook tent and the smell of sweaty horses was the most exciting thing that had happened in camp for days. The boys swarmed out, some helping to unload the wagonswhile others took care of the horses. The mail sack was taken to the office tent where it was distributed while the tired driver ate his warmed over supper while relating the latest news of the outside world. Remember, this was long before the days of radio. Later, delivery to the men the many purchased personal articles and returning the proper change to each kept the harried driver busy for some time. Before retiring for the night, the fresh quarter of beef would be unwrapped and swung high in a tree or on the propped up wagon tongue to be kept cool until wrapped up again next morning.

Bullwhacker Creek

Bullwhacker Creek got it's name because it lay across the famous old freight route loading from Cow Island to Fort Benton. The early day freight wagons were pulled by long strings of oxen, hence the name, Bullwhacker. It must have taken a heap of whacking to coax the ox teams along those gumbo hills. We switched from Big Sandy to Chinook

as a trading point after reaching the Cow Creek country. It was reached by crossing the Bear Paw Mountains by way of Cleveland Gap.

On the divide between Bullwhacker and Cow Creek we made the acquaintance of a lone inhabitant of the Badlands. Dave Newton. An old bachelor, Mr. Newton lived in a cabin on a squatters claim many miles from the nearest neighbor. It was fortunate for us that he chose that place for he had a well that furnished the only drinking water for miles around. When we first sampled his water we were afraid to drink it because it was the color of strong tea or weak coffee. For a time we hauled drinking water from Charlie Little's well on Cow Creek, fifteen miles away. But later, after trying and becoming accustomed to it, we liked Newton's water very well. We then hauled water from Newton's well to our camp as we moved farther south.

Mr. Newton

Mr. Newton said he hailed from Kentucky but he was not one to talk much about his past. We were amused to see he always picked up his old squirrel rifle when he spied a rider heading his way across the prairie. Holding it at his side, he would peep out of the window to see if it was friend or foe. If it turned out to be a stranger, he would talk through the crack in the door until finding out their

business. He was always neighborly with us, though and we stored our wagons and outfit with him and wintered our horses several winters on the range around his place. We just turned our horses loose on the open prairie and Mr. Newton looked out for them over the winter months. Mr. Charlie Little lived on Cow Creek where the road crossed going toward Landusky. Landusky, even at that early date was a ghost town occupied by the shades of old Pete Landusky. Mr. Little used to tell about the days when as a cowboy he used to shack up with Charlie Russell at Chinook during the winter months.

The Fate of the Freight Outfit

A few miles from Charlie Little's place on Cow Creek we found scattered about some old broken dishes, glass and pieces of wagon wheels and irons. Later in searching through the Fort Benton newspapers in the Montana Historical Society Library, I found news articles about the matter. The article described how at that point an outfit belonging to the Baker Company had been burned by a maurading band of Indians. It seemed that the freight outfit heading for Fort Benton was camped there for the night. The next morning before breakfast while all the men except one were out in the hills rounding up the oxen some Indians had ridden up. For some reason the Indians killed the lone man who was getting breakfast and burned the outfit. Seeing the fire and

the commotion in camp the men in the hills hid out and walked back the twenty odd miles to the Cow Island Stockade. Arriving at the Stockade after dark, they were suspected of being Indians by the guard who pinned them down until day-light when they were recognized as white men.

The Bank

The following statement described an unusual geological formation found by Jim and Prince Maximillion in 1833 and sketched by his artist, Carl Bodmer at the time. In 1917 I photographed the same scene. My picture was published in the Montana Magazine of Western History in Winter of 1971.

Elk Cropping

On the west end of the badlands a few miles southwest of Big Sandy an outcropping of a hard stone standing in a vertical as much as 300 feet or more above the surface of the ground. This unusual formation lies in the north-south direction and may be seen for miles around, like a giant rock fence. I photographed the structure. The picture shows our camp consisting of eight white tents, wagons and stock.

That structure has some historical interest. Fifty three years later I learned that that same artist, Carl Bodmer had made sketches of the same structure in 1833. (Maxmillion as they toured the Missouri River).

Maximillion's description of the badlands between there andCCow Island is well worth repeating here. And this supports my attempts to describe them.

"Those hills are the home of the Big Horn Sheep and to chase them is very fatiguing in those hot dry mountains. One must descend to the Missouri River when he wishes to cool his parched tongue. He campared the rocky formations with the ruins of old castles. Blocks of sandstonerock pinnacles, and rounded peaks. The firs of columned colored stone walls, nothing like it in the whole course of the Missouri."

The most strange forms are seen and you fancy you see colonades, small round pillars, ending with globes or a flat slab on top. Little collars, organs with their pipes, old ruins, fortified castles, old churches with pointed towers, almost every mountain side had on it some scenic structure, scenes are enlivened by troops of wild mountain sheep standing on summits with their massive curved horns outlined against the blue sky".

The 1918 field season was a rough one. Most of our experienced field assistants were in the Army and we had difficulty in hiring enough men to drive the wagons. Glenn Sawyer was my associate. Glenn had a shomestead on Raglan Bench and had a buckskin saddlepony with him that he kept in camp. I had former assistant packer, Bill Mercer for a cook and Harold Steslund for the four horse teamster. The remainder of the men were green hands, mostly 4F exempted from military

troops. Our first camp in April 1918 was in the Rexburg area, and on Timber Creek. We were completing the survey of fractional townships that had beem omitted at the time the original survey was made. We outfitted at Glasgow, bought groceries and feed from Louis Weedum and crossed the river on the Lithmuth ferry run by Willums Brothers. Ot was a cold spring but there was plenty of firewood along Timber Creek during the cold spring weather. Working up Big Dry Creek to Van Norman we then moved through Jordan to Seven Blackfoot Creek to Smokey Butte.

That was the summer I discovered a posthole auger that proved to be the best tool for setting iron post corners in gumbo that I ever saw. It is a one man auger,drills an eight inch hole three feet deep. It has two cutting blades that can be sharpened with ahhalf round file. One blade opens to empty the dirt, and the cutting edges can be flared out with a wrench to make the holes big enough so the tool does not bind in the hole. We had been digging post holes in the blue gumbo on Snow Creek in the Larb Hills, With a six foot steel crow bar. The gumbo was so hard the bar would bounce back, we would have to bite off bits with half inch to quarter inch to dig the hole at all, With the six foot crow bar, the gumbo was so hard. As soon as we got the new auger we tried it in the gumbo xig around camp. We found that one could screw the auger right down through the gumbo without any help from the crow bar. Deciding the gumbo at camp must be easier to dig

than where we had been digging during the day, we got in the truck after supper and went out into the field where we had been digging holes in the afternoon. The auger went right down; we dug several holes in the hard gumbo just to try it out. We could dig a hole 30 inches deep five times as fast as with a bar and shovel. It was not only faster but the corner posts looked much better when set down the full 30 inches in the ground, and tamped down, rather than to have them sticking up 20 inches or so, so the cattle would rub them loose.

Speciality Device Ruger

The fine work with that agger was so popular with the Montana engineers that I sent and got enough for each party to have one. I also got brochures for other engineers in the other states whom I knew.

We continued to work down the Seven Blackfoot River to the Missouri river. We then were assigned to work north of the Missouri river on Beacuchamp Creek. It was one of the hottest and driest summers. On the old abandoned road at the mouth of the Seven Blackfoot I stopped at a cabin to ask an old lady about the road. She said her face got sunburned by the hot wind as she sat in the house.

On the way up the southside of the Missouri River, the road along the steep bank was washed out and we had to shovel out a rut for the upper wheel of the wagon to avoid sliding in the river. We put new logs along the lower side and shoveled shale on them to hold the wagons from sliding down into the river. A bad place was slightly uphill and through soft sliding shale. We hurried over the bad placed by having men run along beside the teams to urge them along. (See picture.) If the wagons had slid into the river, we would have lost the wagons, horses and everything in the swift roily water. Luck was with us, though. We were heading for Lithmuth Ferry just above the mouth of the Musselshell River.

Ferry

I knew the ferry man had a little log saloon on the southside of the river and that he would want to delay us as much as possible so the men could buy some drinks. I knew my cook would partake if he had a chance and I might lose him if he got started drinking. To be safe, I rode ahead and arranged with the ferryman to have the ferry on our side of the river so we would be ready to load up when our wagons arrived. The old rattletrap ferry - the fence sides were made of ash poles with the bark on, the boat part was of boards with tarred rags chinked in the

cracks. The ferry was ready when we arrived and we loaded the mess wagon and the cook before he realized what was taking place.

Long X Ranch

We continued on to our new job and found the only water for camping was at the Long X Horse Camp, on the flat treeless prairie six miles from the river. The Long X Camp consisted of a log cabin beside a pond of stagnate water. Being the only water for miles around, we camped there and drank water out of the shallow pond with the horses. The horses had the advantage because they could wade out in the water belly deep and drink where the water was not as thick as it was along the bank where we dipped our water up. It being during the war when meat was rationed we ate horse meat with the cowboys while at the Long X. The Long X outfit was said to have 5000 head of horses so they were pretty generous with them. They slaughtered a two year old colt every week and gave us a quarter. We liked it well enough, especially when fried as steak. The cowboys were not too particular about how they slaughtered their animals. They would go out in mass on the prairie and lassoe a colt by running him until they got close enough to get a rope on him and then drag him to camp and shoot him after they got him to camp. So by that time he was well heatdd up and the meat not in the best of conditions.

Granvil Stewart's Son

Among the cowboys staying at the Long X was a big man with a black patch over one eye. That gave him quite an odd look so we gave him a wide berth. We cast sidelong glances at him as we passed him around the corrals wondering what might be the history of that eye patch. Fifty years later I was talking to a gentleman who lived in Malta, Jim Harrison, matter of fact, Chief Justice of the Supreme Court. I was telling him about the man with the patch on his eye down at the Long X back in 1918. He said, "Oh yes, that was Charlie Steward, Old Granvile Stewart's son."

Old Army Telegraph Line

Going west across the valley north of our camp was the remains of a telegraph line consisting of rotten poles and cross arms and a few insulators. It was said to be the remains of the old Army telegraph leading to Fort Benton in the steamboat days.

Larb Hills

Surveying the Larb Hills northeast of the Long X was the worst of the boys chores. Walking ankle deep in the soft coarse shale on the spongy hills in the hot August sun.

