CHAPTER ELEVEN

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THE BIG SKY COUNTRY

INTRODUCTION

Montana has the well-deserved name of "The Big Sky Country" to which anyone crossing that beautiful state will quickly concede to. The state is big, being only second to Texas in the lower 48. It contains a vast amount of prairie or rolling plains east of the Rocky Mountains through which several smaller mountain ranges seem to have punched their way skyward. Most, I believe, are volcanic in nature and thus contain a certain symmetry which blends in with the otherwise undulating surroundings. As one tops any rise within this setting, he is treated to a glorious view that seems to go on forever with the sky providing a covering as far as one can see. Truly the sky appears enormous. This is due in large measure to the clear atmosphere so common in the west as well as the rolling, treeless landscape.

The wheat fields, in much of Montana, provide a golden carpet in mid-summer that contrasts beautifully with nature's light blue ceiling stretching from horizon to horizon. Such fields are intermingled in places with a green landscape most of the summer because of the generous amount of rain, which falls in the northern Rockies. In my mind, Montana must have provided much of the inspiration to Katherine Lee Bates as she composed the text to "America the Beautiful". It is one of my favorite hymns and always seems to stir my soul. Yes Montana, in my mind, is not only the "Big Sky Country" but also the "State of Matchless Scenic Beauty". Such beauty varies from that which I have just tried to describe through serene glacial lakes and on to beautiful mountain vistas as seen from the "Going to the Sun" highway and other points in the western part of the state. Yes, Montana may well be my favorite state in terms of natural beauty.

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MOVING TO BILLINGS

Esther was excited with the news of my promotion, not only because of my recognition, but also because she anticipated a nicer community with readily available doctors and dentists. With a growing family such benefits were of prime importance to her. She was even more tickled when I announced we would have to make a preliminary trip to Billings to find housing before making the move. That meant she could be in on the decisions and we would have a place selected before packing our household furnishings. You may remember that such was not the case when moving from Texas to Wyoming.

HOUSE HUNTING

We took a week in June of 1959, as I remember, to drive to Billings, a distance of roughly 325 miles, to find housing. We took the girls with us, of course and stayed in a motel north of the city center just below the airport. Billings, at that time, was a nice sized city of about 70,000 people. It was much like Boise, the town I grew up in, being located in the valley of the Yellowstone River north and east of the park. We perused the want ads for rentals with little luck. I believe we had pretty well exhausted those leads by the end of the first day. We went back to the motel rather dejected and as we talked about our next move, I had a flash of inspiration. Why not place an ad ourselves, stating our desires, as well as our qualifications for a rental. I figured there might be landlords out there who were selective in who they would rent to and I knew our track record was better than most. I placed a want ad in the Billings paper the next morning before

continuing our search for family quarters. It read something like this:

Wanted: A three-bedroom rental house for family of four in a pleasant neighborhood, which requires better than average care and maintenance. Desired price range from $125 to $150 per month. Call ###-####. It made the evening addition and by the next day we began getting phone calls. We probably got half a dozen responses, which sounded interesting and spent the next day sorting them out.

AN UNUSUAL OFFER

One gentleman called and described to me what sounded like a beautiful home, which he would rent for $170. There was one catch, however, and that was that they would live in the basement giving us the three bedroom main floor. I expressed my reservations regarding the arrangement but he was very insistent that we at least look at the house to see if it wouldn't fit our needs. I agreed and we packed up the girls and headed out to a location about a half-mile from town. As we drove up, we found a nicely maintained ranch style home in a pleasant neighborhood. We rang the doorbell and a lady in her middle 40's answered. I introduced myself and told her we had come to look at the house. She seemed confused and said we must have the wrong house. I asked if this was the Johnson residence, which she verified as being correct. I then explained that Mr. Johnson had called and said he was going to rent the upstairs, which we were to look at. He and his family would then live in the basement. She responded, "Well, I suppose he's decided to put us in the basement. He never tells me what he's going to do next. I suppose you can come in then and look at the upstairs." Almost simultaneously, Esther and I said we wouldn't bother her and would look elsewhere. We both understood we would probably be moving into a hornet's nest and wanted no part of such a situation. The lady, however, became almost conciliatory and insisted we come in and at least look at the house. Esther and I looked at each other, shrugged our shoulders, and began the tour with the girls in tow. It was a lovely home but we could both feel the agitation of this less than happy lady. She was apparently trying to recover from her spouse's spontaneous decision, one, which she wasn't privy to and with which she obviously didn't agree. As a result, we almost ran through the house looking quickly in each room and saying how nice it was but having already rejected any thought of even considering it. As we got in the car, Esther said, "I could just see me living in her house with her downstairs, mad as a wet hen. I'd be in a constant turmoil". I agreed and we drove away laughing and shaking our heads at what we had just experienced. Needless to say, when the husband called back, I told him it was more than we could really afford. He offered to come down to $150 and I had to do some more back peddling. If I accepted, Esther would be in the same frame of mind as his wife. I then said it simply wouldn't meet our needs rather than explaining to him what a creep I thought he was.

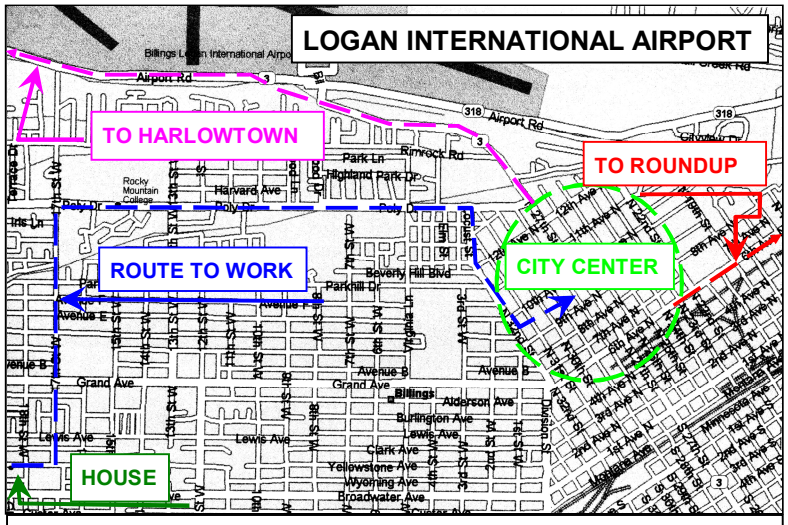

Figure 11-1 A map of Billings, Montana illustrating the location of our house relative to the city center.

SELECTING A HOUSE

The next day we received another offer to look at a house on West Yellowstone Avenue. Having toured that area, we at least knew it was a desirable neighborhood. As we pulled up in front of the house, the exterior, as well as the surrounding neighborhood, looked ideal for our purposes. It was a three-bedroom ranch style with a full but unfinished basement. At least we wouldn't have to worry about our landlord living in the basement. Esther was ecstatic, because it fit our needs almost to a "T" and it fit our budget of $150 per month. We would have to have natural gas piped to the kitchen for the stove we would be bringing along but that seemed to be the only negative in the equation.

Naturally, we took the house immediately and went back to the motel quite pleased with our selves. Though house hunting had been gloomy from the want ads, my little experiment had worked beyond our wildest dreams.

The location of our house is illustrated on the map of figure 11-1. Things have definitely changed a little. Though I can't remember the city layout very well after some 40 plus years, I do remember my general route to work as illustrated. This means that Grand and Broadwater Avenues did not go completely through as now shown. Even with my limited mental capacity, I wouldn't have taken the route shown but a faster, less gas consuming route on one of them. My kids will verify that I'm not such a spendthrift. Anyhow, that is hardly pertinent to my story, so let's move on.

MAKING THE MOVE

We headed back to Rock Springs the next day after I reported my situation to the division manager, Chuck Evans. We were able to obtain a local mover in Rock Springs right away and soon had things loaded. They had already given us a little goodbye party, so we simply made the rounds again, shaking hands and were on our way. As you can see from the map, we traveled north to Farson and then over South Pass to Lander where we entered the Wind River Indian Reservation. From there we went through Riverton and Shoshoni at which point we turned north to Thermopiles and wound along the Wind River in a remarkable canyon.

This particular basin is called the Wind River Basin and is so designated figure 10-4 of the last chapter. It is separated from the Bighorn Basin just to the north by a sharp anticline and narrow mountain range. The Wind River has cut a deep canyon through the mountain as it was being formed and rocks are exposed in the walls spanning time from the pre-Cambrian era to the Cretaceous. There are intrusive granites as well as limestones, dolomites and red rocks of the Triassic and Jurassic. It provides quite a geology lesson with the signs describing the formations mounted along the highway. The Wyoming Geological Association had placed them there. As we cleared the north side of the anticline, we arrived in Thermopiles, the city known for its hot springs. In fact, the springs are advertised as the largest in the world. Of course, they have a couple of natural hot water swimming pools to go along with them, one of which we would eventually enjoy from time to time on family and father-son outings of later years when we lived in Casper.

From Thermopiles, we traveled up U.S. 20 on the east side of the Big Horn Basin to Lovell and into Montana. This particular basin has many oil fields, particularly on the north side near Lovell. Elk Basin field (near Lovell) is an old field,

Figure 11-2 A map illustrating the route taken on our move Billings, Montana.

producing from a formation known as the Tensleep. It is the geologic equivalent of the Weber sandstone, a major producing horizon in Rangely field of western Colorado, as well as of the sandstone in southwest Utah, which forms the beautiful cliffs of Zion National Park. I believe it is Jurassic in age and, as you can see, covers a vast area in the western United States. Geologists tell us it is aeolian in nature or wind-blown, i.e. the area was one of massive sand dunes and probably made up a desert

comparable to the mighty Sahara, though I doubt that camels trudged therein.

We left the Big Horn Basin at approximately the Montana line and traveled north to Laurel and

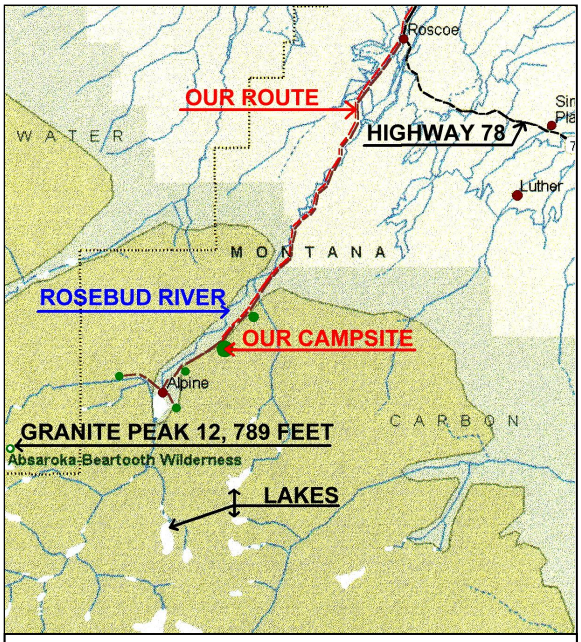

Figure 11-3 Map of our Rosebud river camping spot in the Absaroka Wilderness.

then east to Billings. Soon we were back in that same motel waiting for our furniture. I went into

Figure 11-4 Celeste examining her big catch near our Rosebud camp site.

the office the next day and got into the swing of things while Esther stayed with the girls. I don't remember the wait for our furniture being particularly long but I was able to have the necessary plumbing installed for our gas stove before it arrived. Consequently, we moved right in with no problems and began to familiarize ourselves with the new neighborhood. We had a little shopping center to the south on Broadwater Avenue, which was well within walking distance for Esther. Of course, my new job was less demanding in terms of hours and I was usually home in the evenings as well as weekends.

FAMILY SUMMER OUTINGS

In spite of the move, we were able to get a couple of camping trips in during that first summer of 1959 as well as a later summer vacation to Boise and Glenns Ferry. There was some really beautiful country just to the south of Billings in the edge of the Absaroka Wilderness and also to the west in the continental divide area. All of this was new to me. The Absaroka area is very rugged and is filled with small lakes and snowfields or glaciers. Some of these are illustrated on the map in figure 11-3 which pinpoints our camping area. That has now been over forty years ago but I wouldn't be surprised if it was just as pristine and beautiful now. I know that back packing and other types of recreation have multiplied but it's limited in the Absaroka.

CAMPING ON THE ROSEBUD

Our first trip out that summer was along the Rosebud River south of the little town of Roscoe, which lies southwest of Billings on the edge of the Absaroka wilderness area. We spent a couple of weekends in that area just north of Alpine along the Rosebud. Esther really enjoyed that particular camping area even though we had to make do with only a tent for shelter. To the south the Absaroka Range of the Rockies provided a perfect backdrop with various rugged peaks, including Granite Peak, the highest peak in Montana at 12,789 feet, silhouetted against the evening sky. There were few, if any, bugs to contend with and I was able to catch sufficient fish to provide the meat for the evening meals. In fact, Esther even tried her hand at fishing and actually waded out into the Rosebud in her jeans to fish a particularly good hole. She managed to catch a few small ones, which tickled her pink. She wouldn't bait the hook or take the fish off that she caught but that didn't seem to lessen her excitement when one of those little fellows grabbed her hook and line. We were able to get pictures of Celeste and Valerie with their fish (figures 11-4 & 11-5) but those with Esther seem to be misplaced. Those

were truly pleasant family days as well as outings, which bring back many fond memories.

FOLLOWING THE LEWIS & CLARK TRAIL

We hadn't much more than arrived in Billings before my annual summer vacation came due. Even though I was just getting acquainted in my new job, they let me take a couple of weeks off. After all, unless you are a skier, that's the only decent time of year to vacation in the northern Rockies. Anyhow we, or maybe I should say I, decided to explore a little of western Montana while en route to Boise to visit family. Esther even seemed to agree with the idea, always being game to camp out for a few days. She seemed to trust my judgment when it came to traveling routes and camping, poor girl. That is, she did until I decided to trace Lewis and Clarks' route into Idaho on this trip.

The first day we headed west, passed Bozeman and took a sharp left at Belgrade up the Gallatin River to find a camping spot. See figure 11-6 to get yourself oriented. All went well and we spent the night along the upper Gallatin in a campground. Little did we realize a major earthquake would take place at Hebgen Reservoir, a few miles to the south, about a month later. Without such revelation and with the rather long and strenuous day, we slept like bears in winter hibernation. The next morning we broke camp and headed south to intersect US 20 in Idaho. At that point we could have taken 20 on down to Idaho Falls but having decided to camp out a few more days, I was in the mood to explore. Consequently, as we crossed over Targhee pass and dropped down to Henry Reservoir, I suggested we take some less traveled roads and spend another couple of nights camping before heading into Boise. Once again, Esther agreed, having this blind faith in my traveling decisions. We headed west from Henry Lake along a dirt road leading to Monida, Montana. I expected some beautiful scenery along the way but was rather disappointed with the low hills and rather treeless landscape. The road was good, however, and soon we arrived in Monida, a booming metropolis of maybe 20 people. From there we headed towards Dillon on Montana 41, I guess, because I-15 didn't exist in those days. I planned to cross Lemhi Pass, drop down on to the Salmon River, take Idaho 28 to Salmon and then grab US 93 for Stanley.

Figure 11-5 Valerie examining her prize catch of the day on the Rosebud River.

From there I was familiar with the roads through Bear Valley to Boise. We made good time and cut left to Grant at what is now Clark Canyon Dam. There, the road became strictly one-way but the topography wasn't that rugged and we met no cars. About 1:00 PM we arrived at the

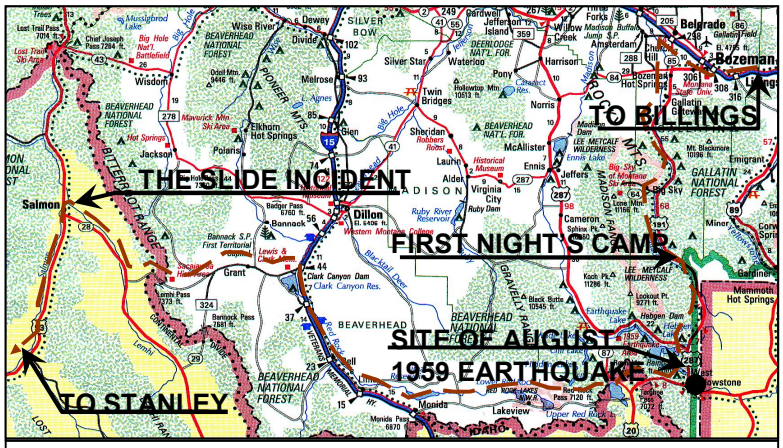

Figure 11-6 A partial map of our Louis and Clark escapade as we headed to Boise for vacation in July 1959.

Sacagawea historical site and stopped to eat lunch and relax. At last we had gotten back into an area with trees even though the topography still had a very gentle slope to it. We walked around the site reading the various signs relating to Sacagawea, Lewis and Clark and generally enjoyed ourselves. There was a little brook flowing through the site, which was labeled "Headwaters of the Missouri River". I thought that was neat and had Esther take my picture with one foot on either side to prove I had once straddled the great Missouri. Unfortunately, the picture doesn't seem to be among those I have of Valerie's and Celeste's.

About 2:00 PM everyone climbed in the old Ford and we headed over Lemhi Pass. All was well until we began our descent to the Salmon. There the topography became steeper and the road was cut into the hillside with a steep incline on the driver's side of the car. The road was wide enough, though strictly one way, but we hadn't dropped more than a half-mile when we came to a talus (rock debris) slide. It covered the road for about a hundred yards inclining the roadbed crossways to the approximate angle of the hillside. I've tried to illustrate this in figure 11-7. You may need to fire up your imagination a little to visualize the general topography and slide but I never claimed any skill as an artist anyway. Realizing that you, my posterity, have little appreciation for art (ya got my genes, ya know), I labeled some objects in the drawing to help you along. I know you can read or ya couldn't have gotten this far. Now, let's get on with the story. I could see the road on the other side but there was only loose rock on the hillside between the two points. I thought, "I'll bet a road crew hasn't been along here since Lewis and Clark passed this way. They probably lodged a complaint with the state themselves." Well, if we went back, it meant backing up to the top of the hill, turning around and finding another route to Salmon. That would probably cost us a day of vacation. After shutting the car off, I walked out on the slide clear to the other side checking its stability. When I got back, I told Esther I thought it was safe to drive across if I took it slow and easy. Her faith in my judgment seemed to evaporate at that point. She said, "Not with me and the girls, you aren't. You do what you think is best but we are walking across." They climbed out and I slowly moved the car out on the slide. I had to go slightly down hill to intersect the road on the other side. I didn't want to do anything that might start the talus (rocks) moving down the slope. Consequently I, more or less, allowed the car to idle across the slide. After a few rather tense minutes I was on the road again, stopped and waved to Esther to bring the kids across. She did so and soon we were back in the car and on our way towards Salmon. We met no other problems including cars on that narrow road. The talus slide explained the lack of cars, as no one in their right mind would travel it, had they known of its presence.

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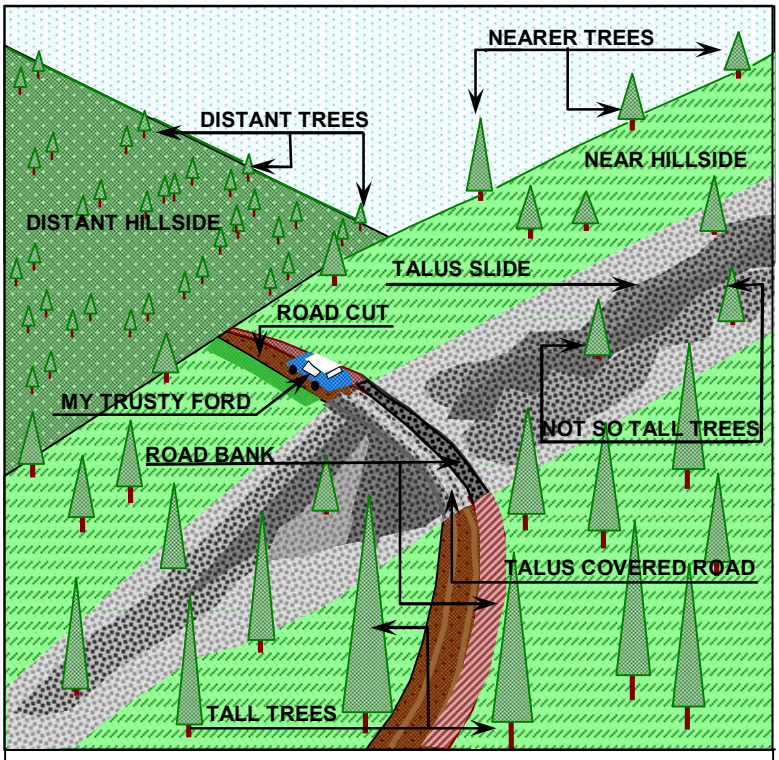

Figure 11-7 A bird's eye view of the hillside greeting us that summer afternoon at Lemhi Pass along the trail Lewis and Clark followed in their explorations.