Beauchamp Creek

Leaving the Long X we moved west up the Beauchamp Creek several miles till we came to a honyoker's place, who had a well and where we camped. We camped at his place situated

in the level prairie fifty miles south of Malta. He was trying to farm but it was too dry to raise corn or anything up there. We had some young fellows who wanted to play cowboy. They asked the farmer if he had any colts or broncs that they could have some fun riding. He said no, but he did have an old plow horse that might give them an interesting time. One Sunday they saddled up the old black horse and forked him. The old plug came alive, ducked his head and pitched each one of them off, one by one. They had some fun, alright, but they tipped their hats to the old horse when it was all over.

Breeze

The men got a good start coming across the level plains south of the Little Rockies. One evening as we sat at the table finishing our supper, the wind hit the camp with a bang! The cook tent flew off and all the dishes and food on the table went flying into the coulee below. All the tents were flapping, the rest of the evening was spent picking up plates, cups, knives, forks and what have you. The poor cook got no supper that night. The wind kept blowing until dusk. About bedtime I saw the cook, Bill Marshall, walking through the grass to the windward of the campsite. I asked Marshall what he was looking for and he said, "the stovepipe hole". It was the asbestos ring that protects the canvas from the hot stovepipe in the tent roof that he was looking for and I

he expressed it right, the stovepipe hole. The stovepipe hole was an important item of furniture at that time as you had to have something to protect the tent from getting too hot while using the kitchen stove. We spent the rest of the evening and the next morning sewing our torn tents so we could raise them again. That reminds me - a party chief must go prepared for every emergency. He must have a lot of odds and ends ready to make repairs in case something happens. To name a few of the things, I would say three cornered canvas needles (they have a particular shaped needle for everything, for tent needle, sack needle and different things that have a needle made for them, so we had to have the right type) in addition, stout twine for sewing canvas, a sewing palm which you might not understand is an apparatus which fits in the palm of your hand to push the needle through the thick canvas. Harness rivets, copper rivets, harness thread and wax, shoe lasts and staff, Hungarian nails for the soles and shoe nails for patching the shoes. Hobnails when you are walking in rock, pegal, or peganal whichever you want to call it. Horse-shoe nails and hammer, atherias knife and a horse rasp, shoeing hammer and nails and saddle strings. Harness oil, grease, first aid kit, linement and, remember, the battle was lost for the want of a shoe.

On to Landusky. Leaving the honyoker's place on Beauchamp Creek, we headed for the south end of the Little Rockies, to Antelope Springs and Hideaway Coulee. As the long caravan traveled across the open prairie, one of the boys

from Missouri, Charlie Estes, sat on top of the bedwagon and tooted an old slide trombone he had found. The mournful sound could be heard for miles around in the lonesome prairie. Two ranch boys in the distance heard him and came riding at full tilt across the prairie to see what the show was all about. He told them it was a circus and we were going to put on a show at Landusky that night. Charlie had never been to Landusky and did not know it was a ghost town. But anyhow, he kidded the boys along but they got wise, knowing that Landusky was a ghost town. I don't think he fooled them very bad. The wailing trombone attracted their attention.

I might mention Hideaway Coulee. Hideaway Coulee is so named because it is reported to be the place where Kid Curry hid out after robbing the Great Northern Train. It consists of a high sandstone bluff overhand with a sort of cave in under the bluff high enough that you could have a log cabin built in under this bluff with cottonwood trees growing out in front of it so the cabin would not be seen until you were right down in the bottom of the canyon looking under the trees.

Our First Truck

In the fall of 1918 Mr. Harrison sent us a new truck. It was called a Smith It had a Ford engine and front end and a big heavy body for the back half. The body was too heavy for the engine even when empty and with a load to pull, it would twist the drive shaft off or twist

a pinion gear off the end of the drive shaft or break some cogs out of the ring gear and we would be afoot. Whenever that happened, it meant we had to pull it with horses 65 miles into Chinook to have it repaired. So we spent most of the time pulling the truck back and forth out of Chinook with a team. The soft gumbo roads or trails were too much for the Ford engine. It was worse than nothing to us. We had to use our teams to pull the truck instead of the waggons. The last thing in the fall when we disbanded was to pull the truck 65 miles with a team over the Bearpaw Mountains at Cleveland into Chinook. It took us two days. We had the other wagons following along with our camp outfit. The second night after dark when we had to have a mal walk ahead of the team to yell downhill when they topped the hill so the truck would not run ahead onto the horses heels. It was a funny looking outfit when we were going along with a team pulling the truck with a man setting in the truck with the lines going through the windshield and with a couple of loaded wagons going along behind with men on them. It was some show. And so ended this chapter.

We were sent back into the Missouri River badlands again in 1919 to survey the rough land on Black Coulee and southwest of Lonetree Bench. Some of the roughest country in the area. Badland buttes were 700 feet high and almost impassable. Jim Sawyer was my partner again. His homestead was nearby on Ragland bench. We ran section lines south of the Missouri River which is 700 feet below the benches to the

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north. Our water wagon was again in use. We hauled water from Dave Newton's well, the tea colored water we had refused to drink the year before. We sometimes managed to eat lunch down on the river bank where we could go swimming. Several places where the river was wide we waded all the way across. We would be taking chances and worried when one had to hold his chin up to keep his nose above water. We could feel fish nibbleing our legs, but we could not reach down and scare them off. It was a 700 foot climb back to the wagons at quitting time. An old hermit, Jack Erwin, lived on the river bank. He caught catfish in a hook net for a living. He gave us some fish a few times. We had to carry them up the bank to camp, so we never made too many trips down after them.

Find Gas Well

A small spring was found up on the bench, the water was always riley (too muddy to drink) from bubbles rising through the water. I took a tomato can and caught a can of bubbles, touching a match to it, it flashed up into my face and singed my eyebrows. We staked out some mining claims around the well but because we were working for the general land office, we found we could not hold them. There has been no development there yet, that I know of.

Moving east across Cow Creek we camped at Douball's place south of Landusky for awhile. He got good water from Antelope Springs for his house use.

Attend Indian Affair

We attended an Indian affair at Hays on the Fort Belknap Indian Reservation. Being the only white people there, they gave us the red carpet treatment. They erected a big round teepee on clean ground for our use. We had taken our beds with us so we stayed overnight. We joined in the fun and played a game of tug of war before the grand stands with the Indians and they got beat. They drug us all around and we hollered and hooped and enjoyed it so well that they invited us Surveyors to their dance that evening. They had special men dances called Hunters dance, War dance, etc., that the bucks in fancy dress performed. Then the circle dance started. Everyone joins in a big circle and steps sideways to the beat of the drum. I was standing watching the performance, sort of reluctant to join in when Mr. Warrior, sub chief, opened a space for me between two young good looking squaws, Maggie Blackbird and Mable Horseman, and pushed me in between them. They locked arms with me and round and round we went, sidestepping with the best of them. Later, Maggie and I had some round dances together. It was an enjoyable attempt at integration. I was permitted to put on a fancy feathered headdress and have my picture taken with Mr. Warrior.

Later in the fall we moved around south of the Little Rockies through Zortman to Beaver Creek south of Lake Beddoin

where we surveyed some game refuge boundaries on Beaver Creek. Then we went to Glasgow where we disbanded in November and stored the outfit with Louis Weedom and pastured our horses at Nashua.

Buy Farm

After disbanding, I went to Circle, Montana and bought a 320 acre farm and returned to Helena.

1920

In 1920 Mr. Harrison set up a three party camp to execute dependent resurveys of several townships in a group in gumbo country and sagebrush land lying between Sumatra and Sand Springs in Garfield County and lying east of the Musselshell River and west of the Great Porcupine Creek. The area was being settled up but was presently devoid of any original section corners. Being in a decomposed shale country, no natural outcropping of rocks were available for corner materials so wooden stakes were used and pits dug in the gumbo soil. The stakes and pits soon disappeared in the gumbo land and homesteaders were unable to locate the boundary lines of their claims. The resurvey plan called for the early establishment of the township lines by the P measurement between the original measurement to tt the east and west and to the north and south of the area. So much calculation was involved an engineer was appointed

to coordinate the work of the three field parties. Ernest Parker, David Eaton and Walter Good were in charge of the field progress. I assisted with the paper work. After the township boundaries were established, interior lines were run straight across townships six miles on calculated distances for temporary section corners. One of the crews ran across the township and back in one day. Ernest Parker, with his crew easily made the twelve miles every day and got in quite early. The crew was well organized and worked like clockwork. The cornerman following the crew with line wagons lost little time in trying to locate a good place to cross a wash or coulee. He rode one of the horses and trotted over the sagebrush and let the wagon come along the best it could. It was too rough for him to ride in the wagon. Ernest had the spring seats bolted to the wagon box so they wouldn't jump off the wagon. The chainmen took pride in seeing how fast they could chain. When the twelve miles were up they would go to camp. One day I changed o-f with Ernest and run his transit for him while he made a side trip to town. His chainmen, Horace Parker and Lucien Smith let it leak out that they were going to run off and leave me. I took Ernest's transit out and run his party and they gave me a green flagman that had long legs, but did not use them fast enough. The morning had not progressed far before Horace and Smitty were way ahead of me waiting for line! I never liked to have anybody wait for me

so I began to hurry up. I saw that I was getting beat and was way behind and I had to speed up some way.

Pass Flagman

I quit waiting for the flagman to give me points ahead and I started picking out natural objects for flag points ahead, and walked right past the startled flagman. I was able to check my line by lining up flag points in the rear. Horace and Smitty got a good laugh on me but they did not have to wait long for me to catch up with them.

Another time over in the Crow Indian Reservation in 1921, I took Horace and Smitty out as my chainmen one day. They again ran off and left me. I would trot when I was behind the hill from them to try to catch up. My legs got to cramping so when I was out of sight I would lay down and kick my legs up and down to kick the cramps out of them. Once they slipped back and looked over the hill at me and caught me laying down in a low place, kicking up my legs. I never heard the last of that. Those two boys were my good friends, Horace is in Nevada and Smitty is in Billings.

The work went well allsummer but the season had a sad ending. In October 1920, my wife Inez and son Billy were in camp and Billy suffered an attack of spinal mengitis and passed away suddenly in Helena. The camp was disbanded.