The rest of the trip was anticlimactic compared to our Lemhi lemon and we sailed on into Boise with no trouble. Needless to say, we stuck to

the major roadways coming back to Billings. That pleased Esther since she had let me know at Lemhi Pass that, "she was no Sacagawea". She would suffer a couple of nights of camping for the good of the family but she wasn't about to charade as a mountain goat.

Well, that about covers our escapades the summer of 1959. After arriving home we heard of but didn't feel the massive earthquake at Hebgen Reservoir, which registered 7.1 on the Richter scale. We were told they felt it in Boise, which was more distant than Billings. I guess some people did in Billings but we must have been involved in some other earth shaking activities.

A JUNE TRIP TO YELLOWSTONE PARK

Mom came to visit us early in 1960. I don't remember the reason for the timing but it might have been my transfer soon thereafter to Cutbank, Montana. In any case, the weather in Billings was beautiful and we decided to make a weekend foray through Yellowstone Park. It would fit in nicely in two days and we could spend Saturday night at the park. I called ahead for reservations at the Lodge right next to the falls and obtained a cabin, which could sleep six. We packed up Friday night and were ready for an early start on Saturday. Figure 11-8 outlines our anticipated route and defines a few stops.

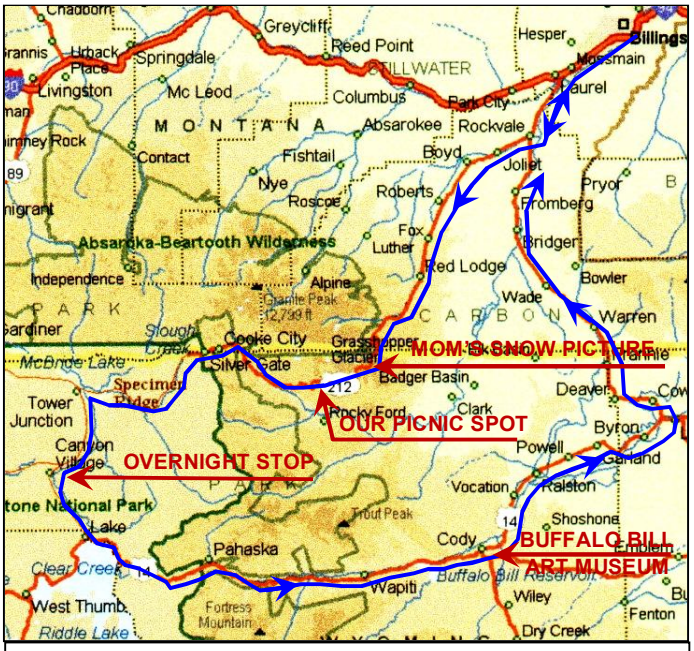

Figure 11-8 A map of our route in June of 1960 with mom and our overnight stop at Canyon Village.

MOM PROVES HER SPORTSMANSHIP

The girls were excited about the trip and were up early urging the rest of us to get up too. After a good breakfast, we headed south to Red Lodge, Montana, which lies at the foot of Bear Tooth Pass in the Absaroka Range. Red Lodge is situated at an elevation of maybe 5000 feet, somewhat higher than Billings but lower than much of Wyoming. The whole state of Montana is generally lower than is Wyoming even though the relief from plain to mountain peak is just as dramatic, if not more so. We stopped briefly in Red Lodge to look around. In those days there was no ski resort but the little town still appealed to tourists. We were on our way up over Bear Tooth Pass before lunch and, in fact, stopped for a picnic a little later. The north side of the pass, known as the Silver Gate entrance to the park, is very steep. The switchbacks are numerous and the road rises to an elevation of almost 11,000 feet before dropping off somewhat into the park. When we reached the top, there was a lot of snow still on the ground even though the road was dry and the day was warm for June at that elevation. The sign marking the top read 10, 947 feet and the view was magnificent. We, of course, stopped and walked around a little, resting our buns and limbering up our legs. I said, "Mom, take your shoes off and stand by that elevation sign so we can take your picture. It won't take but a minute and you can warm your feet back up in the car." Well, the girls chimed in with, "Yes grandma, yes. Please do it." Of course mom couldn't say no to them and she was always a good sport, so she doffed her shoes and walked gingerly through the snow over to the sign. Besides the snow, there were rocks of various sizes underneath. The kids clapped their hands and laughed. They loved seeing grandma barefoot in the snow, the scene of figure 11-9. They thought she was something else. After snapping a couple of pictures she climbed in the car and rubbed her feet to warm them as we headed for the center of the park.

"Yes grandma, yes. Please do it." Of course mom couldn't say no to them and she was always a good sport, so she doffed her shoes and walked gingerly through the snow over to the sign.

JUNE IS KIND OF EARLY IN YELLOWSTONE

After leaving the summit we continued on towards Cook City and found a nice place to eat

lunch. It was still kind of chilly at that elevation and time of year, especially in the shade. Afterwards, we continued on to Tower Junction and took a short side trip to see the petrified tree. From there it was south over Dunraven Pass to Canyon Village. There we checked in and found our little cabin sitting among a few snowdrifts still marking the terrain. In that day, the cabins were kind of rustic, to say the least, but they did have electric lights and, I believe, an indoor john but no shower. Thus, they were definitely a step up when compared to my summer facilities with the good old U.S. forest service but they weren't designed for long stays.

It turned quite chilly that evening and the wood burning cook stove provided was more than welcome. Of course, I was at home with such a device, it being much like those in Bear Valley, and volunteered to be the chef. I put together rather standard Bear Valley fare as I remember, which required the skills of preparing and frying potatoes, heating up some green beans, frying some steak and boiling water for coffee. We even had a little dessert to top it all off. In any case, everyone seemed to appreciate my efforts and soon we were filling our tummies to ease the hunger pangs that began earlier in the day. By then it was getting dark and the girls played around in the cabin while mom, Esther and I discussed the day's events and plans for morning. We still had some things to see and only a day to accomplish them.

Figure 11-9 Mother barefoot in the snow at the top of Bear Tooth Pass in 1960.

The next morning, I was up early and at my best preparing breakfast on the wood stove, again, Bear Valley style. Once the cabin was warm, the girls were out bouncing around like the two bear cubs we had seen the year before in the Park. Everyone had an appetite fueled by the chilly mountain air and all were satisfied with as many pancakes, eggs and sausage patties as they wanted. We even had a little orange juice along with our coffee while the girls drank milk. I could cook a mean pancake with such equipment as was provided and my boiled coffee was right up there with the elixirs of the gods, if I do say so. Dregs were settled after steeping with a touch of cold water and the result was a nice smooth dreg free brew with a taste, which would rival that of any coffee served in New York City's Waldorf-Astoria. It gave warmth to the innards and satisfaction to the soul for all who were hooked with a craving for the balm of such caffeinated fluids. It just occurred to me that I can rightly claim, "In all my days on the trail and since, I have yet to burn a pot of boiled coffee".

It gave warmth to the innards and satisfaction to the soul for all who might be hooked with a craving for the balm of such caffeinated fluids.

With breakfast finished, I packed up the gear while Esther dressed the girls. We then took a little walk over to the river and photographed the falls, which seemed to be pouring into a fog shrouded crevasse. Parts of the river were still visible, particularly downstream. It was beautiful but I have yet to see a photograph, which could reproduce the magical effect of the wonders of Mother Nature. Even so, one's soul can absorb only so much of such beauty before tiring. Thus, we soon found ourselves ready to move on and headed for my old blue and white car.

After checking out, we headed for the east gate of the park to follow the north fork of the Shoshoni River into Cody, Wyoming. It was a beautiful, though rather slow, trip because of the curves and narrow road. As we neared the Buffalo Bill Reservoir just west of Cody, there were a couple of cars stopped in a parking area along the road. We pulled in to stretch and rest a while and soon realized people were looking at mountain goats walking the cliffs along the other side of the river. They seemed to walk the narrowest of ledges, moving quickly from place to place without any hint of slipping. The others had binoculars but we had to be satisfied with

the unaided eye. Talk about being confident and surefooted; those babies were without peer and seemed right at home on the precipice.

From there it was on to Cody for lunch and a tour of the new Buffalo Bill art museum. It was full of paintings by Remington and, as I remember, a few by Russell. I've always liked their western art and particularly that of Russell. His work is so life like and real in terms of subject as well as ability. I certainly would have such a collection, if I had the paintings to hang, if I had a house large enough to hang them in, if I were a Bill Gates, if I were Chairman of the Board for Microsoft and had his money.

By the time we pulled back in front of our old homestead that evening, it was dark. It had been a long day. All of us were beat and glad to be home though we had had a good time. Well, let's get on to another subject.

SALES EXPERIENCES IN BILLINGS

As I indicated earlier, this move launched me in a totally new and even foreign direction. Foreign, that is, to my natural introverted nature and interest in the technical aspects of geophysics. I accepted the position because of my realization that such experiences were necessary to the growth and development of any aspiring Schlumberger field engineer. I rationalized my own feelings for the experience with the knowledge that I would be explaining technical services and interpreting the same for our clients. That part I could enjoy. It was the small talk and the need to make friends with people of status in the oil companies that bothered me the most. Being an optimist I also expected to acquire a certain sales proficiency and even enjoyment, in time, for such work. Consequently, I immersed myself in my new position with determination and energy with even a little enthusiasm.

Upon my arrival I was assigned an office, which, at the time, was empty. No desk, chair or filing cabinet was in sight. I expressed my concern to my new boss, George Ellis, the Division Sales Manager, who took that teaching opportunity to drive home a major point. He told me not to worry about furniture because I really didn't need any. My job was on the street acquiring business for Schlumberger, i.e. visiting offices and seeing clients. I realized he was spoofing but I also knew the serious expectations he had of me. I was quickly out and about after setting up my days' work each morning, even though the furniture arrived that week.

DAILY SALES ACTIVITIES IN BILLINGS

My duties consisted primarily of tracking new drilling locations in areas of northern Wyoming and Montana, making early sales contacts in Billings to secure the work with people in charge of acquiring wire line services and to make field or rig contacts in central Montana. Annually, I would participate in client logging seminars. A typical day consisted of listing and prioritizing my day's contacts upon arrival at the office. That meant reviewing the new locations staked in the weekly oil and gas report as well as requests from other Schlumberger offices relative to locations staked in their respective areas. I would then prioritize the same and set up a luncheon engagement with one or more people in a given company (generally one doing regular business in our area). With this completed, I would begin making my day's sales contacts.

With some companies I had to call ahead for appointments and with others I might just drop in. Such a visit might include a follow up on recent wells to answer any questions and express appreciation for their business, as well as make requests for business on any new locations. Generally, I found myself welcome. I might be asked to interpret one or more horizons on a given log by geologist working on a play to see if there was any hint of a show. I might be asked for a recommendation on log suites for anticipated locations. That meant they respected our opinion and we would undoubtedly get the future work. We probably

Figure 11-10 A map illustrating the area of my field sales efforts in the year 1959 – 1960.

did 70% of all open-hole logging in the northern Rockies but the competition was constantly trying to make inroads, as one might expect. Thus, we saw every client with an office in our area, ours as well as those favoring competitors, in our effort to carve out even a larger share of the available market.

The latter group was the most difficult for me. Those prospective clients were often on the cool side and the preliminary small talk was difficult for me to handle. They knew why I was there and I knew I would have to ask for any potential business before leaving, realizing, in all likelihood, that I would be refused. Even though I would prepare myself with reasons why they should use our services, I never felt a lot of confidence because price was their primary motivation. We definitely charged more and were likewise more respected, by almost all clients, for field service, as well as technical answers. That didn't, however, change their need to minimize costs and they did just that where the logging operations were rather routine or when only stock answers were needed. Of course, the pressure was on me and other sales engineers to get all the work possible regardless, while keeping a daily log of our efforts. Not seeing a potential client because the odds weren't in our favor was hardly an acceptable answer. Thus, I carried out such contacts on a regular basis but anguished over each until it was complete. Such work was not my forte. It might have been easier had my personality been more outgoing and had I approached clients in a more positive manner. Even so, I would say my sales efforts were good (I worked hard) but hardly outstanding because of that lack of forte.

Such breaks would be the equivalent of the wells drilled to the Tyler giving glimpses of the ancient riverbed and its surrounding topography.

FIELD OFFICE AND RIG CONTACTS

I enjoyed contacts with field offices and working rigs because they always welcomed me and seemed to appreciate my visit. I didn't come away with the feeling that they had only tolerated my presence, as was sometimes the case in Billings where the various service company sale representatives swarmed like flies. They appreciated a luncheon date and usually had some need of interpretation or other questions. In short, I felt needed and my visit was more than simply drumming up business, though I was quite aware of any such need that was apt to occur in the near future.

I have included a map of my regular forays out of Billings to provide the necessary orientation for you yunguns in figure 11-10. The green dotted arrow represents my usual route while visiting field offices and the blue my visits to working rigs. I would typically stop by a Texaco production office in Roundup and then go on up to Lewistown to visit with Texaco people in their exploration group. We got all their exploratory work out of Lewistown but little of their development work out of the Roundup office. Fortunately, for me, there was little development work that year by the latter group. Even so, I made friendly visits from time to time while passing through to Lewistown or to the Melstone area to the east. Occasionally, such a visit would include lunch in an effort to maintain a decent relationship.

I particularly enjoyed the trip to Lewistown because of the associated scenery and the impending low-pressure visit, which usually included lunch. As one left Billings headed up to Klein, an old coal-mining town, he would pass through some low hills with scattered timber known as the Bear Mountains, according to my recollection. North of Roundup the country is primarily rolling grassy hills with numerous wheat fields. To the north and west the Snowy Mountains rise up from grasslands and are visible all the way from Roundup. They form a beautiful backdrop for Lewistown, which is situated on their northern slope. Thus, the drive was pleasant, giving me time to muse over my various scheduled and unscheduled contacts for the week. Additionally, my expected day's visit would be pleasant with scheduled contacts.

THE TYLER PLAY

The production in the Melstone area was from a sand formation called the Tyler, which was probably upper Jurassic in age. The old field at Sumatra and Cat Creek nearby might well have been producing from the same horizon but there was no drilling activity in either of those areas during my time. The Tyler sands were the remnants of an ancient buried river bed gouged out of a shale landscape which now generally lay in the bowels of mother earth at depths of 5000 feet plus. One might compare it to the Missouri these days with its associated sandbars. From such a comparison one can visualize the narrow curving sand bodies lying

along the curves in the river bank, which made up the multiple reservoirs of the area.

A successful drilling venture materialized when such a sand body was penetrated across a structural high. Many wells were quite prolific and gave the operator a generous return on investment but it was just as likely no sand would appear at the anticipated depth. Thus, successful wells had to pay for the adjacent dusters (dry holes) and the operator necessarily judged his success in the area from return on his total investment. Predicting the course of such an ancient river was a geologic challenge requiring imagination and a deep understanding of the meandering nature of such streams with their typical depositional patterns and any structural modifications.

I had the pleasure of working with such a geologist by the name of Don Todd who shed a great deal of light on the geology of the area. Apparently, he had launched his own consulting business after spending some years with a major oil company. His success rate was better than any others that I was aware of in the area including ventures of Texaco and McAlester Fuel. His competition was primarily independents of varying size such as McAlester Fuel. Though he didn't share any geologic secrets, he would show me maps of the producing acreage and describe how the productive wells had followed the course of that winding river.

He likened it to trying to follow the Missouri today in a chopper, from an altitude of a mile or more, with an intervening dense cloud cover and only an occasional break to provide ground visibility. The breaks in the clouds would be the equivalent of the wells drilled to the Tyler giving glimpses of the ancient winding riverbed and its surrounding topography. Such a well might miss the riverbed completely or simply miss a significant bar within the streambed much as one's view from the chopper would reveal. From the data gathered in this and earlier wells, the geologist then had to predict the continuing course of the old riverbed and the well locations most likely to strike its associated sand bars.

In figure 11-11, I have illustrated a situation somewhat like that which occurred in central Montana in those days. To make the discussion a little more interesting, I have assumed three different oil operators have leases in this particular area as outlined by the light green, magenta and lavender rectangles and which we'll refer to as operators A, B and C. The wells they drill are numbered in sequence with their respective colors. Considering the play is for oil, the wells can be drilled on 40-acre spacings, which is 1/16 of a square mile. Thus a section of land, which is one mile square, can be divided into 16 locations a shown. Section 8, the center portion of the map is outlined by solid blue. The dashed lines break the section into 40-acre plots whose positions within the section are designated as, for example well #1 of operator B, the SE ¼ of the NW ¼ of section 8, township 15 north and latitude 27 west.

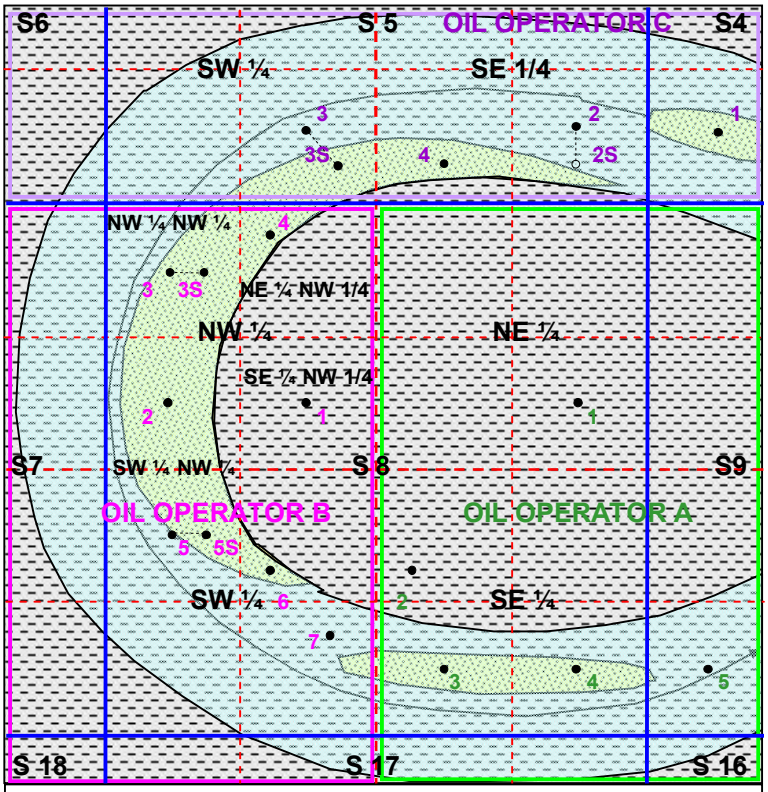

Figure 11-11 An illustration of a hypothetical oil field in Township 15 north and Latitude 27 west which is similar to the Tyler play in central Montana of 1959 1960.

We'll assume operator A drills his #1 well first and it comes up a duster. Soon operator C drills his #1 well and makes a marginal discovery in a small sand bar. It's questionable that such a well would pay for itself but it would provide valuable information. Operator B is encouraged by the discovery in spite of its marginal nature

and drills his #1 well which also turns out to be a duster. Being somewhat aggressive, however, and or confident of his geological information, he moves one location to the west and makes a significant discovery as well #2 in the SW ¼ of the NW ¼ of section 8. He immediately moves north 40 acres and strikes the edge of the bar. Based on stratigraphic information, he decides to sidetrack the well to the east and cuts a thicker section of the bar, which improves the well's performance. The stratigraphic information referred to pertains to the grain size of the sand and its cleanliness. You see, where current velocity is higher (near mid-stream) the grain size of the deposited sand is larger and it tends to be cleaner (less silt or shale) because at such velocities only the heavier grains are dropped. Thus the geologist concludes the well cut the bar on the mid-stream side and it (the bar) will curve to the northeast as it follows the shoreline of the old riverbed.

Meanwhile operator A sits tight to see what develops and operator C drills his #2 well one location west of his #1. Of course, it's a dry hole, much to his chagrin. As mentioned, operator B decides the sand bar is curving to the northeast and decides he has a shot in his next location to the east. However, feeling the best sand is in the northwest portion of the location he applies for permission to move the location nearer the lease line in the northwest corner. They approve the request and a small well is the result. Having cut the bar on the inside or shore side, the sand grain size is smaller and the sorting poorer, that is, it contains more shale. Though its performance will not match that of well 2 or 3S, it's still a decent well because it is draining part of a major sand bar.

By now operator B is defining the southern curve of the sand bar by drilling well #5. It barely strikes the edge of the sand bar and he sidetracks the well to the east 330 feet to establish decent production.

Meanwhile our operator C has drilled a dry hole in his #3 location. With the success of Operator B's well #4, however, he puts two and two together and decides to sidetrack the well to the southeast. His gamble is successful and he makes a decent well. By this time the northern curve of the sand body is quite well defined and operator C applies to the state to drill yet another well nearer the edge of his 40 acre tract to the east as his well #4. The forty-acre location for his well #4 would be in the SW ¼ of the SE ¼ of section 5, which lies just north of eight. Since the well's location is non-standard, its location might be something like 660 ft. from the east line and 330 ft. from the south line of the SW ¼ of the SE ¼ of section 5. The request is approved and results in a decent well as shown. Operator C might now decide to side track his well #2 to the south in an attempt to pick up the bar appearing in well #4 as illustrated by the empty circle. Of course he would have been disappointed but the idea does illustrate the gambling nature of those independent operators who seldom blink at even the steepest odds.

By now operator B is defining the southern curve of the sand bar by drilling well #5. It barely strikes the edge of the sand bar and he sidetracks the well to the east 330 feet to establish decent production. He then decides to place a well in the 40 acres adjacent to the east as well # 6 but realizing the nature of the bar, once again, applies for special permission to drill 330 feet from the west line and 330 feet from the south line of the NE ¼ of the SW ¼ of section 8 to improve his chances. Of course, it pays off and another small producing well is brought in. Being a gambler by nature, operator B decides to evaluate the 40 acres to the south of well 6 by drilling well 7 330 ft. from the N line and 330 ft. from the east line of the SE ¼ of the SW ¼ of section 8. It's a duster and only provides geologic information to improve control of the old river course.

Operator A now swings into action again by drilling well #2 in an off center location 330 ft. from the south line and 330 ft. from the west line of the NW ¼ of the SE ¼ of section 8. He is hoping to cash in on the major sand bar defined by operator B but he's out of luck because it either swung to the south or disappeared to the west. Not only does he miss the bar but he also misses the whole channel. In desperation he decides to evaluate the SW ¼ of the SE ¼ with well #3. He lucks out with a small well in what appears to be a new bar. With this encouragement he moves to the east one location with his well # 4 with a similar degree of success. Though his wells aren't great, he has defined the direction of the old river at these points, which will be valuable information for adjacent drilling. Of course, he has to try again on the adjacent 40 acres to the east and does so with well # 5. Of course, the picture now blurs because of this dry hole and future drilling will be strictly wildcatting.

What happens next would depend on more geologic imagination and available leases. Whoever had land to the east would try to follow the river. If the general trend of river flow were north to south, additional wells would be drilled in those directions trying to find another curve in the old meandering stream. Their locations would be controlled by some geologist's imagination and skill in picturing just what the lay of the land was back a few million years. All in all, I found such puzzles extremely interesting and enjoyed being involved.

NO TIPS ALLOWED

There were several different geologists doing well site work for the various companies involved in central Montana. I would visit with all available on my trips to the area and would rotate my lunch contacts so as to get better acquainted with each. For the larger independents such as McAlester Fuel, the well site geologists were about my age and we got along well. Smaller independents usually used consulting geologists or did the work themselves depending upon circumstances. These men were usually in their forties and had many years of geologic experience. Though I got along fine with them, geology and the well were about all we had in common. I had to struggle more in my conversation with them.

One day I invited one of the latter breeds to lunch, a geologist by the name of Joe Krebs. He was an old hand in the area and knew the local geology well. I anticipated a good geology lesson that day as well as a pleasant lunch. Usually we went to a little corner café at Melstone, the only choice in town. It was a bit of a greasy spoon but I wasn't aware of any other choices. Joe suggested we go west a bit to the little town of Musselshell. According to him they served a good steak along with other items typical of a farm menu. More important, it was quality food and definitely a considerable cut above that at Melstone. Of course, I quickly agreed and we sped off in that direction. The town laid just south of the railroad tracks along a dirt road about a quarter of a mile south of the highway. Though I was aware of its presence, I hadn't even realized it was a town because it consisted of about two or three buildings. We stopped in front of one, which was obviously a post office. Inside they also sold a few groceries and a few hardware items. Though there were no signs to direct a person, Joe took me back through the store to a big room in the back, which was set up as a restaurant. There we sat at a table and an old gentleman of maybe 60 came out of a side room. He asked if we wanted lunch or breakfast. Joe told him to bring the dinner menu, which was simply a list of available choices written in long hand with prices off to the side. We each ordered a T-bone steak with the usual trimmings along with coffee. We sat there talking for a half hour until the steaks arrived and then continued our conversation with the meal. The steaks were not only big but tender and cooked to perfection. The associated trimmings, including a salad, were just as good and reminded one of sitting down to a meal on the farm. When we were done, I was stuffed but still managed to choke down a scrumptious piece of homemade apple pie with a dipper of vanilla ice cream. I could do that in those days and never look back.

The whole process probably took an hour and a half after which I picked up the check scrawled on a piece of notebook paper, which was about 7 or 8 bucks and headed for the cash register. I also dropped a generous tip on the table because I was really impressed with everything. No sooner had I arrived at the register than the old man said, "Son, what was that you left on the table"? I quickly said, "A tip. The meal was really excellent". He retorted, "Sonny, you walk yourself right back there and pick that money up. If I'd of wanted more, I would have charged more". I could see he was dead serious and so I did as I was told. As we walked out of the building to the car Joe laughed and said, "That's just like old Bill. He knows what he expects in life and won't settle for anything more or less and as you can see, he doesn't want any gratuity". All I could do was shake my head in utter and complete disbelief. I have never before or since run across a waiter, fry cook or owner who wouldn't accept a tip. You must admit, the opposite is really the norm.

… The old man said, "Son, what was that you left on the table"? I quickly said, "A tip. The meal was really excellent". He retorted, "Sonny, you walk yourself right back there and pick that money up. If I'd of wanted more, I would have charged more".

EXPERIENCE CAN BE HELPFUL

On one trip to central Montana, I stopped by a rig drilling for McAlester Fuel and ran into a young geologist named Bill Robinson whom I had met in the Billings office some time earlier.

After a preliminary greeting he began to share a concern with me which obviously had him shook up. Before I get into the details, however, let me explain some typical oil field procedure.

It's quite common to take a conventional core of productive horizons and have them analyzed for reservoir information. This can be useful in initial completions and also in later water floods.

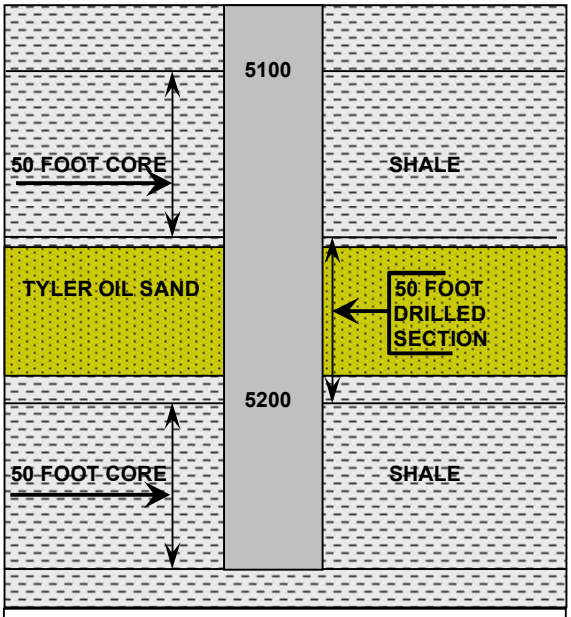

Figure 11-12 A drawing illustrating the elements of Bill's coring fiasco.

So it was with this McAlester well and he had been sent out to pick a coring point. This is done by carefully examining drill cuttings as the anticipated horizon is approached. From the nature of the samples a good geologist can predict within a few feet just when the horizon of interest will be cut with the bit. The object is to come as close to it as possible without actually penetrating it and then go in with a core barrel to obtain a core of the zone of interest. Coming out with the recovered core and returning to conventional drilling as soon as the zone of interest is cut, is also important. You see, coring takes longer than conventional drilling and has a significant cost in terms of rig time as well as that of the service company involved.

Bill was well aware of the principles involved and was really a good geologist but he had dropped the ball in this case. After analyzing samples carefully, he was convinced the bit was almost in the zone of interest and ordered the rig crew to go in with a core barrel. Being somewhat over anxious, I suppose, he had apparently ordered that move too soon. They cut fifty foot of core, came out and what a surprise. The core was all shale. Realizing his mistake, he then ordered the rig to go back in with a bit so he could check more samples. By the time the first samples got to the surface he found they were now cutting sand, the horizon of interest. Immediately he shut the rig down and had them go back in with a core barrel. They cut another fifty foot core and wouldn't you know it, once again it was all shale. He had obviously drilled the sand section and cored both above and below it.

You see, there is a time lag, depending on depth, between the time a given sample is cut and when it arrives at the surface. Consequently, the 5000 feet plus involved here allowed the bit to cut forty or fifty feet before the first returns came to the surface. He might have picked up the sand quicker had he observed the drill time log more closely because the sand drills somewhat slower per foot than does the shale. Anyhow, by then the zone of interest was completely penetrated. He had not only missed the coring point but he had wasted time and money cutting two shale cores. Figure 11-12 illustrates the situation. What a fiasco and now he had to call his boss with the news. I could do nothing more than wish him well and offer him sidewall cores as a poor substitute when we logged. The latter are not really a reliable substitute for a conventional core and particularly so in hard rock country. Thus, the suggestion did little to extract him from the debacle he was in. He did, however, survive the misfortune of that day and was still with McAlester the last I knew.

CENTRAL MONTANA MUD OR IS IT CRUD

The formation making up the ground surface in most of the Melstone area was clay, which, I believe was the geologic equivalent of the Hilliard formation I spoke of in Wyoming. It is Cretaceous in age being deposited sometime after the age of the dinosaurs. Having been visiting rigs in the area for a couple of months with no problem, I hadn't thought much about it until one rainy day. Though the rain had quit, the clay composition of the surface became quite evident, as I went out to visit a rig in the area. I headed north on a dirt road just east of the metropolis of Melstone, which I soon realized was kind of greasy. I soon found I had to be careful or the car would end up in the ditch alongside the road. After moving about 5 miles towards the rig site, I became aware of what was, seemingly, a loss in engine power and had

to gear down to maintain the same speed. Continuing along I soon pulled up at the rig location and stepped out of the car in front of the geologist's trailer. I then headed in to see if my contact was in. After about a half dozen steps I found my shoe soles had become about two inches thicker. I could hardly pick up my feet. Man the mud was sticky. I had to scrape my feet good before entering the trailer.

My friend, Joe, was inside and I made some remark about the mud. He countered with, "Yeah, and it sticks to your car tires the same way. It'll build up until the car will hardly move. That clay soaks up water like a sponge and it takes a while to dry out". I hadn't thought of that and mentioned how my car had acted coming in. He said, "Check your tires when you leave. You may want to knock the mud off. It can build up until the wheels are dragging inside the wheel wells and can even shut an individual down".

The accompanying inertia threw the pies into the air and, needless to say, they splattered against the dash and upholstery as they came to rest at various points around the front seat.

After visiting a while, I made my way back to the car and checked the wheels. Sure enough, they were covered with mud and appeared to be as large as the wells. My shoes were already good and muddy, so I looked around for something with which to knock the mud off the wheels. It wasn't easy because I had to kneel down to get up inside the wheel well. Even so, I thought I had better get the job done or I might get shut down before getting back to the highway. After about ten minutes, I had the worst of it off and tossed the stick in the trunk, just in case.

Heading back for the highway I experienced the same car performance but in reverse. By the time I got to the highway, I was in low gear just barely chugging along. As I turned on to the highway, I breathed a sigh of relief even though I could hardly make the right turn towards Melstone. Cranking the wheel as hard as I could, I managed to make a slow wide turn across the highway and soon had old blue headed west in the right direction. I felt like I was riding a tractor in a field as the car bumped along the highway gradually throwing off the clay re-treads that were stuck to the tire. By the time I made the couple of miles to Melstone things seemed rather normal again but I had left a trail of mud along highway 12 to the east. One might have thought the abominable snowman had passed this way if they didn't look too closely at the footprints on the road. I thought; what a mess and then vowed never to visit rigs in this area again so soon after a rain. I had learned a lesson, which even I wouldn't repeat.

THE CHERRY PIE INCIDENT

Our Cody, Wyoming location serviced the wells in the central Montana area. It was a three or four hour drive in a car to the wells and about six for the trucks. The engineer might well go ahead of the truck and grab some sleep while waiting, particularly during busy periods. This story involves such a situation.

A Schlumberger engineer by the name of Ed Englehardt was dispatched to central Montana one snowy winter day. Ed had taken off ahead of the truck, fully intending to go to the rig and grab some badly needed sleep before they arrived for the job and, had so instructed them. Now Ed loved cherry pie and when he stopped to gas up in Billings, he noticed a bakery truck parked at the same convenience store. He struck up a conversation with the driver and found he was willing to part with a half dozen excess cherry pies at a bargain price. Naturally he snapped them up and soon he was on his way to the well with those pies stacked rather loosely in the seat alongside him. He had visions of cherry pie being washed down with hot coffee dancing in his head as he moved north on highway 87 for Roundup, Montana. A recent snowstorm, however, had left the highway rather slick. Soon he found himself slowing down to properly negotiate the many curves associated with that two-lane road. In fact, he was moving almost at a crawl as he rounded one particularly sharp curve a ways south of Klein. Even so, the car slid off the highway and into the ditch along-side where it came to an abrupt halt. The accompanying inertia threw the pies into the air and, needless to say, they splattered against the dash and upholstery as they came to rest at various points around the front seat. There was no particular damage to the car, as best he could tell, other than the need to scour the interior. He was fine but had neither the tools nor the time to clean up the mess. After trying to get the car out of the ditch and back on the road for a while, he simply gave up. The ditch was simply too slick. Consequently, grabbing the one and only salvageable pie, he thumbed a ride with a passing motorist on into Roundup. Knowing there was only one way through

Roundup, hailing the truck would be easy enough as it came by and he could ride to and from the well. The car could stay in the ditch until the weather was better and they returned. The truck could then winch him out if necessary.

An hour or so later, the crew came by in the truck and, seeing his blue and white car in the ditch, stopped to give him a hand. When he didn't emerge, they looked inside and, much to their horror, it was smeared all over the inside with blood, or so they thought. They decided he had been taken to the hospital in Billings and returned there to begin making phone calls. First they called the hospital but he had not been admitted. Then they called the dispatcher in Cody. Fortunately, Ed had called in and described his predicament to him, as well as his plans to solve the whole mess. He hadn't mentioned the cherry pies and so the crew continued to worry about him as they drove back to Roundup to meet him at the spot he had designated to the dispatcher. Of course, he explained the whole thing to them once they arrived; describing how cherry pies had flown through the air leaving simulated blood splotches throughout the car's interior, giving the appearance of profuse bleeding. The once horrified operators now joined Ed in a hearty laugh as they made their way to the rig. Though they arrived late, the dispatcher had alerted the company man at the well of their difficulties and he expected them to be a little late. The cherry pie that was salvaged, served as a token of their good intentions, and was enjoyed by the geologist and the Schlumberger crew as the rig began pulling pipe.

OTHER SALES RELATED EXPERIENCES

Schlumberger required all engineers to become involved in the various professional societies related to the oil business. I had joined the Petroleum Section of the AIME (American Institute of Mining Engineers) while in Wharton, Texas even though there was little opportunity to attend the associated meetings. The same had been true in Rock Springs, Wyoming but now I was located in Billings where I could attend the normally scheduled monthly meetings. This I did on a regular basis, which gave me opportunity to mingle with petroleum engineers on a professional though non-business basis. I also joined the AAPG (American Association of Petroleum Geologists) while in Billings for similar purposes, which provided the desired association with petroleum geologists rather than petroleum engineers. They had regular monthly luncheons with a speaker, which I enjoyed. The topics were always related to various geologic phenomena of the northern Rockies. At one luncheon, a well-known consulting geologist by the name of Dr. Jack Kirby was the speaker. The following incident was related as he was introduced.

MIS-DIRECTED FEDERAL WELFARE

It seems that in April of 1949 Dr. Kirby was doing well site work as a consultant in the Powder River basin of Wyoming. That particular basin covers the entire extreme eastern end of Wyoming from Casper up into southern Montana. His job was, of course, to inspect the drill cuttings emerging from the well and logging the results on a typical strip log showing lithology as well as oil and gas shows.

A severe spring blizzard had been forecast for the area and Jack went into Casper and rented a motel room to wait it out. No one could be sure just how many days the rig would be isolated. The storm blew through and dropped a couple of feet of snow accompanied by the usual Wyoming winds. Drifts were prevalent and it took a couple of days for the state to open the various highways around Casper. Soon they were clear and Jack was notified that the rig was working again and decided he better get back.

Looking up, he saw two rather large objects exit the plane and in seconds they landed close by. It didn't take long to recognize them as bales of hay. Those boys in the plane took him for a stranded steer because of his longhaired coat.

He grabbed some groceries and headed for the rig, knowing that it wouldn't be easy to negotiate the road from the highway into the rig. The dirt county road leaving the highway was open, having been plowed that morning. He sailed along fine until he came to the road leading into the location. There was no sign of a plow on this road. Only the crews 4X4 had broken through the snow to the rig. It was only a few miles to the rig and he thought, with luck, he could make it in. As he topped a hill, he could see the rig off in the distance about a mile or two away but there; he came to a halt, hung up in drift. The 4X4's tracks through the drift were largely filled in and he was mired down. Though chained up, he could move neither forward or backward. Well, he thought, the rig isn't far. I can carry my microscope and walk to it. I'm

going to need that. I'll let the rig crew come back and dig my car out a little later.

He pulled a heavy coat out of the trunk, one of those Yale or Harvard type longhaired overcoats. Putting it on and pulling his hood down around his ears, he grabbed his microscope and headed out. Moving along the hilltop, he quickly realized it would be significantly shorter to walk cross-country to the rig rather than following the road. The going would be tough either way, struggling through or around drifts and wading in a foot or two of snow. So, he left the road and headed directly for the rig, which stood out clearly against the clear blue sky. It didn't appear to be more than a mile or so away. He was moving rather slowly but steadily towards the rig having made about half the distance. All at once he heard a plane approaching. Looking up, he identified it, as one from the air force, which had been described in the Casper paper. They were being used to drop hay to starving cattle marooned by the storm. Thinking no more about it he continued his struggle through the drifts separating him from the rig. Suddenly, he realized it had circled and was coming in low. Looking up, he saw two rather large objects exit the plane and in seconds they landed close by. It didn't take him long to recognize them as bales of hay. Those boys in the plane took him for a stranded steer. Of all things, his Yale coat had been taken for cowhide. They were not only benevolent but also accurate in their bombing run even though such misdirected federal welfare wasn't needed.