To Washington

In November 1920 Mr. Harrison sent me to Washington, D. C. to work in the head office during the winter months. Inez went with me. We found that we could get railroad excursion tickets for the six months limit permitting us to go by train by way of New Orleans, St. Augustine, Jacksonville. Thence by steamship to Baltimore and the rest by train over to Washington. On the return trip we cambeback by way of New York, Niagra Falls, Chicago and home. It was a wonderful trip we had never before taken. We took that route and learned a lot. For instance, in New Orleans, I went to the colored window to get our tickets validated and was told that I was at the wrong window. On the way through Mississippi and Alabama the engine burned pine stumps and roots for fuel instead of coal. In Tallahassee, Florida, I saw a cow and a horse hitched to a wagon standing at a hitching post. In the south, the train stopped at mealtime for us to eat at a local hotel. St. Augustine, Florida claimed to be the oldest town in the nation, but I later found out that Santa Fe, New Mexico claims the same distinction. At Jacksonville, Florida we boarded a steamship for an ocean voyage to Baltimore. In Washington, we spent week-ends visiting museums, the Whitehouse, Congress and other interesting places. At the office I had to write letters for officials to sign and learned that the way I said it seemed to be more important than what I said. We knew a few friends in Washington who

showed us around. At the office I made it a point to visit the Indian Office and the Geologiaal Survey which were in the same building. I found them glad to talk to someone from the field. I also knew a Mr. Roblin, the allotment agent from the Bureau of Indian Affairs, whom I had met in Montana and we had some talks on allotment problems.

Soon after returning to Helena in the spring, Mr. Harrison gave me instructions to survey about 250,000 acres of unoccupied grazing land on the west side of the Big Horn River on the Crow Indian Reservation. The Indian Agent was in a hurry to have the land divided into 40 acre tracts so it could be allotted to the individual members of the tribe. In April 1921 Mr. Harrison assigned four field survey parties to the task of surveying the Crow Indian Reservation. The parties were headed by David Eaton, Philip Inch, Ernest Parker and Charles Seeley. All parties to work out of Sand Tent Camp on the Reservation. I was to establish a field office in the camp where temporary platts for each township were prepared as the work progressed. One of the platts to show the distances and lines and another platt showing drainage and other topographical features noted in the field notes. Party chiefs would put their information on the sketch platts each day and check to see if all areas closed and that creeks and ditches were connected properly on the

sketch pads. In that way any errors or misclosures were detected while the lines were still wet. In my spare time I typed the final official field notes as fast as I could. Each survey crew was accompanied on the line by a light farm wagon with bolster springs to carry tools, steel corner posts, water, etc. Experienced drivers were recruited from ranches on the Powder River around Miles City and Ekalaka. Their job was to keep the wagon with the party at all times, to have tools, posts, and other equipment available for setting corners, to keep up with the crews; they had to be adept at crossing creeks, washes and badland slopes, to assist the driver in crossing tough washes and other rough places, they each carried a 15' log chain they could hook onto the end of the wagon tongue, thus putting the horses farther ahead on good footing, so they could take it easy crossing the creek or bad place. If they broke a tongue or reach (problem pole) now and then it was considered better than spending valuable time looking for a better crossing. An ash pole was put and used to patch up the wagon until a new tongue was obtained. Among the drivers were Jack and Wayne Morris, of Biddle, Montana; Tom Yost, Paul Glasser, of Powder River, Mike Glasser, Powder River. Mike Glasser was teamster. He was equipped with a portable forge, anvil, shoeing outfit, etc. The head chainmen were Lucien Smith, Horace Parker, Gary Frankforter,

Walt Fitzgerald, Pete Spurzem, Vic Fairer and others. The members of the crew were mostly young men from farms in the Judith Basin, Powder River and Billings Country. Horses were fed oats and turned loose at night to graze on the prairie. Mike Glasser would round up the horses before breakfast. Drivers were out of bed and fed and harnessed their teams before breakfast. Our cook for the 25 men we had was Elsie, a lady from Oklahoma with her husband as flunkie. They did a good job to be working with a sheet iron stove.

Open Prairie

At Big Open Prairie on Two Leggin Pryor at Dry Head Creek north of the Pryor Mountains was one of the few areas in the state where one could travel all day and not see a fence or a house. (See picture of camp.)

Outfitting in Hardin

Just for the record I will say that we outfitted that spring in April. We shipped the horses, wagons, tents, pieces of equipment and everything in a boxcar to Hardin. It started to rain and the gumbo was fierce as we walked around. No sidewalks in that part of town. It was several days before we were able to move out of town on account of the rain and gumbo. The horses were wild, having been run

out on the range near Wolf Creek all winter. After getting the wagon put together with wheels, etc. we hitched up the teams. One of the teams ran away right through town. The Marshall arrested the driver for reckless driving but we were able to talk him out of it because the boy could not help it. The city fathers wanted our business, too.

On the few days I would go out and take over the engineer's crew for a day, the chainmen would delight in trying to run me down, I being somewhat soft from office work. A few times they caught me lying behind a hill kicking the cramps out of my legs, hoping they did not know how tired I was. One such day, I had a new flagman that could not keep ahead of me. Horace and Smitty, the chainmen laughed at me for being behind until I could stand it no longer and quit waiting for the flagman and started picking out natural points ahead for flag points.the remainder of the day. I caught up with the boys and by 11:00 we had seven miles run but I was all in and had to quit for the day.

The boys played hard, too. We had a volley ball net and a baseball outfit in camp. I seen them on a rainy day get tired of lying around and go out and run down a cotton-tail rabbit just for fun and catch it with their hands.

The crew's job was completed in October 1921 and the party disbanded and I was agin sent to Washington for the winter.

The next spring, Mr. Harrison was asked to undertake the allotment survey of the Blackfoot Indian Reservation. Enroute home in April 1922, we stopped at a hotel in New York City overnight, The next day we boarded the ferry at the end of 42nd street for Newark, New Jersey. Inez was tired and sat down in midships to rest while I went to see the next shore as we approached. The passengers jammed me against the rail so tight that I could not go back to where I had left her. I stood on the ramp watching for her to debark but never saw her get off in Newark. I got off and went over to the depot and in five minutes I was the only person in the station, but no wife; a guard asked me if he could help me. I said,"Yes, I have lost my wife,"and I explained that we had gotten separated on the ferry. He said wait until the ferry returns, maybe she will be on it. If she is not, you should go back and look for her on the other side. But on the way back across the river, I was wondering how to find a person in a city of six million people when we had already checked out of our hotel. She was there on the other side waiting for me. A policeman had advised her that if I did not show up, to go back to the hotel where we had staayed the night before. She waited in the waiting room at the ferry and that's where I found her. The police were very kind and helpful.

Pg. 56
ends
in middle
of a story —
(find the rest of it.
on a "new" tape?

Pg 45
"my first dress"

1922

In the spring of 1922 we were short of money. Mr. Harrison had some money furnished to us by the Dry Creek Indian Tribe for marking the boundary line between the Blackfoot Indian Reservation and Glacier National Park where the line follows natural lines such as streams, subdivision section lines, etc. I organized a camp on the Blackfoot Reservation to mark the boundary and was assisted by Ernest Parker, Dave Eaton and Dan Mumbry, with skeleton crews. Mike Handlin was teamster and his wife was camp cook. We marked the boundary at West Glacier, Two Medicine, head of Badger Creek and on the Hudson Bay Divide. In St. Mary's chalet where we camped again and marked the lines along the St. Mary Lake below the chalet where the bear were entirely too gentle around the cook tent. One of our Indian boys was sleeping alone in a bed roll in a tent. He looked up in the night and saw a bear standing in the front door of the tent. With one leap, the young fellow went through the back of the tent yelling and scattering his blankets as he went.

Berry Picking

While we were camped at St. Mary Chalet, Ernest's future wife and Willow Best visited camp. One Sunday a bunch of young folks including the girls went huckleberry hunting up on Hudson Bay Divide. Some way Lucien Smith (Smitty) got

mixed up with a skunk in the bushes and as a result they would not let him ride home in the truck. The poor guy had to walk home behind the truck. He smelled so bad that Mike Handlin run him out of the cook tent until he went and chanted his clothes. Poor Smitty went off singing, "I aint't nobody'd darlin". It was all in fun, of course. Smitty was a great singer, often leading a sing in we had in camp in evenings.

Go To Dance

On another night, a truck load of us went to Glacier Park Station to a dance. Ernest Parker, Sidney Cain and I did not want to stay up all night so we took our beds along. About midnight we rolled our beds out on the grass in the vacant space in front of the dance hall. In the wee hours of the morning, the dance broke up and folks started to turn their cars around in our sleeping area. I looked up as one car was coming around with its lights flashing as it circled around the campbround. The car lights picked up Sidney, a big tall fellow, standing up in his shorts with his bed roll under his arm. The man yelled, "I aint going to run over you." Sidney says, "I know you're not". Sidney was ready to take off.

Mumbry Takes a Bath

Mr. Mumbry, a surveyor of the "old school", had been telling the boys how tough he was in the old days. How he

used to jump out of bed into the river every morning for his morning bath. We insisted that he show us now how he did it in camp. His camp was along side the St. Mary River. He finally had to prove his claim. They said Don did not tarry long in the ice cold river.

Swift Current Creek

Swift Current Creek was waist deep and as cold as ice and roared over the boulders. The crew had to wade across it twice a day while working along it. They would remove their pants and wade with their boots on. It was very uncomfortable. Besides being uncomfortable, it was also dangerous. If one fell in the swift water, it would dash his head against the boulders. I even had to wade it carrying a transit.

Some of the sections along Duck and Goose Lake along Hudson Bay Divide had to be subdivided into five acre tracts. by intersecting lines according to Manley Rules. The willows and small quaken aspen were so thick it would take almost all day to hack a line a quarter of a mile long through the willows. One had to run about 24 miles of line to subdivide one section into five acre tracts. The reason for five acre tracts was so the allotting agent could allot five acres of the worthless willow land to each Indian to get rid of the land, or so they said, at least.

Larb Hills

In the fall we moved out of the Indian Reservation to the Larb Hills on the head of Larb and Willow Creeks south of Saco, Montana. We were camped on the bank of Willow Creek when a heavy rain fell on the head of the creek, unbeknown to us, causing it to flood. About midnight I woke up and heard water gurgling in the tent. We were sleeping on cots. Putting my hand out, I touched water! We found there was a foot of water in the tent and the water was rising. The cook tent had a foot of water in it and sugar and flour sacks on the ground were soaked. Everyone grabbed their bedding and belongings and waded out to higher ground, making several trips. That is, all of us except Mr. Eaton and two boys, Horace Parker and Lucien Smith who gambled that the creek would not rise enough to get them wet. The water was already within an inch from the bottom of their cots. The rest of us moved and watched anxiously, secretly hoping they, too would have to move out. But they won out, the creek did stop raising, yet they finally did move to dry ground after the creek went down. As for us, during the night the mosquitoes almost ate us up. After things quieted down, Anderson and I could still hear Handlin's three year old boy, Jimmy saying, "Skeet, Skeet", as the pesky mosquitoes pestered him.