As he gave Bob his half dozen, I noticed he would quickly pass them by his nose. At first I hadn't paid too much attention but then he gave one a second whiff and tossed it away in a tub behind him.

AN AAPG CONFERENCE AND CUSTOMER SEMINARS

Along about February of 1960, the AAPG held their usual conference. It was a two-day affair, as I remember, and was held in the Northern Hotel about a block from our Billing's office. We not only attended such functions but Schlumberger also hosted a feed for all attendees. I still remember going through the serving line and selecting my choice of fare from a rather generous menu. Bob Kudrle and George Ellis were with me and, as we approached the seafood selection, they tried to convince me to try some raw oysters that were being offered. I had never tried one and wasn't sure I wanted too. They went on and on about how good they were when dipped in the special sauce provided. The idea of them being raw simply didn't appeal to me. However, with their continuing urging, I had relented and decided to take two. I was between Bob and George when we came to the waiter handing out the oysters. As he gave Bob his half dozen, I noticed he would quickly pass them by his nose. At first I hadn't paid too much attention but then he gave one a second whiff and tossed it away in a tub behind him. He obviously was sorting out bad ones from the ones being served. I saw the discard tub was about a third full and that did it. When it came my turn, I said, "No thanks" and went on by. Of course, I got ribbed through lunch but I wasn't about to try them. In fact I didn't eat any such slimy animals until I moved to Louisiana in 1975. I guess age had gotten to my brain by then and, in trying to adapt to an otherwise scrumptious cuisine, I began to eat a few. Even so, I wasn't impressed and had no trouble dropping the practice when I left that Cajun city.

Schlumberger conducted a couple of customer logging seminars in the northern Rockies in those days. They have already been described in chapter ten where I described my first such experience. Consequently, I won't belabor the subject here but only say that one was conducted in Billings and one in Casper. I was a little more involved now, helping set them up and being given two or three topics. They were good for me because, as I previously indicated, such experiences were not my forte. I was always nervous as a new father outside the delivery room and continued to utter a sigh of relief when they were finished. Even though confident with my subject material, I simply didn't like speaking before such large crowds of professionals. I suppose I needed such exposure more than any other type.

One humorous incident associated with such a seminar concerned our new Division Manager, Ralph Burton. He was a sharp guy who was hard headed when it came to field operations and expenses. It became very clear, soon after his arrival that he was in charge. When he made a decision, it stuck regardless of its acceptance.

In the late winter of 1959-1960, we were preparing for the upcoming seminar in Billings. As was our practice, we solicited example logs from customers, which they were having trouble

interpreting. If they sent them in ahead of time with their questions, we would work out the answers and provide the information at the seminar. This helped attract people to the seminar, which was Schlumberger's objective and improved its effectiveness in the eyes of the people attending.

One day, George Ellis came in with a log for me to interpret and have ready for the school. It happened to be an old ES log, which was run a number of years earlier and recorded on an old four-galvanometer recorder rather than the standard nine-galvanometer unit currently in use. At that time, it was necessary to make two passes in the well. On the first pass the standard scales of 0 to 100 ohm meters were recorded and on the second the scale was 0 to 1000. Wherever the galvanometers happened to go off scale (over 100 ohms), the resistivities over 100 ohms were traced on to the log and scaled 0 to 1000 as backups. Generally speaking the backup curves were only useful for correlation because the porosity was so low. Thus, they were of little concern. Anyhow, as I studied the log I realized these backups had been traced on to the log incorrectly and that, at least, was part of the customer's problem. I also noticed the field engineer's name at the bottom was none other than Ralph Burton. Not being too bright, I decided to take it in and show it to Ralph without telling him who had recorded it.

As I came to the door of his office, he invited me in and I tossed the log on his desk asking if he could figure out what was going on with the backup curves. He studied the log for a few minutes and suddenly said, "Man, those backups are really screwed up. I wonder what idiot ran this log". As the words came out of his mouth, he glanced at the recorded name and started sputtering, "How in the world could I have done a thing like that"? I thought I had really messed up confronting him with it but he took it good naturally. I gained a new respect for him realizing, he could laugh at his own mistakes, a virtue of all top management, they having been reared in the oil field themselves.

OTHER FAMILY EXPERIENCES

We spent the year June 1959 to July 1960 in Billings. Celeste had reached her sixth birthday and Valerie turned eight soon after our arrival. Valerie entered the second grade in September 1959 while Celeste was entered in kindergarten, which took place across the street from our residence. We attended the LDS Church on a regular basis. Fortunately, I was able to take the family because my weekends were free for the first time in 4 years. The church was really too far to walk to reasonably and particularly so in the cold weather. Esther was soon engaged in primary once again and I simply attended the various services including Sunday school, Priesthood and Sacrament. I was much more active than in Rock Springs because of my free weekends. I enjoyed the services and continued to read various books as well as the Book of Mormon. Naturally, the missionaries descended on me but being true to my stubborn nature, I managed to resist once again. I believe two different sets of young elders came by teaching the discussions. I listened attentively, read suggested references and even participated in prayer but never committed to joining the Church. Near the end of the year, they also brought the mission president by to talk with me. He was a very kind man and we had a lengthy discussion. I couldn't refute the things he spoke of but neither could I seem to make the commitment necessary to join the Church. I simply wasn't ready to make the kind of changes it would require. The various members always treated me with respect and kindness at the church building. This made my visits pleasant and continued to draw me closer as I attended a Sunday school class for investigators. My stubbornness continued to rule however, as did my role as an investigator the whole time we lived in Billings, Montana.

He studied the log for a few minutes and suddenly said, "Man, those backups are really screwed up. I wonder what idiot ran this log"? As the words came out of his mouth, he glanced at the engineer's name and started sputtering, "How in the world could I have done a thing like that"?

VALERIE'S SPEECH IMPEDIMENT

One day shortly after Valerie was enrolled in the second grade; Esther received a note from her teacher inviting her to a parent teacher meeting. At the meeting her teacher went over her work and commented on how well she was doing. She seemed to have no weak areas but one thing did bother her. She asked Esther, "Are you aware that Valerie has a small speech impediment"? Of course, that surprised Esther because we had had no hint of such a problem in the past. When Esther questioned her, she began to explain by repeating some of Valerie's words, which she thought defined the problem. It wasn't long until Esther realized her mimicking

was a slight southern accent Valerie had picked up in her first 5 years in Mississippi and Texas. She set the teacher at ease and came home laughing. We had a good laugh, once again, when she told me the story that night. Of course, we observed Valerie at the table and, sure enough, when we listened closely, that southern drawl came through but it could hardly be called severe. In fact we had never realized it earlier but soon forgot it. With time it seemed to fade into oblivion.

CELESTE ENTERS KINDERGARTEN

Celeste wasn't one who wanted to leave home for school. She was happy playing around the house and having mama there whenever she was in need. Esther realized she needed to lessen that dependence Celeste had on her but wasn't sure how to accomplish it. Montana didn't have a public kindergarten like Wyoming. About a month after we arrived in Billings, however, she became aware of a private school for 5 year old children, located just across the street and down the block a few houses. A lady named Kelley ran the school. After talking over the possibility of entering Celeste into that school with me, Esther inquired of the lady responsible for the school. Celeste was registered soon afterward and the process of her acquiring a little independence began, about a month or so later. It seemed an ideal situation for a little girl dependent on "mom" and proved to be the same. She seemed to thoroughly enjoy her experiences there.

Esther became involved in the school as well, at least to some degree. She would go over and help out from time to time, which made Celeste's transition somewhat easier. Figures 11-13 and 11-14 depict some of their activities. The first shows a tambourine duet accompanied by Celeste with a rattle of some kind and numerous other kids with noisemakers. The latter is a picture of Esther, which substantiates her involvement in the school. She was to give the "Q" for old McGaff, the long necked giraffe, to enter the program from betwixt the week's wash. As you can see, she is carefully observing the events to assure proper timing with no miscues on her part.

THE AIRPORT SMORGASBORD

During our year's stay in Billings, it became our habit to eat out every once in a while on the weekends. Although we tried several different places, the airport smorgasbord became our favorite. The girls always found plenty of food they liked, as did Esther and I. Since it overlooked Billings from the bluff on the north rim of the Yellowstone valley, the view was exceptional as well. We usually added a drive along the valley or through the wheat fields to the north to the meal. We might also drop back into the valley up river on the way home.

Figure 11-13 Celeste accompanying tambourines with rattle in hand in Kelley's Kindergarten, 1960.

Figure 11-14 Esther about to release McGaff, the long neck giraffe from behind the weekly wash.

ESTHER LEARNS TO DRIVE

Esther had been satisfied without driving skills in Rock Springs. Everything was close enough for her to walk to including schools, church, down town shopping areas and the doctor. Only the grocery store posed a problem, in that she couldn't carry any amount of groceries. Even then, she could take a cab, which helped.

As spring rolled around in Billings, Esther began talking about learning to drive. She wanted to

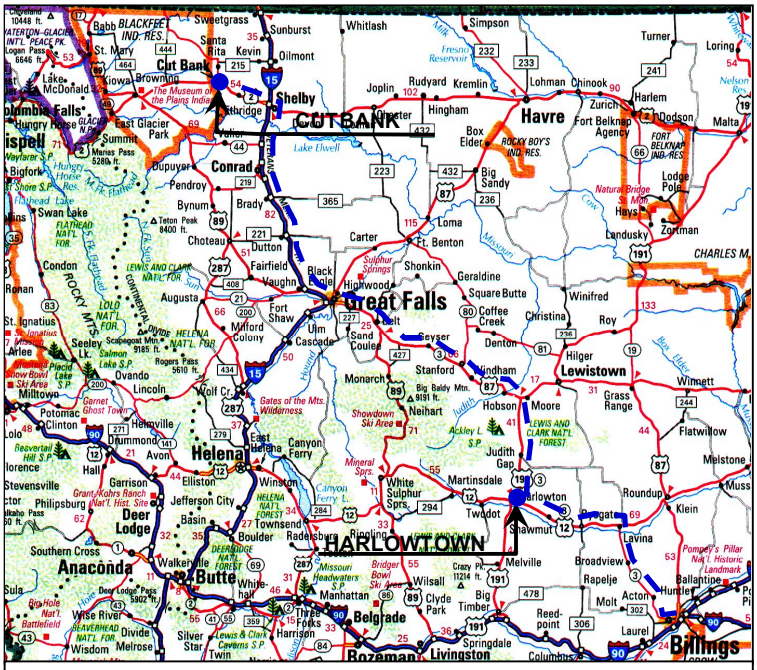

Figure 11-15 A map illustrating the area surrounding Cutbank including the area the station served.

be able to go to town and shop, as well as go a few other places. Mainly, I think, she just wanted her independence. She said she didn't want a nice car, only one that would get her around safely. We watched the papers and soon decided to buy an old gray Chevrolet of early 1950 vintage. I think I gave a couple of hundred bucks for it, which would equate, in today's prices, to two or three thousand. It had 60,000 plus miles on it but appeared to be in reasonable shape. After a couple of months of training, she took a few small trips on her own and by summer had gained her independent status as a driver, license and all.

About June she said the car was making funny noises when she stepped on the brake and it tried to go sideways. Even with my limited understanding of cars, I knew the old Chevy needed new brakes. Being a natural born tightwad, I decided to change the brake shoes myself. I bought the necessary parts and one Saturday morning went to work on it. I managed to get it up on blocks and soon had the wheels off. I realized the drums had to be turned and that the master cylinder was leaking. Fortunately, I was able to get that done that morning. I also decided to replace all of the cylinders and bought the necessary kits. By evening I had the thing back together again and even bled the brake lines as required. Believe it or not, the crazy thing worked and I was one proud hombre. You see, that was my first attempt at such a job. Though the job had its problems and I was filthy from head to toe as well as a little skinned up, I went to bed happy, after a shower of course. It had been a good day because I had saved some money, learned a few practical things and successfully accomplished my objective.

A WELCOME CHANGE OF VENUE

We had hardly settled down good in Billings when we were surprised once again by another transfer. The Station Manager or Engineer in Charge at Cutbank, Montana, Bob Hiller, was being transferred to Billings to replace Bob Kudrle who, in turn, was headed for Houston as a staff engineer. I was offered the job in Cutbank. The change was welcome as far as I was concerned but Esther had her concerns. She loved Billings and had heard some pretty bizarre things about Cutbank. That was the point in my life when I began to realize the things, which were important to me weren't necessarily the ones, which she deemed important. Immediately, she began to worry about rather trivial things like housing, doctors, shopping and little things of that nature. I, on the other hand, could only see myself back in the field running and interpreting logs, fixing tools and handling the complete operation. That was my cup of tea and of course, it was also that, which was really important in life. Yes siree, logging those wells, beating out the competition, providing the best wire-line service in Montana, they were the focal points of life.

AN INITIAL HOUSING TRIP

I did my best to allay Esther's fears associated with the move but with no great success. Being the supportive wife she was, however, she

agreed. I think she realized she didn't have much choice. If I stayed with Schlumberger, I had to accept transfers. That was one of the ingredients for moving ahead.

Schlumberger, as usual, acted quickly and the following Monday I took the family on a ride to the big city of Cutbank. It took the better part of the day being a distance of 325 miles or so. I've provided a map of the Billings to Cutbank area in figure 11-15 so as to provide a little perspective for those unfamiliar with the area. Our route that day is also included, which became my standard when traveling to and from Billings. In addition, Harlowtown is identified, which has some value to my story.

We arrived at our destination in the middle of the afternoon. Even though it took about ten minutes to survey the town and look through the one available house, we stayed overnight. Actually, we spent a little more time than that because we had to find the points which were of interest to Esther, you know, the doctor's office, grocery store, church, school, etc. I've included a little map of our new metropolis in figure 11-16 with the locations of such points of interest. As you can see, all were virtually within walking distance of either house we lived in even though Esther was now a proud driver. That's what we might call the small town advantage. The first house we lived in happened to be the same one Bob Hiller was vacating. I was leery about renting it because the landlord was trying to sell it. Even so, I had no choice at that time and told Bob to tell the landlady we would take it. He gave me her address in Harlowtown and suggested we stop by on our return to Billings. I agreed that that was the thing to do.

We spent the night in a little motel on the east side of town, the only one in town, I believe. We then returned to Billings the next morning, after stopping by our soon to be landlady's residence in Harlowtown. She seemed happy to rent the house to us but mentioned she was looking for a buyer. Having no other choice, we took it with the intent to look for more stable quarters once we were settled. I didn't want to move on a moment's notice. I have included a picture of this house in figure 11-17. It was small but adequate, having a full basement and even a fireplace. In fact, it was about the same size as the house in Rock Springs. One could almost use the same floor plan if you reversed the positions of bedrooms, kitchen and living room. Now we had more things to fit in, however.

THE MOVE TO CUTBANK

Within the week, we had our household things loaded and we were on our way to our new station. Esther seemed reasonably satisfied after becoming acquainted with her new town. It would be less intimidating for an inexperienced driver like herself and she had spent most of her life in small towns. There was a problem, however. We now had two cars to move and

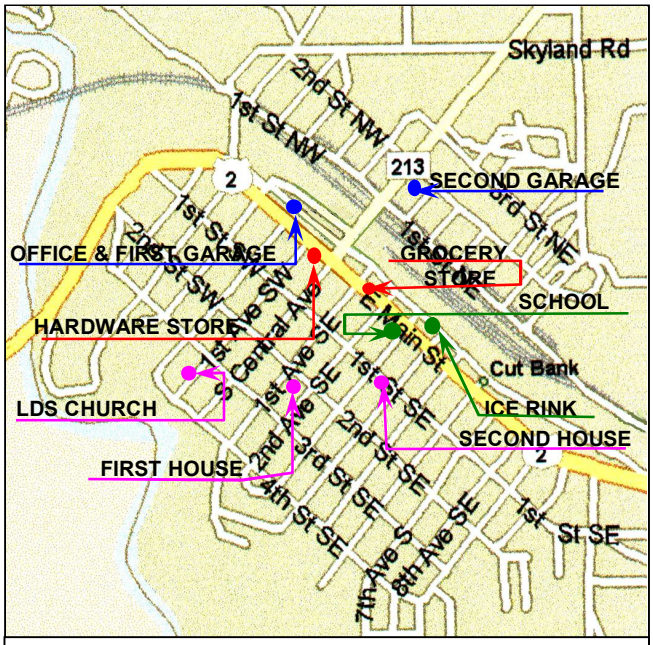

Figure 11-16 Cutbank, Montana city map with points of interest for the Obenchain family.

Esther definitely wasn't looking forward to driving the complete 325 miles by herself. I told her we could take two days if necessary. We would drive slowly and she could take the lead. If she had any problem, she would simply pull over and we would take care of it. She decided that would be okay and we left bright and early on Friday morning. We headed northwest for Harlowtown out of Billings. She was going slowly but I figured once we cleared the airport things should pick up. Well, they didn't. Esther's confidence in handling the car had not really materialized as yet and we just crept along at 40 to 45 miles per hour. Now that might have not been so bad, had I been a patient sort of fellow but I had two basic speeds, i.e. stopped and wide open. If the roads were dry, I typically drove 75 to 80 miles per hour and this pace became maddening. Little did I realize that the pace was going to slow even more as weariness set in for Esther. I wasn't about to say anything because she was doing her best.

It was summer and air conditioning was still a future event. I rolled down the windows and began counting mileposts. Her pace was steady but I soon realized there was no chance of getting to Great Falls that night, let alone Cutbank. Soon she stopped and got out of the car. When I asked her what the problem was she said simply, "My neck and back are killing me. I'm tense all over". After a while, we took off again and made another 25 miles before the next stop. After getting to Harlowtown, a sum total of 90 miles, she had had it. She wanted to leave the car and have me come back and get it. I finally talked her into driving on up to Moore, another 40 miles, where US 191 joined US 87. I knew there was a motel and restaurant where we could eat dinner and spend the night before going on to Cutbank. She agreed but we were another two hours getting there. I now began to understand the tedious nature of driving a team of oxen across the plains and my appreciation for our forefathers must have at least doubled that day. She was almost in tears and I was plumb tuckered out. I could hardly move my car fast enough to get it out of second and what little patience I had was about gone. I was as relieved as she when we arrived in Moore. We had made a total of 130 miles leaving 195 for the next day. Would she be up to that? Only time would tell but I suspected she would be unable to complete the trip and was busily thinking of alternatives.

When I asked her what the problem was she said simply, "My neck and back are killing me. I'm tense all over".

Figure 11-17 Our first home in Cutbank complete with fireplace, front lawn and garage.

A REAR WHEEL BEARING GOES OUT

The night's rest did wonders for all of us. The kids were eager to get started having survived the previous day's ordeal better than either Esther or I. After a nice breakfast, we hit the road about 9 AM headed for Great Falls 85 miles away. Like the previous day, Esther took off at a blazing 45 miles per hour, which held for maybe 30 minutes. Soon she was down to 25 or 30 again and having trouble keeping the car in a straight line. It looked like a repeat was in the making. We simply couldn't make it to Cutbank. Well, as luck would have it, when we pulled into Great Falls she stopped and complained about the car pulling to the right and she smelled something burning. I thought maybe my brake job had come apart and walked around the car trying to decide what to do next. As I passed the right rear tire, I realized it was mighty hot. In fact, I couldn't even touch it with my bare hand. I checked the other but it was normal. I finally decided to put the car in a garage for repairs and take the family on to Cutbank. I could pick it up here relatively easy at a later date. As soon as I pulled into a nearby garage the mechanic told me we had a rear wheel bearing shot, gave me a price and said I could pick it up in a week.

We grabbed the few things that were in the car and were soon headed for Cutbank. Esther was relieved, knowing her highway trip was done. I was too, in a way, as I cleared town and brought the car up to a comfortable 70 MPH. The cheap side of me grumbled about having to pay for the repair while the impatient side gloried in my restored ability to move along at a reasonable pace. Once again I only had to slow down for the curves and occasionally brake for some varmint crossing the road. People in passing cars no longer stared at our covered wagon like pace across the Montana landscape. We now moved like regular folks, arriving in Cutbank by late afternoon and staying at the same motel as before. A couple of days later the furniture arrived and we moved into the house. Everything went smoothly except moving the freezer to the basement, which was a bear. That evening we celebrated and had dinner in our new home. The utilities were on, the essentials unpacked and we could relax.

FAMILY EXPERIENCES IN CUTBANK

THE CUTBANK GRADE SCHOOL

Figure 11-18 is a photo of the Cutbank grade school located about 3 blocks from the house. In the better weather the girls walked both ways.

Esther walked with them as she did in Rock Springs and, I suppose, bought them some goodies for the walk home. I didn't realize how frequently that happened until later and I feel sure that's where Valerie got her penchant for rewarding with treats. I don't think it took much to win a reward either because Esther wanted her share as well as the girls. If the girls didn't suggest stopping, I would bet my last penny that Esther would. The real magnitude of her sweet tooth became apparent in later years.

THE LDS CHURCH

As you can see from the town plat or map of figure 11-15, the LDS Church was only a couple of blocks from the house. The facility was kind of a renovated house, as I remember, and not a regularly designed church building. A nice group attended each Sunday but it was only sufficient for a branch organization. Of course, at that time I knew no difference between a branch and a ward. The local members welcomed us warmly and soon Esther was hard at work once again in the primary organization. I, of course, only attended occasionally because of the rather hectic pace of fieldwork during the summer and fall. Esther grew to love the little branch with its friendly people and the town as well. It's interesting because she feared the move to Cutbank more than to anywhere we had been as yet. Even so, by the time we left she had developed an affinity for the town and people beyond that of any other location of my oil field career. There is no doubt that the LDS branch there had much to do with that warm feeling of kinship and a simple life.

As winter set in about October of 1960, work in the oil field began to slow down. Although I was still out frequently on weekends, I also found time to go to church with the family and, as before, found the experience both pleasant and edifying. I suppose that I also found the branch to be a friendlier place than the bigger ward in Billings. Small groups tend to develop a closeness not found in the bigger organizations. As my attendance increased, some members apparently assumed I was also a member. I certainly was treated no differently. One Sunday I was approached by a counselor to the branch president and asked to give the closing prayer. That's a no-no, of course, for non-members but he apparently didn't know my status. Well, I had never given a prayer in public before but reluctantly accepted the assignment. I worried the whole time during Sacrament meeting. When my time came I walked hesitantly to the stand and offered the prayer as sincerely as I could without really realizing the basic elements normally contained therein. I don't remember what I said. I only know I was extremely nervous and breathed a sigh of relief as I walked back to my seat. No comments were made one way or the other except by the branch president. He approached me after the service and thanked me before explaining the counselor had made a mistake by asking me to participate. They don't ask that of non-members because they may never come back, not being really sure of what to expect.

Ralph Spencer, Esther's older brother, lived in Great Falls, Montana at the time we were in Cutbank. He was a high councilman assigned to the Cutbank branch and came up monthly to speak. Of course, he would stay and visit with us while we enjoyed dinner before sending him on his way home. That was my first experience, as I remember, with unit descriptions or various priesthood responsibilities. Not that I had any particular interest in them at that time but Ralph would talk about them anyway.

Figure 11-18 Cutbank Grade School where Valerie attended the 3rd. grade & Celeste the 1st.

During our time in Cutbank we attended several church social functions and, even I began to feel a part of the group. Esther, particularly, developed some good friends and hated to leave just a year after arriving. They held a little get together for us when we left and gave us a special book regarding the gospel. I don't remember the name of it now but could probably dig it out if necessary. Truly, my association with members of the LDS faith was a positive experience for me. I guess I had finally become somewhat more accepting of the friendly hand they extended to me over the years.

FAMILY ACTIVITIES

Many of our family activities were now centered in the Church. With the girls actively participating in primary, there were regular functions going on to which they were invited. I wasn't too much involved because of work and many of said functions involved things rather foreign to my nature. Esther enjoyed taking the girls and was infinitely more qualified than I. I simply gave my approval for such activity.

Cutbank had little in the way of decent stores to shop in. Consequently, we would go to Great Falls on a rather regular basis (days off) and visit with her brother's family as well as carry out any necessary shopping chores. We might stay overnight and take in a show as well as eat out, which was always a special treat in those days. All in all, such times in the big city of Great Falls were fun for us as a family.

Cutbank had a little ice skating rink on the main drag near the east end of town (figure 11-16). The weather turned cold early, about October, and skating was available throughout the winter. We had moved into our second house by Christmas, which was even closer to the rink as also shown in figure 11-16. As I remember, we all got involved and probably got skates for Christmas. At least, I ended up with a pair that I kept for some time. The girls spent a lot of time down there and, particularly so, after we moved to 3rd. Ave. S. E. There was no molestation danger for kids at that time and especially in that little town. I believe the girls even went and came by themselves. Valerie was then in the 3rd grade and Celeste in the 1st. Figure 11-19 is a photo of Celeste on her skates during the winter of 1960 - 1961.

MOVING TO NEW QUARTERS

As I indicated earlier, we had rented the house our predecessor with Schlumberger had lived in with the understanding that it might be sold most any time. With the housing situation as it was in Cutbank, we weren't very secure and Esther consequently kept her eyes and ears open looking for something suitable and more secure. Soon she had located a house on 3rd Ave. S. E. and we moved in some time before Christmas, maybe in November. There was a garage in the back and room for a garden. In fact, I made my first effort at gardening there the next spring but to no avail. I was transferred before anything but weeds came up. There were two bedrooms upstairs along with a kitchen, dining area, living room and sun porch. The basement was finished and had a den with

Figure 11-19 Celeste showing off her ice skating skills on the little rink at Cutbank, Montana 1961.

a fireplace. All in all, the home was somewhat more comfortable than the one on 1st Ave. S. E. I have included the floor plan in figure 11-20 of

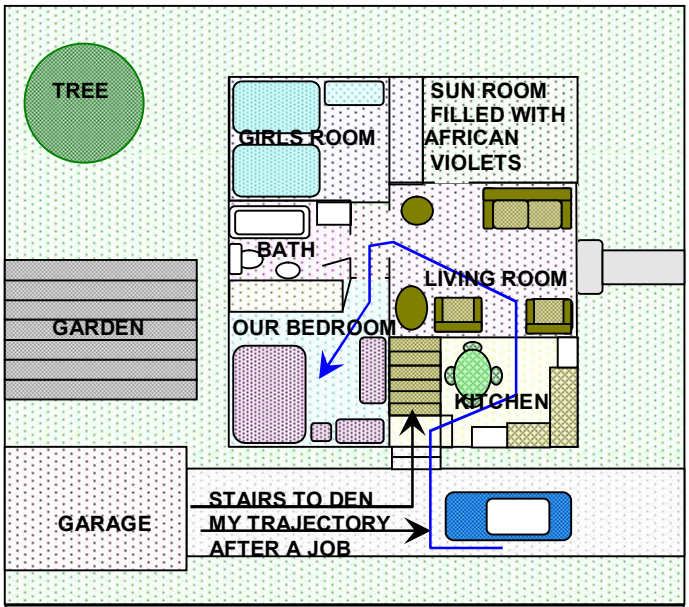

Figure 11-20 A floor plan illustrating our 2nd home & my path to bed as I stumbled in from a job.

the upstairs only, as I remember it. Though the exact layout may not be quite correct, it's close and provides the perspective I want to provide

for later stories. As you can see, it was none too spacious but the livable space was better than our first house because of the finished basement. Additionally, an exterior view is provided by the photo of our neighbor's house in figure 11-21. It seems all our rentals were kind of small except the house in Billings. There is no question about that particular house being Esther's favorite rental home because of both size and design.

I still remember stopping by our first landlord's house in Harlowtown to pay the rent and notify her of our change of residence. She was really surprised at our move and wanted us to stay. When we explained why we moved, she told us she would never have sold while we were in the house because of the way Esther cared for the house and our prompt payment of rent. It seems that just as good rental houses are hard to find, so are good tenants. Anyway, had we known her intentions, we probably wouldn't have moved because of the trouble and, particularly so, had we known of another transfer coming up the following summer.

Esther preferred the new house because of the nicer interior and its proximity to the school, ice rink and grocery store. She didn't want to drive any more than she had to and, as it turned out, the car became more of a liability than asset while we were in Cutbank. It did provide a way, however, back and forth to church when I was in the field or traveling but she had little use for it otherwise. Mostly, it sat in the driveway.

Figure 11-21 Our second home in Cutbank was identical to our neighbor's shown here.

Soon the room was almost full of African Violets and became the center of conversation for her and her friends who visited from time to time. She probably had 30 different violets by the following spring.

AFRICAN VIOLETS

The lady we rented the second house from was a lover of African Violets of which I had never heard. Esther fell in love with them and the lady very kindly left several she had kept in the sun room on a couple of stands. Apparently they needed tender love and care because Esther was constantly nurturing them with exotic plant food and rainwater, nothing but rainwater. You see, the lady had convinced her that they thrived on rainwater. Of course, after we moved in it had turned cold enough that any precipitation was in the form of snow, at least until late spring. Naturally, I found myself collecting snow and melting the same to add to the water, which her African violet mentor had deemed so essential. I must admit, the several different varieties she had were beautiful and they did thrive with the tender love and care Esther gave them. She added to them from little sprigs of different varieties she traded for with other ladies afflicted by the same mania. Soon the room was almost full of African Violets and became the center of conversation for her and her friends who visited from time to time. She probably had 30 different violets by the following spring. I only served as the snowman or later the rain collector while she carefully watered and fed them as well as talked to them. You see, a gentle voice helped them to understand they were not only beautiful but loved and appreciated. As time went on, I began to feel as though they were my competitors who, unquestionably, were more beautiful but also were much more demanding than I. Even so, I could tell Esther loved her new hobby, which helped while away the time while I was in the field. Thus, when our move came the next summer, I found myself with the problem of transporting them to New Mexico.

FAMILY SUMMER OUTINGS

The location at Williston North Dakota was responsible for providing me with days off because I was the only engineer in Cutbank. They were some 400 miles away and it required two days of travel to provide 3 days off. That wasn't very efficient, so we agreed on a 24-day on 6-day off schedule, which cut the driving time in half. When we were busy, it could be a little tough on me but I had the benefit of 6 days off at once and the system enabled me to get quite a bit done and/or have a nice family outing. On our first outing we decided to explore Glacier Park.

In a later outing we went up to Waterton Lakes National Park in Canada. See figure 11-22. The first trip is designated on the map by the blue lines and arrowheads: the outgoing trip by a dark blue line and the return trip in light blue. The route of our trip to Canada is illustrated with a reddish brown line with an arrowhead.

AN EXPLORATORY CAMPING TRIP

Our first summer trip to the Glacier Park area was kind of an exploratory trip. I wasn't sure just where to go to get away from the crowds and do a little fishing. We packed up our camping gear including a nice little tent and headed out for Browning. After eating lunch in that Indian dominated town we went on towards the park to look for a decent place to camp. I found a road leading back into the park, which terminated in a big meadow surrounded by mountains. It was a beautiful area on the headwaters of Cutbank creek where I hoped to find a little fishing. Today's maps show a Cutbank campground located there. However, there was no campground, to my recollection, at that time and we simply pitched the tent in a grove of trees near the creek. The area was isolated and seemed ideal for a central location from which we could explore the park. All went well until just before dusk when we were suddenly enveloped by mosquitoes. They came at us in droves reminiscent of the B-17 raids on the third Reich or maybe the Japanese Kamikaze attacks. We put on our jackets and tried to cover as much skin as possible but they seemed to ferret out any unprotected areas. They also seemed undaunted by the cloth in the girls' and Esther's light jackets and burrowed right through like a mole demonstrating the fine art of tunneling to her yunguns. Had they arrived a little earlier, we might have had a mess for supper. They were that plentiful and easy to kill. Of course all the women folk headed for the tent where they holed up for the evening. The rest of the evening wasn't too pleasant even for me with my relative insensitivity to such critters. I soon went inside as well where we decided then and there to leave the area the next morning.

All went well until just before dusk when we were suddenly enveloped by mosquitoes. They came at us in droves reminiscent of the B-17 raids on the third Reich or maybe the Japanese Kamikaze attacks.

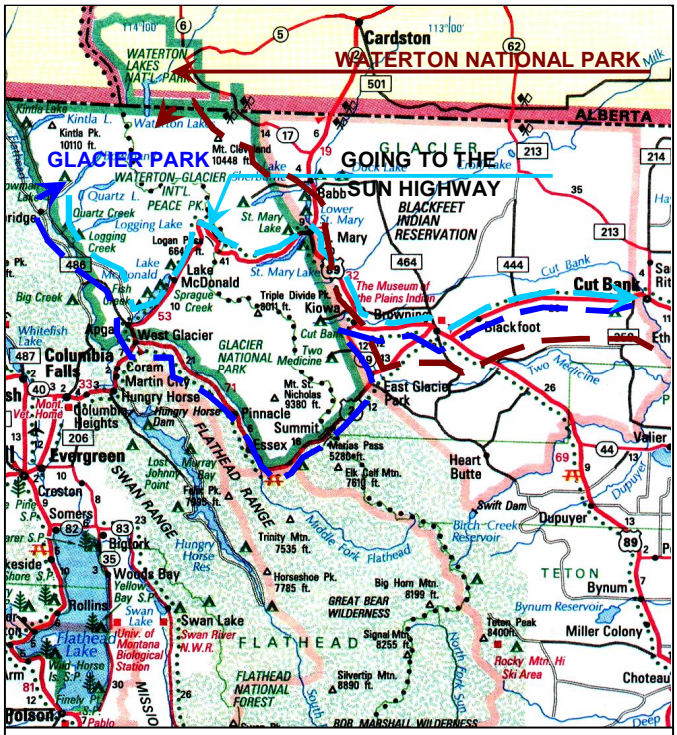

Figure 11-22 A map of our family trips to Glacier Park & Lake Bowman as well as Waterton.

I had checked the map while out of reach of those flying blood suckers the previous evening and decided to try the west side of the park up the North Fork of the Flathead River. The roads were dirt, which, in those days, discouraged all but the most courageous vacationers. There were several campgrounds on the various lakes shown on the map. Morning found the mosquitoes somewhat subdued. We ate and broke camp with little interference from the nasty little vampires. By 9:00 AM we were on our way around the south end of the park headed up over Marias Pass. We dropped down on the Middle Fork of the Flathead and arrived at West Glacier about noon. After grabbing a little lunch we went on to Lake McDonald where we stopped just long enough to admire the view.

I had made up my mind to camp at either Bowman or Kintla Lake. Both had campgrounds and seemed far enough up the dirt road to filter out the average tourist. After all it was July and they were about as thick as the mosquitoes at Cutbank creek. I headed up the east side of the north fork; not knowing which side of the river had the best road. Travel was slow because of the tortuous single lane nature of the road. It was a hot day and the road was dusty even though there were few cars traveling it. The windows had to be rolled up most of the time and, of course, air conditioned cars weren't even on the drawing boards as yet. The girls were

getting crabby, Esther was tired and my usual sunny disposition had gotten cloudy, displaying occasional rumbles of thunder. We were tired and ready to pitch camp.

We rolled by Logging Creek and Quartz Lake campgrounds, which didn't impress us and moved on towards Bowman Lake. In late afternoon we came to the little road spur leading into the Bowman Lake and campground. It couldn't have been more than 5 or 6 miles but the road seemed endless. It was strictly one way and was even more tortuous than the road up the river. The girls continued to fuss while Esther explained to them we would soon be at a beautiful lake where we would stay for a few days. Finally, we topped a little rise and there was the lake. It was truly gorgeous and peaceful. Esther and I gave a sigh of relief while the girls screamed with delight. The place looked ideal.

A SWIMMING SCENARIO

As we pulled into the campground we saw only two or three other camps occupied. We chose one near the lake under some shady pines and unpacked. The girls wanted to go swimming as they called it, right now, which really meant wading. As I pitched the tent, Esther put Valerie and Celeste's swimsuits on them and they were off to the lake about 30 yards away. It didn't take long to get the campsite ready and I told Esther I was going to join the girls. I figured a refreshing dip was just what I needed before worrying about supper. After quickly putting my swimming trunks on, I walked over to the lake and found the girls standing there just looking at the water. I said, "What's wrong? Why aren't you wading in the water"? "It's too cold daddy", came their plaintive reply. Without putting even my toe in the water, I answered, "You big babies. Come on let's get wet. I'll show you how" and I ran to the end of the pier lying next to us; where I dove in. That proved to be a big mistake, I soon found out.

Not only that, but as I reached the dock, I vaulted up on to it in one grand sweeping motion which surely would have been the envy of any of the gymnasts competing therein as well.

I'm sure you have seen Road Runner cartoons where the coyote is always trying to catch the little roadrunner. Of course, he is always fooled and may go hurtling off a cliff or get in some other similar mess. In so doing he often back tracks through the air as he realizes his mistake. That's the way I felt as my body entered the water. How I wanted to reverse direction and stop on the dock. My body temperature must have instantaneously dropped to somewhere near freezing even before I surfaced from the dive. I had planned to swim out a ways and then back to the shore where the girls were. Instead, I made a U-turn that would have been the envy of any Olympic swimmer. My arms thrashed the water as I accelerated towards the pier. I'm quite confident that, for that short spurt of 10 or 15 yards to the dock, my time would have easily qualified me for the Olympics. Not only that, but as I reached the dock, I vaulted up on to it in one grand sweeping motion which surely would have been the envy of any of the gymnasts competing therein as well. I seriously doubt my total time from entering the water to my glorious exit took any longer than 10 seconds. In fact, I may be pessimistic. That may well be where the term "split second" was first applied. My only regret is that no one caught this magnificent sports maneuver on video. Truly, I would have been the talk of the country and the feat recognized worldwide.

You know, had I used my brain before diving in, I surely would have suspected a cold welcome. After all, the lakes within the park have resulted from glaciation and most, I believe, are still fed by waters from surrounding glaciers. Expecting a warm welcome in such an environment is akin to adding an ice cube to warm your soup. That is, it's hardly logical, even to the engineering mind. Well, enough of that. Let's move on to something less philosophical and hopefully somewhat more factual.

As I exited the water I looked towards the girls and tried to walk rather nonchalantly back to where they were. Valerie and Celeste had taken all this in and were screaming with delight. "Daddy, you sure can swim fast", was the first recognizable comment from Valerie. I said, "Yes honey, when I'm in a hurry I can swim pretty fast. Boy that water sure is refreshing but I think I'll wade with you girls a little bit". Well, I managed to walk knee deep into the water from shore without any noticeable flinching and said, come on Valerie, you and Celeste walk out here to me. It simply wouldn't do for me to admit they were right. After a little coaxing, they edged into the water with screams of, "It's cold", but wouldn't come that far and ended up only getting their ankles wet. Even so, they had a good time and in a few minutes we were all ready to get

dressed. As I walked back to the tent, Esther asked, "Was the water cold"? I said, "Nah, but would you mind knocking the icicles off the back of my head".

Well, we were refreshed to say the least and our energy was restored, for sure. We all got dressed and, since everyone was hungry, I decided to start a fire. Esther and I put together dinner, which didn't take too long and we wolfed it down in even less time. Never before or since, however, has any activity of mine exceeded the speed of that memorable U-turn in the icy waters of Lake Bowman.