Wood Detail

Firewood for the camp was obtained ten miles south along the river. Mike Handlin and Bob Johnson drove to the timber for a load of wood. They expected to stay overnight and return the next day with a load of logs. They took oats and hay for the team, a box lunch for themselves to last overnight. It rained heavily the first night out making the gumbo impassible for travel. It continued to rain for a day or so. When the gumbo is sticky, it rolls up on the wheels so they won't turn. Travelers have to wait until it dries out on the surface so its not too sticky. It continued to rain and they ran out of food. They had taken some eggs with them which they had packed in a box of oats to avoid breaking. In foraging around for something to eat, they found some of the eggs in the oats had broken and mixed with the oats. For their meal they had to eat the whole oats to get the eggs.

The season of 1922 was closed in October and I again went to Washington for the winter. Each year the appropriations for Public Land Surveys continued to dwindle and surveyors were transferred to other districts, as the appropriations diminished.

In 1923 the biggest thing that happened to me was the birth of my daughter, Zoe, on October 30. She was born by Cesarean section at the John Hopkins Hospital in Baltimore. For two months that fall, I lived in Baltimore.

Breakfast on the Big Horns

BREAKFAST ON THE BIG HORNS

Surveying the Free Lands, Remininiscences of W. R. Bandy

This colorful oil painting by artist Shorty Shope is of a camp scene on the summit of the Big Horn Mountains where my survey party spent the night of August 12, 1912. The painting is based upon a kodak picture of the camp I took at breakfast time the following morning. At that time I was employed by the U. S. General Land Office to assist in surveying the remaining unsurveyed public lands in the outlying areas of the mountainous West. Such a survey was necessary to enable the homesteaders to locate the boundary lines of their claims and to obtain title to them. That was a free service furnished the citizens by the Federal Government to promote the settlement of the Western states. The job was a somewhat nomadic one, requiring much moving from one district to another to meet the needs of new settlers coming to look for homesteads of free land. My party consisted of five survey aids, a teamster and a camp cook.

My wife, Inez, and I had not been married very long when I got that survey job. I had worked several years before that on other engineering jobs in Wyoming and Idaho, but was out of a job at the time. That position with the Civil Service of the Federal Government appeared to be more or less permanent, so I was glad to get it. We saw it would take me away from home for months at a time, camping throughout the mountains, and she wanted to go along, stay in camp where she could be helpful to me, and, incidently, see a lot of new country. Regulations prevented anyone from living in a government maintained camp unless they were employees of the Government, so

she volunteered to give the cooking job a try. I was glad to find her willing and desirous of sharing in the camp life, which meant living in a tent with a dirt floor, sleeping on the ground, with the wind flapping the canvas and kicking up dust all day long. together with many other inconveniences foreign to a Missouri girl such as pack-rats, rattle snakes, dust storms fresh from home! She was a little dubious as to whether she could please the men with her cooking. She had never cooked before except to help her mother. I encouraged her by saying the boys would be easy to cook for because they were always hungry. The field men took sandwiches every work day for lunch, and they put up their own lunches while at the breakfast table, which made it easier for the cook. So I bought her a White House Cook Book and she was in business! It worked out fine. She stayed with it for three summers, while we had no children. Being raised in Missouri, camp life in a tent on the Western Frontier presented many problems she had never heard of, most of which arose when she was alone in camp and had to cope with them the best she could, such as: A wind storm might swoop in and flatten the tents, or the wind sometimes worked the stove pipe loose from the stove with a fire going. At such times she would have to grab a gunny sack and fit the pipe back on the stove before the canvas caught fire -- soot flying all over and settling on the table and dishes. There was seldom a dull moment, it seemed. Her more vivid recollection was her first encounter with a packrat, which she had never seen before. One morning while washing dishes at the stove, she looked back at the cupboard and spied an animal watching her over the edge of the ginger snap keg. She said its big ears, bug eyes and long whiskers looked pretty savage to her! We were all

in the field at the time, leaving her alone in the wild and unknown land. She remembered the old revolver I kept under my pillow. She had never shot a gun, but she hurried to get the pistol. Taking rest on the table, she fired at the beast. When the smoke from the black powder shell cleared away, up pops the head again, eyes glistening and tail slapping the side of the carton. She shot the remaining shells with no result except to riddle the messbox. Not to be outdone, she courageously wrapped a gunny sack around the ginger snap box and nailed the package tight in an empty egg crate. When we returned to camp she proudly pointed to the egg crate and asked us to take a look, and name it! She enjoyed telling the story to her wide-eyed grandchildren! One day a rattlesnake coiled up between the stove and sugar sack. She knew how to deal with it! On the plus side of this story, it was not long before she acquired a pet magpie that learned to squawk a few words -- later on she picked up a "bum" lamb the boys found lost on the pririe that soon learned to stand ~~that stood~~ at the oven door wagging its long tail for biscuits!

At the time we camped overnight on the summit of the Big Horns we were on a long move of some 150 miles overland in wagons from one section of the country to another. It was from Martin Ranmael's homestead to about 10 miles southeast of Cooke City to the W. T. Broderick homestead and the Hilton Lodge east of the Little Horn River and south of Wyola, Montana. Mr. Ranmael, a native of Norway, had waited several years for a survey because his homestead was such a difficult place to reach. When he built his house the nearest road to his place was at Cooke City. He was most friendly and courteous, and a man of unusual dexterity. According to reports he had built his nice house, all with smooth shingles and weatherboarding, entirely from native logs, using only the broadaxe, foot adz, and hand saw. It was a show place, really.

Having completed surveys around Ranmael's place the forepart of August, we were directed to proceed to the Little Horn area some 150 miles east, by a round about road. Mr. Ranmael bade us a fond farewell as we left with wagons piled high with camping equipment and supplies. As was the practice in those days, we carried with us food supplies, horse feed, tents, bedrolls, dishes and everything needed for us to live off the country for weeks at a time. There were no swank motels or garish hamberger stands dotting the landscape as at present. It was then the custom throughout the West for travellers to stop over night whereever darkness over took them. They thought nothing of pitching camp on the edge of town rather than go to a hotel or rooming house.

As we were going through Sunlight basin some bad mudholes and steep hills made it almost impassable. One time we got stuck with the bedwagon and had to carry a part of the load by hand ahead to dry ground. In Sunlight we met Forest Supervisor R. W. Allen, now President of the Shoshone National Bank of Cody, who was helpful by advising us about roads. We passed over Dead Indian Hill, the famous land mark where one going west must drag a good sized tree with the limbs still on it, to keep the wagon from getting ahead of the horses! The first night out we camped on the head of Pat-O-Hara Creek at the foot of Hart Mountain. There the wolves kept us awake with their blood-curdling howling.

The second night out we were at the Cody bridge. There we replentished our supplies and also soaked ourselves in DeMaris Hot Springs, the outdoors bathing pool of boiling sulphur water that gave the river its Indian name,- "Stinking Water".

We did not expect to see much of interest on our trip east from Cody across the Dry Creek basin , a wind whipped desert of salt-sage and greasewood. However we did observe several native inhabitants. First to greet us was a happy yellow-breasted meadow lark, with a black spot on his chest. He was singing from his perch on a greasewood. Also present was a bob-o-link, a black bird with a white spot on his wings. He did his usual "thing" by flying straight up 30 or 40 feet high, then gracefully float down as he sang his standard song, quoted by the poet as being "Bob-o-link, bob-o-link, spink- spank- spink.". Often seen were prairie dogs barking from the side of its hole, their short tails bobbing with each effort.

We continued our trip, crossing the Big Horn River at Kane, Wyoming and camped at the foot of the mountain. A formable barrier we planned to tackle the next day. The next day Inez and I took a short cut and walked ahead while the men doubled up the teams and pulled each wagon up one at a time. For us it turned out more of up the mountain

a climb than anticipated. About noon we got hungry and discovered we had inadvertently left our lunches in the wagons! Seeing a sheep wagon over by a spring we swung over to it. There was no one home, but a part of a mutton hung in a tree wrapped in a flour sack. It looked like "manna from heaven" to us. She fried some mutton chops, opened a can of tomatoes and of corn and we had a feast. A thank you note was left for the nice sheepherder. About four p.m. we luckily joined up with the wagons and joyously climbed aboard. It was a great relief to again settle ourselves in a spring seat. We could then enjoy the interesting scenes of nature much better from that vantage point. As the caravan continued along the old crooked Indian trail that's "nobody knows how old", my brother, Willis, spotted a covey of ruffled grouse and bagged a few young ones for breakfast with his "22 Special" Colt revolver.

It was getting near sundown before we found water for an overnight camp. We began to wonder if we could find water before darkness closed in on us in that vast solitary wilderness. We were at an elevation of 9,500 feet above sea level, and not even a road in sight. Seeing the big snow drift ahead, it looked promising. Karl pulled down and parked the wagon on a level spot below the snow drift by a small trickle of water seeping from beneath it. Everyone was tired and hungry and no time was lost in getting supper started. Groceries were hurriedly dug out of the wagon. Some got the stove out and set it up, others got wood. Potatoes were peeled and ham cut. It was not long before the fragrant smell of frying ham filled the mountain air! Road dust was wiped off the granite dishes and supper was ready, with plenty of gravy and hot biscuits. A tent

was put up for my wife. Karl had fed the horses their oats. After supper the horses were hobbled, a cowbell put on one, and all turned loose to graze during the night. The men slept out beneath the star studded dome.

Waking up during the night and hearing the gentle tinkle of the cowbell, I turned over and went to sleep again with the comfortable feeling that everything was well! (At least we still had a saddle-horse.) The next morning the stream had quit running, pools were frozen over, and ice on the water pails I had thoughfully filled the night before. It being a little breezy, Karl put the pieceof striped canvas under the edge of the wagon box to protect Inez from the cold north wind, "the fierce kabbabinokka" of Hiawatha fame, while getting breakfast. After breakfast we all went up on the snow to frolic so the boys could write home about snowballing in August. The snow was too hard to make snowballs, it was hard to stand up on. Although we were well above timber line, and it froze ice every night, many alpine flowers and shrubs were seen growing along the edge of the snow bank, struggling to live out their life cycle in spite of the many handicaps. As soon as the snowedge moved slowly upward, uncovering the dormant plants, the impatient buttercups, clustering rock asters, snowdrops, and other alpine flowers lost no time in doing their "bit" to brighten their part of the world. Even with an inch or more of snow yet to go, the sun's life giving rays penetrated the icy pane, causing the struggling bulb to push up through the ice, straighten up, and unfold in all its glory. We stuck some of the flowers on our hats. How else could those little flowers get up in the world? That was their only chance to add their bit! Had it not been for our visit those beauties might have lived in vain! Probably a long, long wait before other

visitors came!