FISHING

I' m not sure just how many nights we camped there but probably three. The next morning I decided to take the girls fishing. They had little plastic poles with cheap plastic reels. What else would you expect from a cheap plastic grandpa? I knew the North Fork of the Flathead would be too big and deep for them and I didn't want to sit by the lake to fish. After studying a map I had of the area, I decided to take them just over a little ridge, maybe a half-mile, to a tributary of Quartz Creek, which apparently flowed into Quartz Lake. There was a nice trail leading that way and so we all set out with poles in hand. In about a half hour of rather slow walking, we came across the little stream I was looking for. I had normal hooks on their lines and I then added a worm to each and showed them how to let the hook ride down stream. Both began screaming right away because little fish were after their hooks. As I looked more closely, I realized the stream was full of little minnows about 3 to 4 inches long. That was ideal and the girls were about as excited as anyone could get. The only trouble was the little fish couldn't swallow the hooks, which were too big. I looked through my gear and found a couple of small hooks, which I placed on their lines. They would no sooner drop the worm in the water than 3 or 4 little fish would be after them. The little devils still had trouble swallowing the worms and would take little nibbles off as they fought over them. Finally Valerie caught one and was she excited. It was probably 4 inches long but who cared. To her it was a prize beyond belief, her first fish. Celeste wasn't too sure she wanted to catch one because they were too cute. She didn't want to hurt them. As I remember, with a little help she finally caught one, which was more than enough, particularly when daddy killed it. Valerie wasn't quite as sensitive. She ended up catching 3 or 4 and was elated. They loved seeing them fight over the worms. They could drop the hook in the water by their feet and the little devils still came on to take the bait. They were hungry. We might have stayed there all day but it would have taken a hundred fish to make a meal for us. I soon tired and talked the girls into going back. We walked back into camp where they proudly displayed their catches to their mother. I had already cleaned the fish and we cooked them for the girls that night. Celeste wasn't too squeamish about eating her share despite their cuteness. What a memory.

Celeste wasn't too sure she wanted to catch one because they were too cute. She didn't want to hurt them. As I remember, with a little help she finally caught one, which was more than enough, particularly when daddy killed it.

The second day I decided to fish the North Fork of the Flathead by myself, that is. Esther kept the girls at camp where they had more than enough to do and I drove down to the main road and up it towards Kintla Lake a little way. The north fork is a beautiful stream and I had pretty good luck. After a couple of hours, I was on my way back to camp with my limit of 12. That was just sufficient for a good dinner, in that they were all rainbows in the 8 to 10 inch range. The girls, as well as Esther and I, loved fried fish and pan-fried corn bread along with fried potatoes. We'd often have a green salad and maybe green beans. We all had our fill and seldom had leftovers.

THE DRIVE HOME

The next morning we broke camp and headed back for Cutbank. I had talked to a neighboring camper and found out the road on the west side of the river was considerably better than the one we had come up. A traveler could cross the north fork at Pole Bridge to access it. I decided that that was the way to go and we were on our way by mid-morning.

As we approached the black top, which was down near McDonald Lake at that time, we came across a new car with two rather elderly couples in it from Michigan. They had a flat tire but there was no jack with the car. In those days I was a pretty good guy, though I've changed quite a bit since. Anyhow I got my jack out and changed their tire for them. It was a regular occurrence for me on oil field roads and I

didn't mind at all. We talked as the work went on and they asked us where we had been. We told them about Bowman Lake, how beautiful it was and how we had slept in a tent for a couple of nights. The two ladies seemed awe struck and responded with, "You mean you slept on the ground? Weren't you a scared of bears?" I tried to assure them it was perfectly safe but they weren't the least bit convinced. When we were ready to leave, they were still talking about bears and left us shaking their heads in disbelief, while I suppose, thinking of the foolhardy risks we took.

GOING TO THE SUN HIGHWAY

We stopped at Lake McDonald for a few minutes on the return trip just to enjoy the beauty of the lake. As I said earlier, all of the lakes within Glacier Park are of glacier origin and have that typical look of a Norwegian Fjord with their steep wooded mountainsides dropping from the sky into the depths of the lake. Often the reflections of surrounding peaks show up as well and add to the serene beauty of this handiwork of God. I love to simply sit on the shore and gaze out over the water. It is as a balm to the soul and constantly reminds me of the nature of our God who must surely enjoy the beauty of His own creations as much or more than we. Truly, among His many perfect creations are those mountains with their physical beauty, artistic magnificence and quiet solitude.

Soon we were on our way over the "Going to the Sun" highway. Little did we realize ahead of time the beauty we were about to be treated to. This particular area rivals anything I have seen in Canada or the Alps in the little time I have spent there. At certain viewpoints I could almost pull up a chair and sit there by the hour soaking up the beauty, which the eye beholds. I have included the photo of figure 11-23, which was taken in 1999 as we returned over Logan Pass from Canada. What a magnificent creation this part of the earth is with its varied greens, its multicolored flowers, its rugged cliffs and cascading streams. Deep within me I know that such beauty has to be a part of our heavenly home and should I have a choice, I will take up residence within it.

As we wound up the west side of the continental divide the mountainside turned into a sheer cliff face from which the two-lane road had been cut. It was none too wide and had many sharp turns that would limit the length of the vehicle negotiating it's tortuous length. Water seeped from the rock at various intervals and ran across the road. The view was fantastic but there was no place to pull over and appreciate it. As I did my best to drink all this beauty in, Esther would

Figure 11-23 View from Logan Pass looking east from the "Going to the Sun" Highway.

remind me to keep my eyes on the road. "Wait until you get to a viewpoint to look", she would say. Of course, we traveled slowly and met few cars. Similarly, there was no one behind me trying to find a passing point as one might expect today. This sheer cliff mountainside was probably a couple of miles in length or so and

What a magnificent creation this part of the earth is with its varied greens, its multicolored flowers, its rugged cliffs and cascading streams. Deep within me I know that such beauty has to be a part of our heavenly home and should I have a choice, I will take up residence within it.

Esther definitely breathed a sigh of relief when we came to more normal terrain. Though a good sport, she didn't like mountainous terrain. Near the top of Logan Pass I took the photo of figure 11-24 in 1999 on our return from Canada.

AN UNWELCOME GUEST

Soon we were on top of the divide and pulled over to take advantage of a viewpoint on top, which provided a magnificent view to the east or

the direction we were headed. There was no building of any kind or other signs of civilization at that time. When we traveled it again in 1999, a beautiful lodge had been built on that site, which though nice, I was sorry to see.

At this particular time, 1961, several cars were parked there and people were about fifty yards

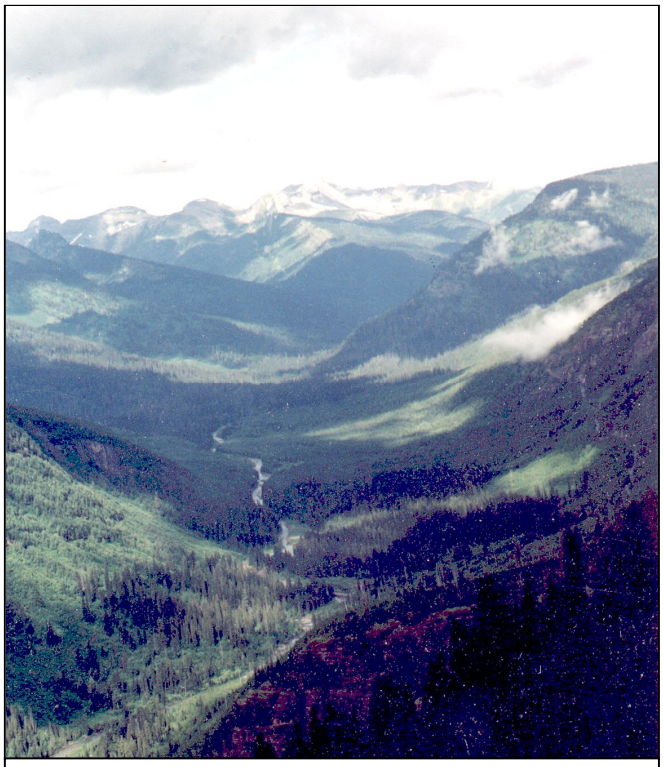

Figure 11-24 Looking to the west from Logan Pass, the direction from which we came that day.

away enjoying the panorama to the east. We walked over, joined them and snapped a few pictures like everyone else. As I have said, such pictures never do justice to the real thing and only serve as a reminder of what you appreciated so much at that moment in time. We had probably been there 10 or 15 minutes when we heard a woman scream over by the cars. Several of us ran over to where she was and found her pointing at a black bear sitting in the back seat of her car. Apparently one of the kids had left the door open and there were treats inside. Murphy's Law applied, in that mama bear had smelled the treats and crawled in to partake of the same. I guess she had finished them when we got there. Even so, she didn't seem inclined to come out and the lady was almost in hysterics. My car was only a few feet away, so I ran over and grabbed a bag of potato chips. As I came near the open car door, mama bear got a whiff of the junk food and came ambling out to see how generous I might be. Concern for my own safety overcame my usual cheap nature and I yelled, "Here, you can have them", and threw them as far as I could to one side. Needless to say she ambled after them. The lady thanked me, climbed in the car with her family and was gone in moments. I gathered up Esther and the girls soon after and followed. She was just finishing the sack of chips and looking around for more as we drove away. The rest of the trip was uneventful and we arrived home rather late that evening. We had enjoyed a wonderful four days together in our exploration of Glacier Park but as is the usual case, were glad to be home.

My car was only a few feet away, so I ran over and grabbed a bag of potato chips. As I came near the open car door, mama bear got a whiff of the junk food and came ambling out to see how generous I might be.

WATERTON LAKES NATIONAL PARK

Waterton Lakes National Park in Canada is actually, just an extension of Glacier. Though it's somewhat smaller, its beauty is similar and like Glacier is worth taking the time to see for anyone in the vicinity. Out trip to Waterton became our first international venture and constituted a whole day's travel. We had camped near Babb in one of the campgrounds and spent the night. The next morning, we left our camp and went up to Waterton to spend the day. Besides enjoying the scenery, we wandered through several tourist gift shops looking for some mementos of our trip. As we browsed through various Indian articles, which we supposed were the work of a local tribe or tribes, I happened to look underneath one at the label. To my surprise it very clearly stated, "Made in Japan". We began looking at all of those, which had been of interest to us and, sure enough, those enterprising Japanese were the source of all. The place was full of Japanese manufactured gifts. Of course, that ended our search for more Indian mementos.

A motorboat ride the length of Waterton Lake, which took an hour or so, was the highlight of this day's trip. Needless to say, it was beautiful and so serene. Had it not been for the cost, I could have spent a week simply exploring the many interesting inlets along the way. The lake is partially in the United States and thus we crossed the international

boundary once again that day. It reminded me of Lake Bowman where we had camped earlier that summer and all I felt and commented on at that time applies here, as well. The ride was well worth the fee in my estimation. Valerie and Celeste enjoyed it every bit as much as Esther and I, if not more.

After completing the boat ride, we drove around the area a little taking a few scenic pictures. I remember we lost Fluffy for a short period of time. She was out running around while we were enjoying the view, I guess, and we took off without her. The girls noticed her absence a few minutes later and, of course, we backtracked to find her. Maybe the whole incident lasted a half hour or so but you would have thought she had been gone a week the way the girls acted. They were sure a bear was going to get her or we simply wouldn't find her and she would starve. Also there were the issues of being run over by a car or taken home by someone. What other imaginations went through their young minds, it's hard to tell, but we were all relieved, for different reasons, when she was back safely in the car.

As we browsed through various Indian articles, which we supposed were the work of a local tribe or tribes, I happened to look underneath one at the label. To my surprise it very clearly stated, "Made in Japan".

Late that afternoon we headed back to the U. S. and our camp near Babb. The good old United States Customs was much more thorough in checking us out when coming back into the country than the Canadians had been when we were going out. They went completely through the car making sure we weren't smuggling something in, I suppose. Had they had a profile on me, they would have known such a tight wad wouldn't have anything. Soon we were back at camp to spend the night.

The next day we took time to see the sights around Babb, primarily Lake Mary, on the east end of the "Going to the Sun" highway. We also had a picnic and generally enjoyed ourselves. Nothing else stands out on that particular trip so we must have headed home to Cutbank.

ICE FISHING

During the winter months in Cutbank, business was very slow. Consequently, I had plenty of time on my hands. Besides being a regular church attendee during those months, I did a little fishing through the ice on some lakes to the west of Cutbank. One such lake was Duck Lake, which was noted for the large trout that could be caught therein. I never fished Duck Lake but stuck to those a little closer to Cutbank and then, only when business was slow to non-existent in the winter. It only took a couple of trips to convince me there were better sports.

My first trip was with my two operators, Bill Colette and John Hunter, on a typical January day. The wind was blowing at about 30 miles per hour or so and the temperature was about 15^{o} F. The lake was situated some 15 miles west of Cutbank and a few miles south of the highway (US 2). We were dressed warmly in layered clothes and had on our regular field boots with heavy socks. A road led right to the edge of the lake so, once we arrived, all we had to do was assemble our gear and walk out on the lake. The ice was a foot, or maybe two, thick. We took our axes and proceeded to chop three holes in the ice, which took several minutes. All seemed well as our dress along with the exercise kept us rather comfortable. Once we began fishing, however, reality set in. The combination of an ice floor, a 30-mile per hour wind, a 15-degree ambient temperature and essentially no activity began to take their toll. At first I was just chilly but soon started becoming downright cold and finally I was shivering like a member of the polar bear club taking a swim in Lake Michigan on New Year's Day. I don't believe I could have pulled a fish out, had I caught one, let alone pull the hook and bait it a second time.

I wasn't about to admit I couldn't take the cold as well as my two companeros, however, and sneaked a little peak to see how they were doing. They looked as though they were feeling the chill a little too but showed no signs of saying anything. I finally yelled, "Man, it's getting chilly out here. Have you gotten any bites"? They answered in the negative and agreed the wind was really cold. That was true but I felt it more in my feet. The ice was drawing out any semblance of heat that my feet could generate in spite of the heavy socks and thick

All seemed well as our dress along with the exercise kept us rather comfortable. Once we began fishing, however, reality set in. The combination of an ice floor, a 30-mile per hour wind, a 15-degree temperature and essentially no activity began to take their toll.

soles. Finally, I ventured, "This is hardly worth the discomfort unless we get a bite soon". John yelled back, "I agree. I think we should shut it down if something doesn't happen in the next ten minutes." Well, that sounded great to me but I wasn't sure I could take another ten minutes. I left my pole and line at the edge of the hole I was fishing in and began to dance a little jig to try to warm my feet. Then I walked over to Bill and said, "I'm freezing my buns, aren't you?" He replied, "Yeah man, standing on this ice is freezing my toe nails". I could see they were suffering about as much as me and suggested we hang it up for today and try another time. We all spooled in our lines, grabbed all our gear and headed for the car.

Once inside, I realized just getting off the ice and out of the wind raised my comfort level about 10

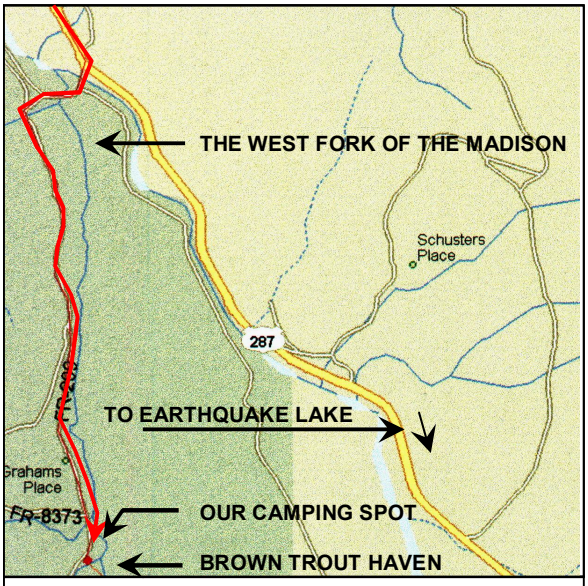

Figure 11-25 A map illustrating our camping spot along the West Madison.

decibels. I now understood why those guys in Minnesota had little houses around their fishing holes and comfortable chairs inside. A guy had to be crazy to admit he enjoyed this sort of thing. Being out in it working when called upon was one thing but coming out and standing on the ice motionless just for the fun of it had to be insane. It didn't take my limited mental faculties long to tell me that. As we drove back to town I gradually warmed up and quit shivering. Soon I found I could move both fingers and toes and began to feel more like a human and less like the abominable snowman. Even my brain seemed to function better as thoughts of appreciation began to stir therein.

A couple of weeks later, in trying to validate whether I had few if any brains, I agreed to try fishing again. This time it was a little warmer, probably near freezing but the wind was still blowing as usual. We went to a different lake and were surprised to find the ice was gone farther out, 20 yards or so from shore. We had spinning outfits with lures and spinners. We chose different spots along the shore and would walk out about ten yards from the bank to cast. After about 20 minutes, I got a hold of one, which felt like I had snagged a log on my line. He really didn't fight much and soon I had him landed on the ice. The fish was a beauty of 16 or 17 inches long and probably would tip the scales at 5 pounds or so. I was elated by the catch but rather surprised at his lack of fight. It was nothing like my experience on the Yellowstone in 1958. We continued to fish and soon I caught his twin brother, I guess, because you could hardly tell them apart in terms of size. The action or lack thereof, was also a duplicate of the first catch. I continued to fish but soon grew tired of it and decided to call it a day. John and Bill hadn't caught anything even though we had fished for a couple of hours. I guess I was just lucky because there certainly was no skill involved. One thing for sure, however, the experience had been much more pleasant than our first trip to the other nearby lake, regardless of our success.

A FAMILY VACATION

It's not clear whether this vacation occurred in 1960 or 1961 because our moves to both Cutbank and Farmington, New Mexico took place in a small window of time. It was probably the latter, however, because the move took place in late July or August. Anyhow, mom was in Cutbank visiting with us and we decided to take her home while getting a little camping in along the way. We also wanted to visit the site of the 1959 earthquake near Yellowstone national Park. So, we headed south from Cutbank on what is now US 89 to US 287, which took us through Helena and Three Forks to the Madison River. I had always heard the Madison was good fishing and thought we might find a camping spot along the way before going to Earthquake Lake, which now appeared to be a permanent fixture. You can see the general vicinity described in figure 11-6. We passed some campgrounds along the Madison but none were too attractive. Finally, we came to the West Fork of the Madison with only a dirt road heading upstream. That perked my interest

because it automatically filtered out many campers. The detailed route we took to find a camping spot after leaving US 287 is illustrated in figure 11-25 in red along with a few other pertinent details.

There was no camping spot, per se, but on the west fork was a beautiful little stream and we found a nice spot in a grove of trees 3 or 4 miles along the road. It was getting late as we set up camp and we were all ready for dinner and a little solitude. We got dinner going and I set up the tent. Soon we were pleasantly stuffed and sat around the fire talking. I told mom and Esther I thought I would try my luck fishing upstream in the morning and we'd spend the day and a 2nd night here.

MOM AND THE BULL

Morning came and we were up about eight. Around ten, breakfast was complete and I set out to do some fishing. My luck was only fair but still, I had caught a half dozen or so when I heard a "Yoo-hoo, Tom, we are over here". It was mom and Valerie about 50 yards away on the south side of the stream. I was standing in the middle letting my bait slip in under a downed tree where I had already picked up one nice rainbow. I waved to them and kept on fishing, assuming that they would continue their little hike. There were cattle feeding on the north side of the creek including one good-sized bull. He bellowed from time to time but continued about his business and had been no problem to me since I had arrived. Well, he cut loose again and mom spotted him. She headed up a tree, which was leaning across the creek just upstream from me about 50 yards. See figure 11-26 depicting the situation. She yelled again, "Tom, hurry, get up this tree. That bull is mad and he might come after you". Well, I continued to fish and she continued to yell. I could see she wasn't about to give up and I was worried that one or both of them would fall into the stream. Their perch, in my opinion, was more risky than was the danger from the bull. Anyhow, I got over to the tree and coaxed them both down. Soon they were safely on the ground and I walked them back to camp about a half mile. I went back out after lunch and caught a couple more but the whole mess just gave the bunch of us a fish or so apiece, which wasn't particularly satisfying, at least in my case.

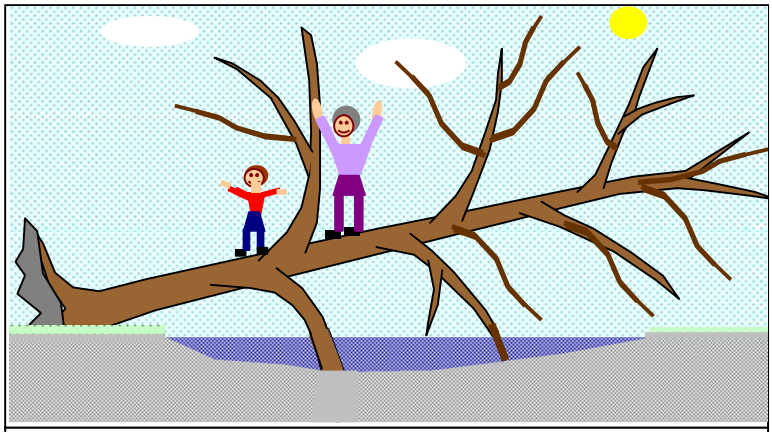

Figure 11-26 An illustration of mom and Valerie's situation after climbing out on a fallen tree to evade a bull.

BETTER FISHING

That evening, as we were finishing dinner and older gentleman, 60 or so, came by with a nice bunch of brown trout. He chatted for a while and told me of another stream just over a low ridge in the direction from which he came. He said that there was a shallow stream flowing out of a little lake with a riffle a hundred or maybe a hundred and fifty yards long. He caught his fish on worms by standing at the top of the riffle and playing out 50 yards of line or so. He worked the riffle slowly and caught his limit. All were 12 to 14 inches long, weighing ¾ pound or so.

Well, I couldn't wait to try my luck at the same spot but, as he indicated, it would have to be in the evening. The next day we spent our time relaxing with a little hiking mixed in. I scouted the riffle he had described to minimize time finding it but decided to follow the expert's advice. After supper, I again made my way over

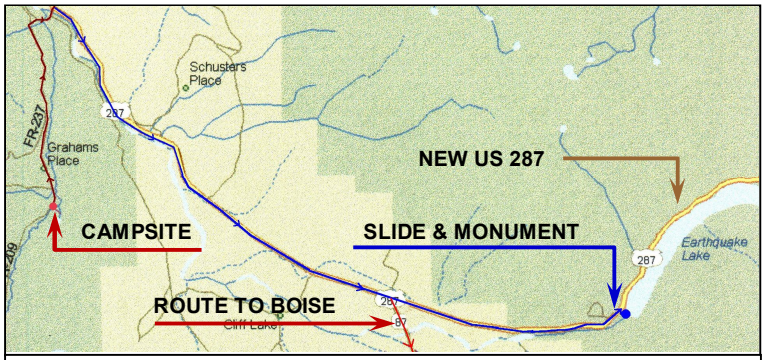

Figure 11-27 From camp to Earthquake Lake to Boise.

to the riffle a half-mile or so away. I went up to the top, walked out into the middle of the stream which was probably 20 yards wide and began to play out the line with a single worm on it. Nothing happened for a while and then I felt a tug. I set the hook and could then see through the dusky evening a fish jumping downstream at least 50 yards. I worked him in and sure enough, it was a beautiful brown just as he had shown me. I continued that pattern for another hour after which it was too dark to see anything. I had managed 6 browns every bit as nice as the ones he had displayed. I was elated as I walked back to the camp.

We'd have to eat all six in the morning because we had no way to pack them with us the next day. Needless to say we had a rather lengthy breakfast before setting out on the next leg of our journey to Earthquake Lake.

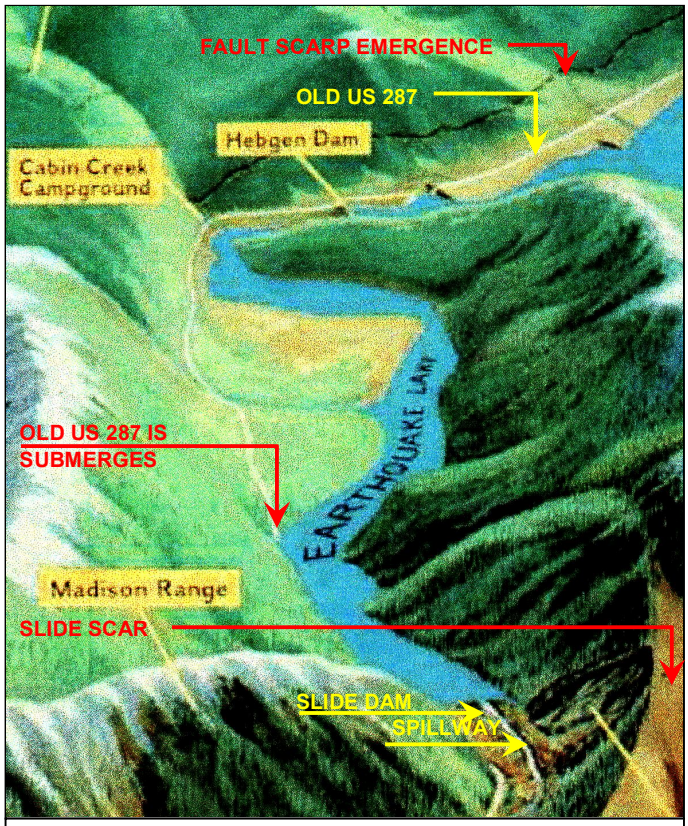

Figure 11-28 Artist's rendition of the slide area and resulting Quake Lake as shown in Nat. Geo. Mag.

EARTHQUAKE LAKE

You may remember that the so-called Yellowstone earthquake occurred in August of 1959 just a year after we had visited the park. We had moved to Billings in the summer of 1959. I have illustrated its location relative to our first camp in figure 11-27. After getting back on US 287 we were over to the lake before lunch. The highway had been destroyed from the landslide on up and around Quake Lake and Hebgen Reservoir and was not yet restored, as I remember. We had to stop on top of the slide where there was a parking lot and a monument for those campers buried at the site. The size of the slide awed all of us but I believe Celeste was the most impressed. She talked about it several times after that experience.

I found an old National Geographic article regarding the earthquake and so, I'll take time to share a few statistics and photos here. There may well be more photos and drawings than the reader feels necessary or even useful but, they serve two purposes. First, they provide insight into the quake with its resulting changes in topography and second, they give my beloved posterity one more useful clue in unlocking grandpa Tom's demented mind. You see, these kinds of things provide a stimulus for my geophysical imagery, thus helping me equate all those gloriously intriguing measurements I've previously discussed with the reality of old Mother Nature's rocky crust. Now, if you understand what I'm talking about, you are one step ahead of me and are probably headed down the same slippery slope I have traversed these 80 some odd and I do mean odd, years. That is, you have a problem to face because of the intrigue such odd and interesting things seem to hold for you. However, don't bewail or lament the inevitable, for it has its bright side. Happiness is in the psyche of the beholder or, is that bewildered? In any case I'm happy and often experience great joy in my twisted perspective of life, which should provide some encouragement for those so afflicted. Now, let's get back to reality.

The earthquake struck at 11:37 PM after campers were in bed and was recorded as having a 7.1 magnitude of intensity on the Richter scale. It unleashed a slide of 80 million tons of rock and earth, which created a scar in the southern canyon wall of the Madison some 1300 feet high and a half-mile wide. The slide scene shown in figure 11-28 is an actual drawing taken from the National Geographic. Additionally, I have added figures 11-29 and 11-30, which are photos of sections of the old US 287 and the emerging fault scarp around Hebgen Reservoir respectively. The latter may

serve to provide a little better idea of the severity of the quake. Had this occurred in an urban area, it's hard to say how many lives would have been lost or just what dollar amount of damage that might have been inflicted. Truly, it was an awesome demonstration of the power of old Mother Nature, which man has yet to be able to reliably predict or moderate.

As a final set of drawings to help illustrate the mechanics of the earthquake I have included a couple of my own creations as figure 11-31. Maybe they will help the reader better understand what occurred the fateful August night at 11:37 PM. A typical normal fault cut the rock beneath the Hebgen Reservoir and approached the surface along the north shore. It was, quite probably, a real factor in the development of the Madison River canyon in which the reservoir was situated. Of course, highway travelers and residents of the Cabin Creek campground had no idea of what lurked beneath the ground on which they walked, ate and slept. The surface outcropping of the Hebgen fault had long been disguised by surface erosion and sloughing of the hillside. As the forces holding the fault blocks together relaxed over the years the frictional forces holding the southern block in place were finally overcome by the weight of its own mass. Consequently, the south block dropped roughly 10 feet relative to the northern block. This movement both broke up the highway as shown in figure 11-29 and allowed the fault scarp or plane of the northern block to appear at the surface (see figure 11-30). It also lowered the north shore of the reservoir while generating mini-tidal waves, which sloshed over the Hebgen Dam inundating some campers along the river below. That experience must have been a nightmare for any campers in the vicinity. Figure 11-31 illustrates the before and after positions of the southern block as well as the deepening of the reservoir waters along the north shore. The basic mechanics are simple enough while the ensuing ramifications were disastrous. According to my source, the National Geographic Magazine, 9 people were confirmed dead and nineteen missing who were in the area and never surfaced again. Whether the latter group was all buried somewhere or used the incident as a convenient means of identity change, society will probably never know. One thing for sure, however, those people who experienced "The Night the Mountains Moved" and lived through it will, undoubtedly, have it indelibly written in their subconscious. It's something they will never forget as they walk the pathway of this life.

We spent some time at the slide and monument that day before proceeding on to Boise. In those days, there were few interstate highways built and Carl had not yet located in Idaho Falls. Schlumberger had not yet agreed to air-conditioning in company cars. It was an expensive frill unneeded by their field engineers. Consequently, we bounced along the two lane

Figure 11-29 A destroyed section of highway, U.S. 287 on the north shore of Hebgen Reservoir.

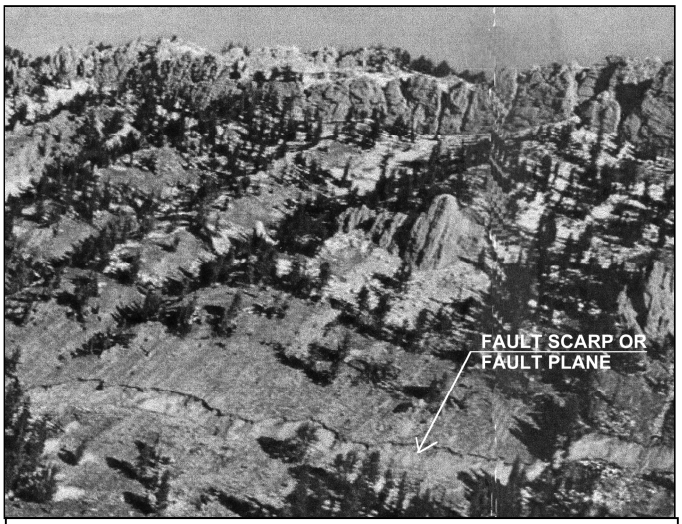

Figure 11-30 The north shore hillside of Hebgen Reservoir showing the emerging fault scarp.

highways down past Idaho Falls to Pocatello and thence to Boise sweltering in the heat. Overall, it had been an enjoyable but tiring trip and we were glad to arrive at our destination. We stayed about a week, as I remember, before heading back for Cutbank but such trips are now a blur. I believe we managed to get to Boise about every two years.

OIL FIELD EXPERIENCES

The Cutbank district was responsible for a wide area including the north half of the state of Idaho east to Glasgow, Montana. Of course, the drilling activity was really confined to an area extending from Glacier Park east to Havre and south to Great Falls. A map of this primary service area is provided for reference in figure 11-32. On that map I have marked the locations of several jobs, which, at least in my mind, included oil field experiences worthy of relating. They are labeled A through G for identification and are located in the four sub areas of activity, numbered 1 through 4. The sub areas represent 4 different geologic zones of production or, at least, geologic interest.

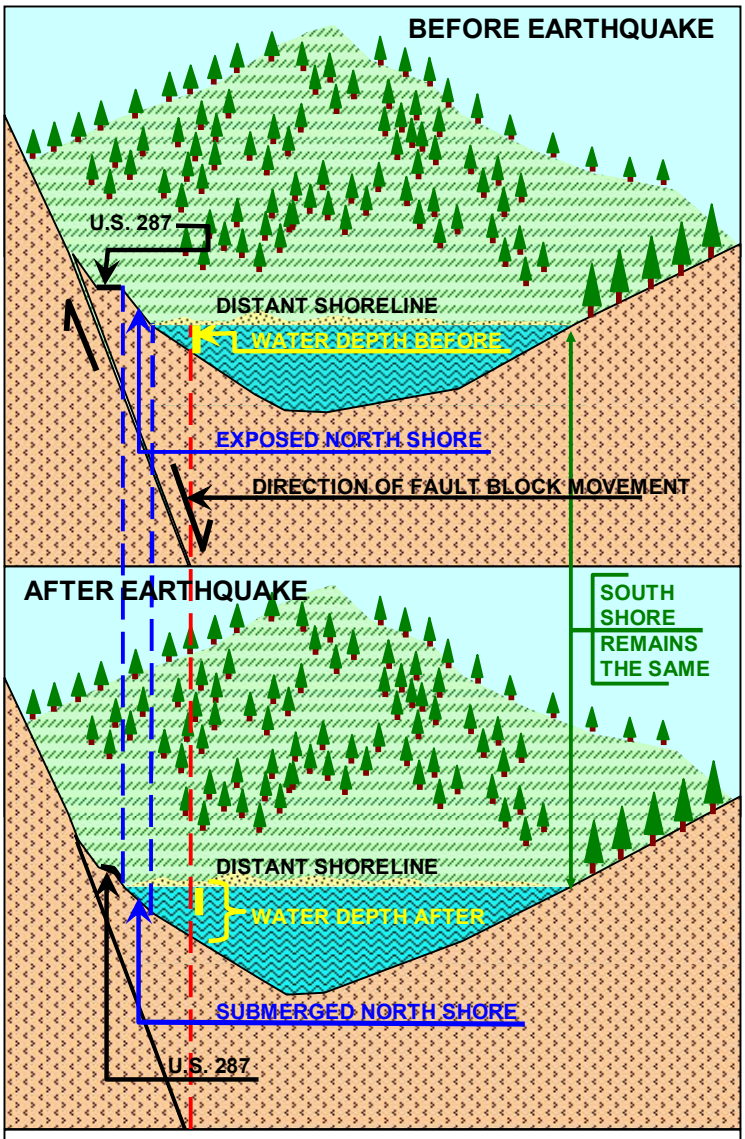

Figure 11-31 A before and after illustrative cross-section of the Hebgen fault in the earthquake of 1959.

Zone one was termed the thrust belt and was similar in nature to that described in chapter 10 west of Rock Springs. Here, once again, through the geologic ages compressive forces from the west had pushed sedimentary rocks to the east creating mountains on the surface and very complex folded and faulted rocks beneath. Although a good deal of geophysical work had been done by several major oil companies, accurate definition of subsurface features was difficult to say the least and generally provided a rather hazy picture of what lay beneath. Even so, the potential for large fields of oil or gas was there because of the numerous trapping mechanisms and 3 major wild cats were drilled while I was in Cutbank. Several more had been drilled prior to my arrival. As far as I know, nothing of significance was ever found. A small gas well had been completed down near Choteau, which spurred Shell Oil Company to drill a deep test west of that little farming community, which I have labeled D. I show a second well in the same area, which involves an independent operator, Joe Montalban, and a special story. Similarly, a small well had been completed south and slightly east of Browning which encouraged everyone. Consequently a well was drilled to 11,000 feet south of East Glacier (not shown) and another north of Babb, which is labeled F. Although the wells drilled that year in zone 1 were few, they provided good income for Schlumberger in that they were deep and required several complex logs. In addition, most were logged two to three times.

Zone two had within it several old oil fields producing primarily from the Cutbank sand at around 3000 feet. They required only an ES or I/ES and a ML for analysis. Typical income from such a well was $1500 to $2000 for

Schlumberger. We also did a little perforating in that zone which brought in about $1000 per well. Though a relatively small amount, the jobs were essential to our financial survival.

Zone 3 was more of a wildcat area but again involved relatively shallow wells of 3000 to 6000 feet deep. There was a nice little field up near the well labeled A, which was called Bears Den. We probably logged half a dozen wells in that area during my stay. To the east near Havre (off the map) there were several old gas fields in the 1000-foot range but they produced no activity that year. Sometime later, about 1970 to 75, Schlumberger added a location in Havre to service a gas-drilling boom in these shallow horizons with Cutbank station attached to it.

Zone four was another old producing area involving the Madison formation, which was the top of the Mississippian age rocks. They were predominantly open-hole completions and required no wire-line completion work. They were also shallow, 2000 feet or so, and involved primarily a GRN with maybe an ML, though some operators never logged at all. I will explain the reason behind that later. Well C is an example of such a well.

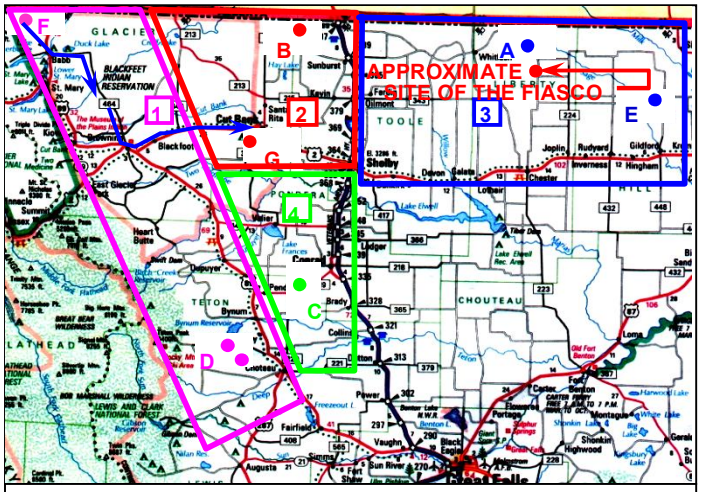

Figure 11-32 Map of the primary area serviced by our our unit located in Cutbank, Montana in 1961.

THANK GOODNESS FOR WHEAT FARMERS

We had logged several wells in the vicinity of well A throughout the summer of 1960. To get to the Bears Den area we had to go to Joplin, just east of Chester, and then north along dirt roads to the rig. In late October we got another call to log a well that I have designated as A, in the same general vicinity. As usual, I passed the truck at about Chester and went on to the rig. I figured the truck would arrive an hour later. I collected the necessary information and then visited with the geologist. An hour passed and still the truck hadn't appeared. I waited another 30 minutes before telling the geologist I would go and find out where the truck was. The roads were fine and I saw no reason for tardiness.

I had only gone a few miles when I found them off the side of the road in a right angle turn. The driver, John, had obviously cut the corner too sharp and the right wheels had slipped down the embankment. Both Bill and John were standing beside the truck, which was sitting on its frame and kind of rocking in the wind. I half expected it to roll over and down the embankment at any minute. I walked over and asked what happened. Apparently, as John turned the corner the right front wheel cut into some soft sand and pulled the truck still further to the right. Before he could get the rig stopped, the rear tandem duals were also over the edge. There was no way of driving it out. In fact, with the rather stiff westerly wind there was a real chance that it would slide down the embankment and roll. Then we would really be in trouble. Bill suggested we try to get a caterpillar from one of the wheat ranchers in the vicinity to help us drag it out. Obviously, we needed two, one to drag the front end down off the bank and a second to hold the chassis itself firmly so it wouldn't roll. Yes, it would take two cats. The situation we faced is illustrated in figure 11-33. They stayed with the truck and I headed down the road to the nearest wheat farmer's house. It was then early afternoon.