The idea to take a picture of the breakfast scene came to me on the spur of the moment as I glanced at the busy camp there at the foot of the huge bank of last winter's snow. As I stood there downwind from the outdoors kitchen waiting for breakfast and enjoying the aroma of frying mountain grouse and the coffee pot, the rising sun at my back cast its warming glow over the colorful scene ahead. I then snapped the picture catching a perfect view of my wife, Inez, as she stood, rosy-cheeked that frosty morning. Standing between the cook stove and the red and green painted wagon, she dominated the scene as the center of attraction. A scene so aptly emphasized by the skillful artist! With the stove loaded with frying pans and skillets, she deftly speared herself a choice piece of grouse with that ever busy left hand of hers! So intent was she, my picture taking went unnoticed. It was that unforgetable scene I wished to record for the admiration of future generations!

It was 58 years later, 1970, that my daughter, Zoe, and I requested Artist Shope to execute an oil painting of that memorable scene in nature's unspoiled wilderness, which painting we have dedicated to the memory of that Missouri girl who cheerfully braved the rigors of camp life on the wild frontier to be with her husband and his nomadic survey party, assisting him, and sharing their exciting experiences and fun. The painting's continuing values are the memories it recalls to mind, and also its historic worth in depicting numerous items of equipment in everyday use in their own environment, and in addition it illustrates a way of life for a segment of frontiersmen in an era past!

One needs but to sit before the picture in serious contemplation to relive deeds of yesteryear; to have associations and friendships come alive; possibly moments words cannot describe! Wide is the range one's imagination may take him if he gives it free rein.

At the time I took the photograph we were many miles from any settlement or traveled road. There was no thought the scene might at some future time have historical values. Fortunately, a close study of the painting does reveal many interesting items and practices peculiar to that age, such as:

Heavy "dead ax" farm wagon with spring seats, side-boards, mountain brake, jockey box for spare horse shoes, rasp, hoof-knife, horseshoe nails and shoeing hammer, curry comb and axle grease.

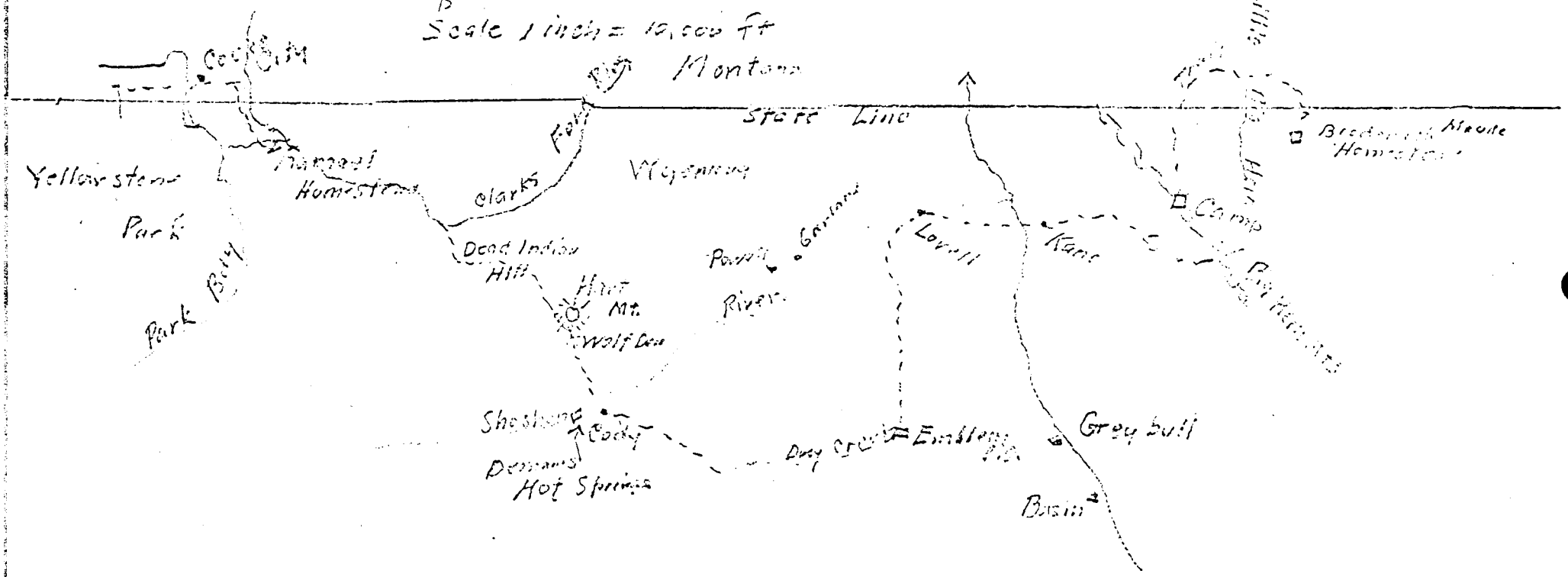
Wood burning camp cook stove.
Long handled frying pans for open fire.
Heavy 16 inch top hobnailed leather boots.

Homemade cupboard fitted to back of wagon box, with cooktable made from hinged door.

Coal oil lanterns.
The scene showing the difference between camping methods then and now.

Given the right mood, persons with nomadic inclinations could ponder this painting and read much more early Americana between the lines!!

Sketch of road and trail from Cooke City Montana to Broderick Homestead.
Broken line = trail and road.
Scale. 1 inch equals 10,000 feet



State Supreme Court Decision

Olga Townsend
vs.
Frank E. Kuakul

This is a Supreme Court Decision involving whether a long established fence between two ranchers establishes a boundary line when the boundary is described as being a section line. It is the case of Olga Townsend, plaintiff and respondent, versus Frank E. Kuakul and Dorothy Kuakul, defendents and appellants. Appealed from the 18th Judicial District, Honorable W. W. Lessley presiding, dated July 6 1966. The court held that the fence did not hold the line in this case, but one should read the complete case. The following comments were very useful in deciding the case at point: In order to establish an agreed boundary line, the evidence must show more than mere acquiescence and occupancy for the time prescribed by the statutes of limitations. It must go further and show that there was uncertainty in the location of the line, that there was an agreement among the landowners, expressed or implied, and that there was a natural designation of the line upon the ground and occupation in accordance therewith. Another quote is: "In no case should adverse possession be considered established on provisions of any section or sections of this code unless it shall be shown that the land has been occupied and claimed for a period of five years continuously and the party or persons, their predecessors or granters have during such period paid all the taxes, state, county, and municipal, which have been legally levied and a-sessed upon said land." "Generally speaking, adverse possession is the possession of anothers which, when

accompanied by certain acts and circumstances will rest title in the possessor. In determining what constitutes adverse possession, courts are practically unanimous in declaring that the possession must be actual, feasible, exclusive, hostile, and continuous for the full period of years." "The burden of proof proving all these essential elements of adverse possession is upon that party alleging it and he must prove that no taxes were levied or assessed against the land or that he has paid all taxes which were levied thereon."

Taming the Wild Lands----The Good Life

TAMING THE WILD LANDS

A GOOD LIFE

The wild land referred to in this narrative was that vast area of undeveloped public land lying west of the original Thirteen Colonial States in the early 19th century and sparsely occupied by tribes of nomadic Indians.

Upon acquiring that wild wilderness explored by Lewis and Clark, the Government was faced with the problem of how best to manage it for the benefit of those citizens desiring to occupy it and make it their homes. One of the first steps in taming the land was to survey and divide it into suitably sized tracts for homesteads so that titles could be issued to qualified boni fide settlers. To accomplish that purpose an ingenious system for surveying it was devised. The system was new, and was to become known as the Rectangular System of Public Land Surveys. The principal early laws on the subject are found in "An ordinance for ascertaining the mode of locating and disposal of lands in the Western Territory, and passed by the Continental Congress on May 20, 1785, and in Acts of Congress of May 18, 1796 and others." George Washington and Thomas Jefferson were active in formulating the system. The system is simple and easily understood.

Surveyors

Dedicated land surveyors were employed by the Federal Government to enter that undeveloped wilderness prepared to

live off the country while dividing the land into townships and sections, and monumenting the section corners with permanent monuments. Those men were no less pioneers of the great undeveloped West, than were the fabled explorers, trappers, immigrants and other frontiers men whose courage are so widely praised!

This narrative attempts to give a Mind's Eye View of some of the problems facing the pioneer Government Surveyor when he entered for the first time that untamed wilderness to establish the section corners. Having no maps, and finding few roads and trades people, he must provide his own transportation, camping equipment andsupplies for his crew, and be prepared to live off the country for months at a time. Therefore it is meet that the sacrifices made by those early pioneer land surveyors, who braved the rigors of living in that untrampled wilderness and undergoing unbelievable hardships at times, be adequately documented.

Tales

Tales of hardships encountered by those hardy compass- and chain-men of the 19th century as they penetrated the roadless, unoccupied, Indian infested country on foot, living off the country for six months at a time provide the basis for myriads of exciting, memorable stories.

It seems appropriate to relate some of the eye-witness accounts passed on to us newcomers, such as one of the milder ones told me by my friend, Andy Nelson, describing how they surveyed some of the swampy, heavily timbered lands in Michigan, even in my day. Because of the wet swampy condition of the surface they had to survey it during the winter when it was frozen over and covered with deep snow. Pack horses and wagons were out of the question for transportation. The men traveled on snowshoes carrying their food, blankets, and supplies on their backs as they tramped on the snow, hackin out the section lines through the dense tangle of virgin forest, over fallen logs, through dense undergrowth, camping at night at the end of the line where night overtook them. Rolling out one's blankets on tromped down snow for a night's sleep has to be lived to be appreciated. They would be gone for weeks at a time, living off the land, eating snowshoe rabbits or what have you!

Other surveyors from Montana including Guy Veal, Emil Voigt, Wi-lis Bandy, George Rigby and others on winter assignments to Florida told of wading through the Everglades surveying swamp lands, often wading in water up to their armpits, using long legged tripods, in search of submerged cypress corner posts established a hundred years before during periods of low water. Ever careful not to mistake a rusty back of an alligator for alog in the muddy muck.

Finding 125 year old cypress corner posts and bearing trees, as solid as the day they were marked. It is always rewarding to find a long missing corner monument. For the dedicated surveyor, it is a time of great rejoicing as noted in the Bible - "There's more rejoicing over one lost corner than over the ninety and nine safely in the fold!"

To get a better picture of what problems were encountered by the surveyors and what living and working conditions were like in those early days in widely separated localities, we draw upon first hand eye-witness stories told by the veteran engineers themselves. A good example is the story of the survey of the North Boundary of Wyoming territory in 1879 and '80, as taken from the official field notes on file in the Billings Office. That survey was made by Rollin J. Reeves. He had just completed the survey of the boundary of Colorado in June 1879 and had gone to Green River City, Wyoming on the Union Pacific railroad to outfit for the Wyoming job.

His instructions were to initiate the survey at the northwest corner of Wyoming Territory which had been established in 1873. The line was to produce along the 45th parallel of latitude, with corners set every mile. Besides Mr. Reeves, the party consisted of H. P. Tuttle, Astronomer, and an average of 16 assistants including packers, chainmen and other helpers. They had about 50 head of horses, and mules according to the field notes. There were no wagons; they traveled on

foot and horseback.

Leave Green River City

Leaving Green River City on July 28, 1879, they traveled up Green River to Big Sandy Creek; thence up Big Sandy and Little Sandy Creeks, through South Pass to Fort Washakie on the Indian Reservation. There they were joined by a company of soldiers. Thence they moved up Wind River to its head where they crossed the Continental Divide through Two-Ocean Pass and down the headwaters of Yellowstone River to the south end of Yellowstone Lake. Passing around Yellowstone Lake on the west side, they had difficulty getting through. It is best described by quoting from his field notes as follows:

"The route was through dense timber all the way. The grades were frequently very stony, steep, and prolonged. The trail frequently could not be found at all and we had no guide with us. In many places, the down timber and undergrowth were matted so closely and firmly we could not get through it. Swamps were numerous and the ground was miry and deceptive. All together it was unqualifiedly the most laborious, long march I have ever made. We were lost for several days at a time. Notwithstanding these trials we enjoyed many features of the journey. No sickness, loss, or

accidents were suffered and no fights fought, though bickering, back-biting and grumbling were indulged in as they always will be on expeditions of this kind".

They crossed Yellowstone Park to Mammoth Hot Springs where they replenished their food supply by sending parties to Bozeman and Fort Ellis. They then went west across the park to the initial point for the survey, which was reached September 2, over a month after leaving Green River City.

Running the line east, the next big barrier was Electric Peak, we again quote from the field notes:

"In crossing this barrier our hardships were peculiarly severe. On September 6th after quitting work on line,our party started down the mountain to find camp. We divided into five smaller companies. The camp was not found until noon the next day, all hands having lain out without shelter or food since the morning of the 5th. I walked fully twenty miles trying to find the pack train and I think others traveled as far."

They continued on toward Cooke City where they discontinued work for the season. Of the last few days he has this to say in his field notes:

"On the morning of October 6th a light snow was falling--On the morning of October 9th while it was still snowing,

a part of our number went out onlline and brought in the instruments and tools that had been left on line the evening of the 5th. Although this point was not two miles from camp, it was about the hardest day's work experienced by several members of the crew during the survey. The surface is covered with fallen timber, dense undergrowth and vast quantities of boulders and broken stones. The snow was wet and heavy. As it fell from the trees and willows, it drenched the men through and through. It required nearly all day to bring in the instruments. Accordingly, the camp was disbanded. Some going to Yellowstone Park, and some to Bozeman, some to Crow Agency, and others to Fort Washaki. "...Our party was constantly supplied with fish and fresh meat. Elk and deer and antelope were as numerous and dogs in an Indian camp. As to Buffalo, we saw hundreds and killed several, seven in one afternoon".

The last corner established in 1879 was on the high shouldor extending north from Index and Pilot Peaks at an elevation of 10,300 feet above sea level. I found that corner when I retraced that boundary line in 1936, and put up another flag there to use as a backsight as I ran east. It was on the skyline from as far east as we could see. We ate lunch at that corner one day, from there we could overlook the country east as far as the eye could reach.

In 1936 I retraced the State Line through the Cooke City area, and east for six miles or more. It follows high up on the steep north slope of Republic Peak, and high on the shoulder projecting north from Index and Pilot Peaks. One of the most difficult of lines to run. Mostly triangulation from spur to spur, using peaks fro bases which were likewise determined by triangulation. I had to run the State line so I could set closing corners on subdivision lines brought in from the north.

We spent a memorable week looking for Reeve's next corner east of the Index and Pilot Peak spur. It fell in a jumble of fallen trees, housessized boulders, with dense underbrush between. Mosquitoes were so thick one could hardly breath for them. To eat a sandwich one had to first blow the mosquitoes off and take a quick bite. We never noticed the mosquitoes biting as long as we kept busy, but you dared not stop for a minute to figure.

Finds Corner Monument

I finally found Reeve's corner monument. It was chisel marks on a flat surface of a boulder about 40 x 60 feet. The marks were covered with moss. I was attracted to the spot by there being one lone rock lying on the flat surface of the boulder. I thought to myself, how did that lone rock get out there? One reason we had not found the corner was

because Reeves had made an error of 49.10 chains in triangulating the distance from the flag he had set on the Index and Pilot spur! We finally found the corner by going three miles east and finding a state line corner and measuring back.

To describe the torraineeast of this point for the next fifteen miles or so through the roughest part of the Absorakn Range the following is quoted from Mr. Reeve's field notes: -

"From the 73rd mile eastward the entire region is almost impassable. We lost one man, (Mr. Hopkins) in the 75th mile, and it is supposed he must have fallen down one of the numerous horrible canyons which are numerous in that regeon. His horse and coat were found but not himself, though vigorous search was made for him along the streams and lower elevations." ... "on account of the rough impassable nature of this part of the line no corners were established for eight miles".

When the surveyors reached the Clarks Fork River the astronomers spent several days observing the stars, and arbitrarily moved 37.00 chains south and started the line over again, leaving a jog of 37.00 chains in the line which is not mentioned in the field notes. I found the jog when retracing the line in 1921.

Devil's Canyon

The next real barrier was encountered after they crossed the Big Horn River. There they encountered Devil's Canyon, an impassable gorge leading into the Big Horn River from the east, out of the Big Horn Mountains. They arrived at the west side of the canyon on the 145th mile, and described it as being one-quarter of a mile wide at right angles to its course, but about a mile across on line. Their trip around the head of the canyon is described in the field notes as follows: -

"All hands left the line taking their tools with them and started in a southeast direction to follow the pack train which had gone on ahead to cross the canyon at the nearest passing point. We followed up the southwest side of this great canyon all day and went into camp just before dark 20 miles above where we had left off work. Have been climbing the Big Horn Mountains all day and have asconded 2000 feet above the witness corner. This is on Friday night August 27. Saturday August 28, marched all day and about 3 p.m. found a crossing at head of canyon, returning down the other side of the canyon, camping at night at elevation 10,000 feet about five miles south and 7 miles east of the objective point on the west edge of Big Horn Mountains. Have travelled about 18 miles.

"August 30, 1880. Rained and snowed all day today, and we spent a miserable day in camp. August 31 1880. It being impossible totake the pack train farther west on line on accout of the steep rocky character of the western slopes of the mountains; the part with the necessary tools are now taken down the mountains to a point on the east side of the canyon opposite the 145 mile corner. The distance across the canyon is measured by triangulation, and the part go into camp without blankets and without supper".

Cadastral Survey of Pryor Mountain Area

Recorded August, 1970

This is the beginning of another recording by W. R. Bandy in August 1970, describing a cadastral survey of 7000 acres of rough land in the Pryor Mountains that were considered too rough to survey into sections years ago when the bulk of the Pryor Mountains were surveyed. This last survey was made by Bandy in 1936. It was hard to reach because of the rough character of the land. This narrative is entitled "Crews Surveys the "Impossible". "

That great gorge separating the Pryor Mountains from the Big Horn Range called Big Horn Canyon has always been a challenge to land surveyors.

The gorge,now the site of Yellowtail Reservoir,is several thousand feet deep, walled with perpendicular cliffs, limestone palisades and slide rock slopes.

Roland Reeves, astronomer and surveyor, was the first cadastral engineer to confront it. He started in August 1879 at the north boundary in Wyoming territory, with an elaborate outfit consisting of a chainman, flagman, axeman, cornmen, plus astronomers and mathematicians with equipment to observe the sun and stars for latitude. They followed the 45th parallel of latitude and observed for latitude every 27 miles.

The next land survey record is 1916 when surveyor, Charles M. Pigeon and crew from the U. S. General Land Office worked to extend the rectangular system of the public land surveys into the Big Horn Canyon area, dividing

land into townships and sections. By this time, all of the Pryor Mountains had been surveyed except for eleven sections on the east end of the mountains where it breaks off into a maze of perpendicular cliffs, pinnacles and slide rock to the river 3000 feet below. It was that area that I was directed to survey in 1936. There were two crews of us. Roy Rohmberg was in charge of one crew and I the other. We had spent the summer surveying the mountains around Cooke City. The crew consisted of Rohmberg, Jim Many, Sam Roberts, Oliver Tingley, John Masterson, Blackie Possel, Seeb Hutinstein, Bob Pile, Harry Beam, George Cordum of Anaconda, truck driver, and a Mr. Hodgekiss of Red Lodge, the cook.

On September the 25th, camp was established at a small spring at the head of Water Creek near the summit of Pryor Mountain. We completed all of the lines except two east and west section lines that started at the top of the mountain and ran a mile east through the roughest part of the east face of the mountain described above, ending in the canyon 3000 feet below. The problem facing us was how to get back up the mountain at the close of a long day. In the meantime, it had snowed six or eight inches of fresh snow. We would either have to climb back up 3000 feet through the snow at the end of the day's work or spend the night at the foot of the mountain without blankets, supper or breakfast. I figured there was a

possibility, however, of riding back to camp if we could get a truck to the foot of the mountain to meet us. None of us had ever been through the canyon and did not know if it was possible. The forest map showed an old wagon trail leading down the west side of the Big Horn River from Lovell, Wyoming. If George, our truck driver, could get the truck down that trail by going back west to the Pryor Gap Road, then south of the Pryors to Lovell and then on down to the Big Horn and down that trail, we might ride back to camp with him. There were a lot of ifs involved but we thought it was worth trying.

So both crews left camp early the next morning, the truck taking them as far as possible, then we walked on to our starting point. George turned around and headed west and south, going back around by Lovell, Wyoming to find the old trail none of us had ever seen.

After completing our line down the mountainside at about 4:30 p.m., we then started down the mountain looking for the truck. There was no sign of the truck below us, although George had been traveling about eight hours since we had left him at the top of the mountain. We anxiously watched for the truck below us as we walked down towards the river. We had not seen Rohmberg's crew all day long, but we were hoping for the best that he had completed his line work also and was looking for the truck. Pretty soon we saw Rohmberg's crew trailing down the mountain a mile north of us, looking for the same thing we were, the truck.

Then a shout went up from all of us. We saw the truck pulling out onto an open ridge down below us. Good old George had done himself proud. George said he had traveled steadily ever since he had left us in the morning, except to stop to repair wash outs and move rocks away from the old wagon road. We all piled into the truck and headed for camp over a long, bumpy, crooked road. Back through Lovell, Wyoming and up Crooked Creek. The boys sang awhile and then dropped off to sleep. Climbing up the Pryors in the middle of the night up the Crooked Creek Road, we ran into snow and mud and had to wake up the boys to help put on the chains. A disagreeable job in the darkness. After that, the old truck kept chugging along and carried us into camp at 2:00 a.m. in the morning. The camp cook got up and served us a meal he had tried to keep warm on the stove, then everyone went to bed feeling he had earned his pay that day at least. I declared the next day a holiday. We broke camp and headed for Helena the day after, feeling satisfied that we had finished the job in spite of snow and mud.

State Supreme Court Decision

Calvin R. McCafferty

vs.
Lester Young and Alberta Young

Recorded August 19, 1970

This is a recording by Mr. Bandy on August 19, 1970. It is a report on a State Supreme Court decision of the dispute over a land boundary Bandy had surveyed in 1960 at the request of Lewis and Clark County and Calvin R. McCafferty. It is known as the case of Calvin R. McCafferty, plaintiff and respondent versus Lester Young and Alberta Young, his wife, defendent and appellant, appealed from district court of the first judicial district, Honorable John B. McClellan, Judge presiding. Submitted June 16, 1964, decided November 19, 1964, filed November 19, 1964. The question involved was: When a river is described as a boundary line between two tracts of land and the bed of the river changes, does the land boundary follow the new river channel or remain where the channel was when the land was acquired? In this case, the boundary between the two tracts of land was originally described as the middle of Sun River, later the river channel changed as much as one quarter mile. To decide which channel was now the boundary between the two landowners, I had to decide what the law was and how the change in the river occurred. After learning the facts by making extensive inquiry, and examining the ground and the timber, I decided the old channel remained the land boundary. And that is the way I surveyed it. The State Supreme Court approved my survey. Chief Justice, James T. Harrison, writing the decision. Anyone sufficiently interested in knowing the law in such cases may look up this case in the records. The decision was approved by Associate

Justices, Wesley Castles, John C. Harrison, Stanley M. Doyle, and Hugh Adair. The final comments were made regarding my methods of surveying and protecting the client's rights. "More particularly how the opinion recounts all the facts in the case and then clearly states the points at issue, and then the decision as to those points at issue, citing cases as authority and then re-afirming that authority. This case gives us an excellent example of what professional services a surveyor should give to his client. He should remember at all times that his client is not a professional property surveyor and that it is a surveyor's duty to use his professional knowledge to do what is in his client's best interest, and not necessarily what his client thinks is his best interest".

Mr. Bandy was retained by Lewis and Clark County and Mr. McCafferty to fix a boundary between Teton and Lewis and Clark Counties where it was also the boundary between McCafferty and Young. McCafferty had no idea that the boundary could be anywhere except in the center of the present channel, and his concern was: Which of the several branches of the present channel would be the one? Bandy, being a thoroughly competent surveyor, of course gathered all the records before he began his survey. This record, including the original patent deeds, and all subsequent deeds and contracts for deeds, the statutes defining the boundary of Lewis and Clark County and the one defining Teton County,

the original BLM field notes and platts, and an aerial photograph of the land in question. It is interesting to note that Mr. Bandy was sufficiently dedicated to his profession of Cadastral Engineer in the BLM to get his law degree in order to be a better surveyor.

Bandy discovered from relating the official township platt to original G.L.O. corners, he himself found that the present channel of the river was not in existence when the township was originally subdivided. The present landowners deeds called for the county boundary on each side of the river. The county boundaries described in the statutes creating the counties call for the north fork of the Sun River. This is a good example of one document calling for and depending on another one.

Bandy interviewed the original owners of all the land in the dispute, a retired sheeprancher who referred him to his old camp tender. The camp tender had lived on the ranch nearby for many years and could testify that the change in the channel was sudden and perceptible and happened in one particular flood. Bandy further documented his case by cutting a tree between the channels and counting the growth rings.

Bandy had gathered all the evidence he could find, all the records, the facts, the testimony, and now he decided to question the law. He told his client by delivering his platt that his boundary was the center line of the old channel, and advised him to see his lawyer before taking any

action. He acted in a true professional capacity. So closes the McCafferty Case.

The Survey of the Revised Boundaries of

Yellowstone National Park

Recorded on August 6, 1970

The Survey of the Revised Boundaries of Yellowstone National Park

By

William R. Bandy

A former cadastral engineer and surveyor

for the U. S. General Land Office

Surveyed the revised East and North boundaries of Yellowstone National Park in 1931, 32, and 33 for the U. S. Department of the Interior, at the request of the Superintendent of Yellowstone National Park. He at the same time recommended names for three mountain peaks in the Park. These names were later officially adopted by the National Geographic Board. In the following narrative, Mr. Bandy describes why certain names were chosen and gives other interesting facts about the Park, and the north boundary of the State of Wyoming. The title of the narrative is "Peaking at Yellowstone".

One of the many advantages of living in the land of shining mountains, Montana, is it's proximity to the most famous of the National Parks, Yellowstone. We live close enough to be able to drive through the Yellowstone on week-ends to watch the geysers play, the bears frolic and the buffalo roam. Despite our frequent visits to it though, something different may be seen each time. It may come as a surprise to some veteran park visitors to learn that four additional names for peaks have recently been added to the long list of names already assigned to its outstanding peaks. The names chosen recognizes four nationally known individuals who have in some way been identified with the early history of the playground.

Most of the prominent peaks in the Park were given names years ago when the Park was young. It remains for my good fortune to have the privilege of suggesting names for the four peaks hereinafter described. That occasion occurred when I was surveying the revised east and north boundaries of Yellowstone National Park for the U. S. Department of the Interior in 1931, 32, and 33. The new east boundary was changed to follow along the crest of the Absaroka range of mountains for 90 miles northward from the point two miles east of the Eagle Peak, North to Meridian Peak northwest of Cooke City, Montana. The new boundary line follows the top of the divide, thus giving me an excellent opportunity to see which were the highest peaks along the line. I could identify them and learn

whether or not they had already been given names.

Mr. Roger Toole, the Superintendent of the Park, had asked me to keep a look out for any unnamed peaks in the Park which I thought worthy of a name, and if any were found, to suggest a name for each. This request presented an interesting challenge for me. It was something new. First, I learned that there is quite a formal procedure to be followed in officially naming an object of that nature! Before adoption, a name must be approved by the U. S. National Geographic Board and before presenting a name to the U. S. National Geographic Board, a name must meet the approval of the National Park Service.

Matching a peak with an appropriate name required some imagination and research. Some reason must be given for the choice of the name.

The line surveyed followed the ~~geographic~~ hydrographic divide separating the waters flowing into the Yellowstone River and Lake from those flowing into the Shoshone River on the east. The line thus passed over the highest point along the divide and brought me face to face with the many precipitous cliffs ~~and rocks~~ and peaks along the way. The highest peak along the line is Eagle, with an elevation of 11,360 feet above sea level. It took the survey party three seasons to complete this survey. Due to the extreme high altitude of the range, we could work only three months a year. The survey crew consisted of ~~only~~ nine or ten men experienced in mountain climbing, including two packers and a cook. Transportation for moving camp and supplies

across the mountains was by sixteen head of pack mules and three saddle horses. Usually the line crew would not see a road or truck from the middle of June until September. Most of the time the pack animals were operating well above graded trails built by the Park Service, where they had to pick their way among the boulders to a campsite by some isolated spring at timber line. The many bears encountered were not the lazy beggars,pictured by tourists, along the roads. They were wild and used to having their own way. If a grizzly barred the way, we obligingly went around him. Some exciting confrontations did occur but no serious injuries were suffered. The accompanying photographs show better than words the rough character of the terrain traversed. It is suggestive of the problems encountered. The great changes in working and transportation conditions between those days and now are further illustrated by the photographs of men working with packs on their backs and of strings ~~strings~~ pack animals threading their way among the rocks on the mountain ridge above timberline. Back packing was resorted to when camps could not be reached by mules on account of cliffs. One such camp was on a ridge east of Cody Peak north of the East Entrance. We climbed 2200 feet up that slope from the road with packs on our backs and surveyed the line at the same time. The next day we ~~sailed~~

scaled Cody Peak 400 feet higher and marked a corner monument on top.

Many of the old time pioneers who were identified in one way or another with the early history of the Park had already been honored by having a mountain peak in the Park named for them, such as Colter, Langford, Chittenden, and others. Therefore, it was necessary to scout around for names of other famous men to honor. The names of two former presidents who had been closely connected with the Park during its early history were selected and given priority. They were President Grant, who signed the bill creating the Park in 1872 and President Arthur because he was the first President to visit the Park.

Grant Peak

For President Grant, a very prominent peak standing on the divide between the head of Lamar River and the Shoshone River was selected. It is easily identified by a projecting cap on top, surrounded by perpendicular cliffs on the north and west sides. A picture of Grant Peak is shown.

Arthur Peak

Another peak to the south of Grant Peak was selected for President Arthur. Arthur Peak is on the Park boundary line between Middle Creek and Eagle Creek and it is about 10,200 feet in elevation above sea level. It is south of the Cody Road.

Cody Peak

Another famous man whose name is synonymous with the west, "who calls that part of Wyoming his home" was chosen as one to be honored by having one of the Park's prominent peaks named for him. This is none other than the famous scout and guide, William F. Cody, known worldwide as Buffalo Bill. For him, I selected an outstanding, picturesque, solid granite monolith favorably situated high in isolation on the very top of the ridge near the old East boundary of the Park. This majestic pinnacle is situated just north of the Cody Road at the East Entrance to the Park and stands more than 400 feet above the top of the ridge on either side, high on the skyline, when viewed from the east. It is an excellent exemplification of that ~~legendary~~ eminent scout of old, CODY, scanning the landscape. It seems that no other name for that rock would be as fitting, ~~as it stands~~ Standing as on that lonely ridge like the trusted scout that he was! Easily identifiable from other mountains in the area, the peak serves as a guide-post for hikers, hunters and other wayfarers who might be trudging the surrounding area.

Plenty Coups

Traditionally, the northwest corner of the State of Wyoming, particularly the western part of the Big Horn Basin, was known as Crow country, being the summer hunting ground of the Crow Indians. Indeed, a fact not ~~well~~ generally known is that a portion of the land now included in Yellowstone

National Park was,at one time, part of the Crow Indian Reservation. Therefore, it was thought altogether fitting to name one of the peaks for the long time chief of the Crow Tribe, Chief Plenty Coups. Chief Plenty Coups was widely and favorably known throughout the nation as a patriotic American, and a friend of the white man. His headquarters were at Crow Agency, Montana. A prominent peak on the divide between Eagle Creek and Middle Miller Creek in the eastern part of the Park was named for Plenty Coups. The elevation is about 10,200 feet and it may be seen by looking southeast from a point on Cody Road a few miles east of Sylvan Pass. A large delegation of Crow Indians from the Crow Reservation, together with a representative of the Cody Club, held a powwow at that spot in the road at the time I was surveying the boundary line and they dedicated the peak to their chief, Plenty Coups. I was happy to attend the meeting and gave a short talk.

The present generation, looking over pictures of the crew working along the craigs,may think that it was a most arduous job. Not only laborious in climbing over the rocky slopes every day, but because one was isolated from town and bright lights for months at a time. However, the hard work was compensated for by the stimulating fresh mountain air, the exhilirating effect of seeing new and beautiful country every day and the general buoyant feeling of being

privileged to stand literally on top of the world, looking down in all directions (not so unusual today). Judging from what I have heard the boys who were working with me say, each and every one now look back upon those summers as among the happiest we can remember. I know I will never forget the friendly loyalty, the wholehearted cooperation I received from each one.

I also want to say that the employees of Yellowstone National Park Service did everything possible to make our job more pleasant and easier. Special mention going to the late Mr. Roger Toole, Superintendent, and Joe Joffe, Assistant Superintendent. And to former rangers, Lee Coleman, Bill Arnold, and Scotty Bowman.

I might add that we were careful not to do anything that might unnecessarily mar the virgin look of the Park by blazing trails and cutting trees. It was often necessary to make new trails through virgin timber for mules to reach isolated camp sites in high remote areas. However, we never blazed these trails, but marked them by tying pieces of cloth on limbs for the packers to follow. Neither were corral poles cut to confine the mules. Instead, mules were gentled by generous use of oats in a nose bag. No corrals were necessary. Mules will take most any chance though, to obtain a mouth full of oats. They do become

adept at stretching their necks out to get a taste of oats without being caught.

Although most every day men and animals were clamoring over cliffs, rocks and logs, no serious accidents occurred.

Bears and Buffalo

In view of the rash of attacks by bears on tourists in the Park during the past few years, it seems remarkable that we all avoided injury from the many bear we encountered during the three summers. Although we walked through the remote timbered areas and slept in tents or out in the open all summer long for three seasons, we were lucky enough to avoid serious injury. It was due largely to our diplomacy when meeting bear and giving them the right of way if they insisted.

Many instances did occur, however, when a situation was tense for a few moments. Some of those situations alone would form a basis for a pretty good story! Such as the time a silver tip grizzly kept the packers up in a tree all night long when they camped overnight along an isolated trail in the back country, or the time I pulled all the lower limbs off a tree trying to get up out of reach of an old buffalo bull that was chasing our dog. That was while Jack Morris, my flagman, was already high up in the tree, looking down on me! Looking back over the years at those times then, they now appear comical, but

at the moment they were deadly serious.

For those geographic minded park visitors wishing to see or visit some of the peaks and other features described herein, it is pointed out that Eagle Peak may be seen from the highway at a point between Fishing Bridge and the Lake Lodge. It is the pyramid-shaped peak standing alone in the distant haze about 25 miles away. Bearing about south 47° and 30 minutes east. President Grant Peak should be in view from the same spot between Fishing Bridge and the Lake Lodge. It bears about north 80° East. A green sign, marking a point midway between the equator and the north pole was placed on the north side of the highway where the road to Cooke City crosses the Park line at the North East Entrance to the Park. The position of the above sign on the 45° of latitude was calculated from the published latitude of Meridian Peak.

Stone Cup Lake

Airborne visitors flying over the park may see two or three small lakes along the east boundary of the Park that are well hidden from foot visitors. One of which, at least, deserves honorable mention. Namely: Stone Cup Lake. It was so named by me because that is where I discovered an ancient stone cup or goblet. Stone Cup Lake is situated just outside the Park on the north side

of Jones Creek and 1/2 mile east of Jones Pass, about a mile southeast of Mount Chittenden. The story of that discovery is: We were camped on the shore of that lake and one evening after supper some of us were looking for arrowheads along the lake shore. I noticed a small, rounded section of stone exposed and it did not move when I kicked it with my boot. Curious, I dug it out of the ground, finding it to be a manufactured cup or goblet with a short stem made from solid rock (see picture). The artifact now rests in the Park Museum at Mamouth Hot Springs, under my name.

Canoe Lake

Another small lake, Canoe Lake, is situated squarely on the divide between the north fork of Miller Creek and Timber Creek. The Park boundary crosses Canoe Lake and it is situated about fifteen miles south of Cooke City. The lake is about 300 feet long and 50 feet wide at the widest place.

The day we set the northeast corner of Yellowstone National Park is one to be long remembered by those taking part. It sets near the top on the south slope of Meridian Peak at an elevation of 9,700 feet above sea level, and some 2,500 feet above the highway. The monument is a brass tablet with a 3 1/2 inch stem cemented in solid granite outcrop. Just as Red, the boy from Kansas City, got the hole drilled and the tablet seated, a heavy storm of rain and hail struck us. It was in the afternoon, so everyone

took off down the hill for camp. The road was 2,500 feet below and down a rocky slope. It was every fellow for himself in the rain. I had the transit to carry, but Ed Wilson, the boy from Missouri, volunteered to change off with me in carrying the transit down. A person had to be careful where he placed every foot on the loose rock on the hillside to keep from falling. It was hard enough when dry, but in cold rain and hail, with six inches of water racing down each little gully, where we had to walk, it made it doubly hard to find solid footing. Hands cold, with cold water running down one's back, it was not funny. It was with a great sigh of relief when we piled into the truck at the bottom of the hill. It was just one of those days!

Petrified Tree

The day I found the petrified ~~Sequoia~~ Sequoia stump, which is 11 feet and 9 inches in diameter, standing on a ridge at the head of Specimen Creek. From near there I enjoyed watching an old Big Horn Ram across the canyon climbing the almost perpendicular face of Big Horn Peak. The face of the peak he was working his way up was composed of a conglomerate or cement gravel. The ram was being followed by a lamb about 15 inches in height. The ram would walk along a shelf looking for a way to get up to the next shelf. Jump up and follow the next shelf to find a way on up the cliff. The lamb followed like a dog. When the ram had to jump a bad place, the lamb would

do likewise even though he might have to try several times to make it. The old sheep paid no attention to the poor lamb. If the sheep had to turn back along a shelf, he would walk right over the lamb like it was not there.

Shelf Lake

Another place of considerable interest is Shelf Lake, so named because it is situated near the top and on the southeast slope of the divide at the head of Specimen Creek in the northeast corner of the Park. The lower rim of the small lake is formed by a natural reef of rock thrown up around it, giving the lake the appearance of sitting on a shelf or hanging on the wall.

Hardships Encountered by Surveyors

An official report by the chief surveyor, Mr. Roland Reeves, who executed the original survey of the north boundary of the State of Wyoming in 1879 had this to say about the difficulty of running the line east over Electric Peak. "In crossing this barrier, our hardships were particularly severe. On the evening of September 6, 1879 quitting work on the line, our party started down the mountain to find camp. We divided into five small companies. The camp was not found until noon the next day. All hands having lain out without shelter or food since the evening of the 5th. I walked fully twenty miles trying to find a pack train and I think others traveled as far".

Survey Man Lost

A member of Mr. Roland Reeves' crew later became lost while surveying this line. His body was never found. This incident is reported in the field notes of the survey of the north boundary of Wyoming as follows: "From the 73rd mile eastward, the entire region is almost impassable. We lost one man (Mr. Hopkins) in the 75th mile and it is supposed he must have fallen down one of the numerous, horrible canyons which are notorious in that region. His horse and coat were found, but not himself. A vigorous search was made for him along the streams and along the lower level".

A word of caution about bear. In the 25 summer seasons spent in the remote areas of the Rocky Mountains of Montana and Wyoming, a few things have been learned about the habits of wild bear and how to avoid trouble with them. When walking through the timber or brush where bear may be encountered, one important thing to remember is to try to avoid surprising bear at close range. Most all bear, even the notorious grizzly, will move out of the way to avoid an encountering if they know in advance that a person is approaching. There are exceptions, of course. If they have food or smell it, they may not want to leave the spot, or if they have cubs up a tree, afraid to come down. Occasionally, an old cross grizzly will not want to leave his regular trail. In such cases, it is best to give

him the right of way.

It is wise to deliberately make some noise as you proceed through timber or brush, by breaking off some dead branches, shaking the brush, coughing or clearing your throat, or even whistle a little. Anything to warn them of your approach. That gives them an opportunity to save face or get their cubs out of the way of possible trouble or danger. If you do find yourself between a bear and its cubs, get out of the way fast, provided you know which way to go.

If camping out, one should avoid rolling out his bed near where folks have been picnicing or left food scraps, food wrappings, or the smell of food on the ground. Above all, do not roll your bed out on a dining table, even if it is a nice smooth place. A dog is more likely to attract a bear than to scare it away. Of course, no one should offer food to a bear from a car or at any other time, for that matter. If you hold a cooky in your hand, the bear may be afraid that you will jerk it away and not let him have it and may grab your whole hand or arm to be sure you are not fooling him. He has probably been fooled that way before.

It is also best to give a bull or cow moose a wide berth. They sometimes attack without any apparent reason. The grizzly bear should not be eliminated, just give him his civil rights.