Upon knocking on the door, I was warmly welcomed and invited in. As I explained the situation to the farmer, he agreed it would take two caterpillars. He had one but he knew a neighbor who also had one. He said, "Unfortunately, we have just shut things down for the winter and it's going to take a while. I've drained the oil, so I'll have to put some in and add some fuel. It'll take 3 or 4 hours to get that done and walk it over to where you are. Let me check with my neighbor and see what his situation is." He did and his neighbor agreed to send his cat to the site as well. I thanked the first one profusely. I was in a bind and there was no other solution that I could see.

I headed back to the truck and told Bill and John the situation. Next I went to the well and informed the tool pusher so he wouldn't come

out of the hole until we arrived. I likewise gave the geologist an estimate of our arrival time. Then I returned to the truck once more to wait on the caterpillars. That turned into a 4-hour wait during which I was nervous as a bride in an arranged wedding. Every gust of wind, so it seemed, made the truck wobble and me shudder. We were helpless until at least one cat arrived so we could anchor the truck.

Finally, the first cat, which happened to be the biggest, arrived. The driver positioned it in the drainage channel across the road from the truck and we secured the truck to it with the winch

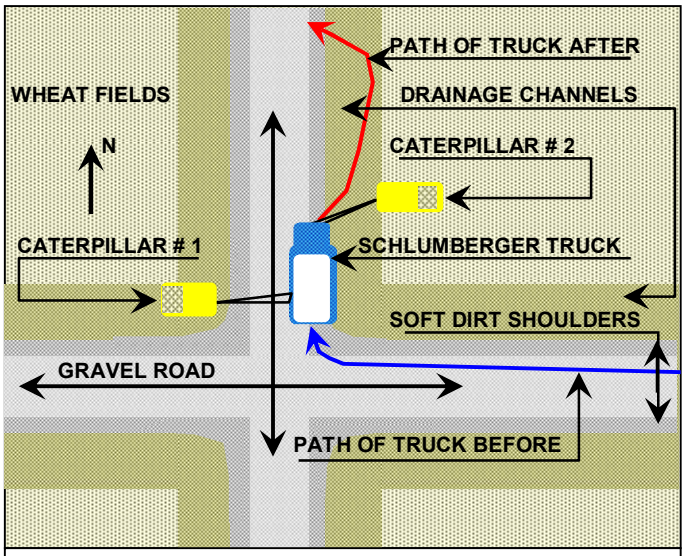

Figure 11-33 An illustration of the predicament we found ourselves in that late October night.

line. That managed to allay our fears of the truck rolling. When the second arrived about thirty minutes later, we had the driver position himself to the north east of the truck. We then hooked his winch line to the truck frame in front. John got in the truck and turned the wheels downhill to make it easier to swing the truck in that direction. Our farmer friend wound up the engine on the smaller cat and began tugging. At first, the truck wouldn't move but then, ever so gradually, the front end swung downhill. When the front end had made about a sixty-degree angle with the road, we unhooked cat #1 and John was able to drive the truck into the rather wide flat channel. He then swung left along the channel axis, as indicated in figure 11-33, until he came to a rather low angle hill leading back up to the road. There he swung another hard left and soon had the truck back on safe turf in the middle of the gravel road. What a relief that was for me. We all breathed a sigh of relief.

I asked the farmers how much we owed and the reply came back, "$30 a piece should do it". I was surprised to say the least. With all their trouble, I expected nothing less than $150. I quickly wrote out a check of my own to each and expressed my appreciation once again. I could get my reimbursement from Schlumberger later. They simply indicated that they were happy to help and took off down the road with their caterpillars. We made a beeline for the rig, which was about a mile away, made the job with no problem and headed home by daylight. I was relieved and John had learned a lesson about cornering.

BOULDERS ARE HARD TO DODGE

This little incident is related to a well we were logging just west of Sweetgrass, Montana, which is located next to the Canadian line on the present Interstate 15. I had taken Montana 214 north out of Cutbank, which led directly to the rig (job B) as you can see in figure 11-32. As I turned east towards Sweetgrass and had traveled several miles, I saw a rig just off to the north. I knew it couldn't be the one I was headed for but it piqued my curiosity because I hadn't realized a location had been staked there. You see, I kept track of all drilling activity in my service area with the express purpose of getting all open-hole logging work and any available completion work I could. Lane Wells, a division of Dresser Industries, had a completion truck in Shelby and could call in a logging truck if needed from Glendive or Cody. They had little success in the open-hole market because we were closer and could provide better service. Even so, I knew I needed to contact the operator of that rig. I looked for a road leading into it but could find none and went on to my assigned rig. The truck soon arrived and we completed all preliminary work. They decided to drill another 50 feet or so and we had some waiting time on our hands. I told the geologist I thought we would go in to Cutbank and get something to eat and take care of some other chores. He said he would give us a call when they started out of the hole, which would give us sufficient time to get back for the job. Then, as an afterthought, I queried him about the rig I had seen and how I might get to it. He laughed a little and said, "I really don't think you're interested. That's a Canadian rig. The border is just south of it between 214 and the rig. Any service companies involved come out of Lethbridge, Canada". Well, I said, that

solves the missing or mysterious rig problem I had been concerned with.

My two operators and I headed back for Cutbank on 214. It wasn't a bad road, particularly. The countryside was relatively flat and it was well graveled. Unfortunately, some of the gravel involved really consisted of rather large rocks. One could easily find rocks of four or five inches in diameter in the roadway. I didn't worry too much about them because any rocks kicked into the air by vehicles just ahead of you or even those passing in the other direction were small. Sure they could crack a windshield but that was about all. Such was a common problem and I typically had to have a new windshield installed at least on a yearly basis. I was always careful about following anyone too closely to minimize such pocks or cracks. It was a nice day and we cruised along at about fifty with no one in our way.

As we turned south, maybe half way to Santa Rita or so, we began experiencing traffic in the opposite direction. The road wasn't particularly wide, though two vehicles could pass with little trouble, and I slowed down as one would approach. Soon I noticed an oncoming flatbed truck with a load of oil field gear coming towards me at a relatively high speed, maybe fifty. He was spewing rock to both sides. It was obvious that a tight squeeze was about to occur when we passed and we would be sprayed with gravel. See figure 11-34. I eased the car to the right, gritted my teeth and slowed down to about 25, hoping to get by without a cracked windshield. When the truck was about 20 yards in front of me, I saw a big rock fly up in my pathway and, with a rather futile wish; I hoped it would clear the road to my right. The rock's trajectory carried it in an arc somewhat higher than the car and it seemed almost stationary as my old Ford approached it. Needless to say, I hit my brakes, hoping to avoid its impact but to no avail. The rock hit the windshield directly in front of me, smashing it to smithereens. It didn't enter the car but my lap and shirt were showered with glass particles. I brought the car to a screeching halt as the truck zoomed by. I'm sure the other driver had no idea of what had just occurred. I climbed out, uttered a few descriptive adjectives, and dusted myself off. Bill, who was beside me in the front seat, said, "Wow, I thought that sucker was coming right in and I lowered myself down behind the dash". I hadn't noticed but couldn't do anything like that anyway. After thinking it over, I decide we were pretty lucky really because we didn't lose control and end up in the ditch. After climbing back into the car, I realized I couldn't see through the windshield any longer. I had to lower the window in the door and stick my head out to see where I was going. I suppose, I drove that way 10 or 15 minutes before arriving in Cutbank. Suddenly, my first priority of the day became the replacement of the car's windshield. Fortunately, I was able to get that done before the rig called us back.

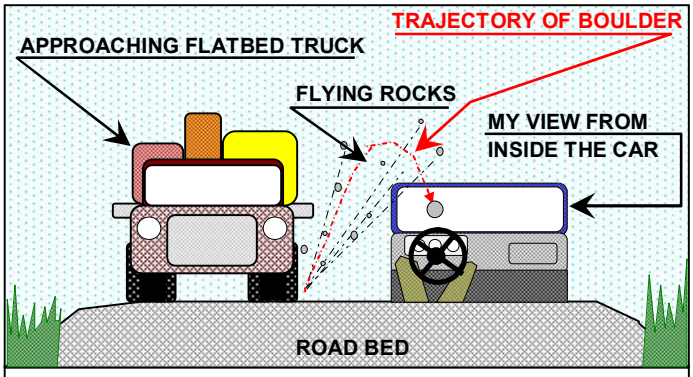

Figure 11-34 A picture of the scene I observed approaching me on Montana 214 that afternoon.

A BAREFOOT COMPLETION

Well C was drilled down near the little Montana town of Valier. In fact, it was part of the so-called Valier oil field, which produced from the top of the Mississippian or Madison formation. In that area, the Madison contained both water and oil. It was at a relatively low pressure and the wells were all on pumps. Different techniques had been used to keep the water out of the wells which varied from barely penetrating the Madison so the bottom of the well was still above the water level to drilling through the zone and trying to seal off the water through selective perforations and squeeze techniques. Drilling through the Madison was advantageous in that the zone could be completely logged and evaluated in terms of water saturation. However, it was difficult if not impossible to isolate the water from the well. The first method became the standard choice because it controlled the water production most effectively.

I have illustrated a typical well situation similar to that of well C in figure 11-35 to help the reader understand the concept of a barefoot completion. The formation pressure pushes the oil level up into the casing and tubing to some static level. A pump is then necessary to bring it

to the surface. Notice the oil water contact in the Madison formation. With the open hole just penetrating the oil zone a matter of two or three feet, only oil flows into the open hole and up into the casing. However, any negative differential pressure (bore hole pressure less than formation pressure) tends to pull both oil and water towards the well bore. The pumps can introduce such a pressure difference, of course. If that pressure is kept small, then most of the oil can be drained before the water breaks through. Once that occurs, water flow tends to swamp the oil flow and effective production ceases.

The drilling depth must be closely controlled so as not to penetrate too deeply into the producing zone. As drilling approaches the target, a correlation log might be run to ascertain exactly how far from the top of the Madison the bit has penetrated. Some operators may elect to watch for limestone in their drill cuttings and then shut the drilling down. That's risky but cheaper. In either case, after casing is set, they usually ran a GRN for correlation and to accurately identify the top of the limestone to determine how far they had penetrated it. That may be after the fact but it did provide desirable information for the future for mapping and possible corrective action. The term "Barefoot" refers to the open hole at the casing shoe.

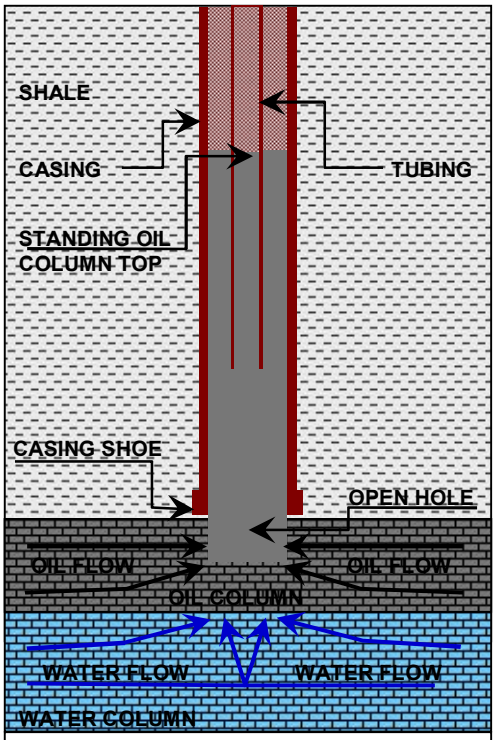

Figure 11-35 In the Valier field barefoot completions are practiced.

JOE MONTALBAN & NORTHERN LIGHTS

During my one year in Cutbank I logged several wells for an independent operator named Joe Montalban. He was unusual, to say the least. He knew little or nothing about logs but always showed up when they were run. A consulting geologist usually sat at the well. His wells were all located down near Choteau and penetrated well into the Mississippian rocks and maybe deeper. The primary log was always a laterolog seven and we typically ran a gamma ray neutron log for porosity. It was considered to give better answers in the carbonates we were trying to evaluate. We may well have run a sonic log from time to time as well because it had become an accepted porosity device. In any case, my story involves Joe, the Laterolog Seven and one of the wells labeled D.

On this particular job he had indicated he would arrive at the well somewhat late but for me to go ahead and run the logs so they could be ready to evaluate when he arrived. This I did without any particular problem other than a slow operation. You see, he wanted an SP curve as well as the standard laterolog resistivity curves. This often required a total of three passes in the well in those days. That is, one for the standard resistivity scales of 0 to 10, 0 to 100 and 0 to 1000. The resistivity of some beds which was higher than 1000 and a second pass was required to run a 0 to 10,000 ohm scale which we then traced on the original log. Occasionally one could run an SP curve simultaneously with the standard curves but, more often than not, there was too much noise and the engineer had to make a third pass with the power off to get a valid SP. That curve was also traced onto the original log. All this was time consuming and, admittedly, resulted from poor design of an obsolete tool. It was not, however, a tool malfunction. I had done this for Joe on earlier wells and he accepted it as standard procedure. However, my explanation of our SP problem seemed to set him off.

SP PROBLEMS

On this particular day, as I dropped back to record the SP without any current applied to the tool, the noise disappeared as one would have expected. However, as I began recording, I noticed the shale base line was drifting back and forth across the SP track. This is depicted by the solid red line in the SP track of figure 11-36 A. With the tool stationary in the hole, the galvanometer simply moved back and forth across the screen in a random manner. When I recorded with the tool moving, the result was a combination of real SP and the wandering

baseline as I have depicted with the dotted and solid red lines. The dotted red curve obviously represents the SP deflections to the left. The result was both a distortion of the SP and the fact that I couldn't keep the curve on scale such as at 5500 feet and 5220 feet. Normally the SP would look something like the blue curve shown in figure 11-36 A with the shale value essentially constant up and down the borehole while, opposite the sands, the curve would move to the left. This, I proved later after some circuit changes. I had seen this problem before in Rock Springs and realized it was due to the northern lights. The only solution was running a down-hole ground. This required coming out of the hole to rig a part of the circuitry involved and it cost us a couple of extra hours. I will explain the phenomena in full a little bit later because it's interesting.

The well was about 6,000 feet deep and it took 2 hours for each pass with laterolog and another 4 hours to define and solve the SP problem. I did the tracing of secondary curves on to the main film as I was recording other measurements, to save time. When Joe arrived, we were just beginning the GRN, having taken about 8 hours to complete all phases of the laterolog. I was still tracing the SP on to the main film as he climbed into the truck. I was darned proud of my work considering the severe conditions involved. He asked me how things were going and I indicated fine. Next he asked when we got the hole for logging and I told him. He then said, "You must have had some tool problems". I said, "No, it was just slow because of the extra runs and the tracing involved" and I added, I also had to run a down-hole ground for the SP. He wanted an explanation, so I went through all the details. He seemed to be accepting my explanation until I began to explain how the northern lights were tearing up the SP. At that point he let out a big guffaw and said, "Obenchain, you're feeding me a line, aren't you. You surely don't expect me to believe the part about the northern lights, do you? Can't you come up with something better than that"? I insisted it was true and said I would be happy to explain it in more detail later if he would like. The last thing I wanted him to believe was that I was telling some kind of fairy tale to cover up problems. He shook his head laughing and left the truck. I finished the job, interpreted the logs and completed the paper work. He wasn't interested in any additional explanation even though I had seen their display on recent nights while on various jobs. He still thought I was feeding him a line of baloney when I left. Consequently, much to your chagrin, I have decided to explain this particular phenomenon to you, right now,

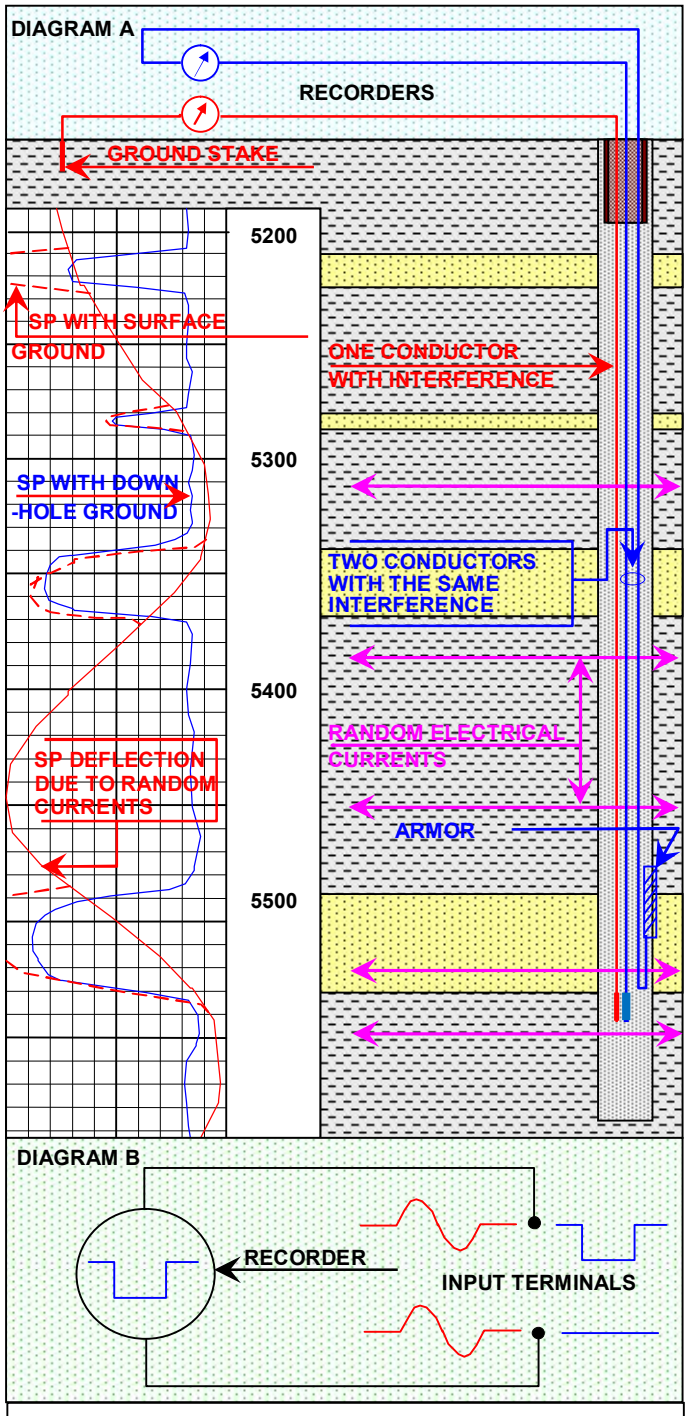

Figure 11-36 An illustration of my SP problem that resulted from "Northern Lights" on Joe's well.

with the aid of figure 11-36 whether you like it or not. Of course, you can ignore it but such an explanation will help you, my posterity, better understand this old demented mind and consequently cope somewhat more effectively with the genes you have been so unfortunate as to inherit. You might even feel inspired to explain this phenomenon to someone less fortunate in the gene pool.

THE NORTHERN LIGHTS PHENOMENON

The northern lights result from solar bombardment, so we are told. The charged particles from the sun, which strike the earth's atmosphere, are drawn to the magnetic poles of the earth where, through ionization, they put on a tremendous light show. They also generate random currents in the earth's crust, which flow back and forth with varying amplitudes and at various depths. Though they are unpredictable, they are real and, when unusually severe, must be dealt with. I have run into the phenomenon on several occasions in the northern Rockies.

The magenta arrows in figure 11-36 depict such currents. As they flow by the borehole, they induce varying voltages in any and all conductors in the well. With a normal SP hook up (the red circuit) only one leg of the SP is in the well and the signal induced from these random currents is added to any SP signal appearing at the electrode down hole. The recorded signal is the sum of the solid red line and the blue curve of figure 11-36. As explained before, it would look something like the solid red and dotted red curves placed together. The solution to the problem lies in getting rid of the induced voltages from the random earth currents. This can be accomplished by utilizing a down-hole ground.

To rig a down-hole ground, the wire normally going to the ground stake is hooked, instead, to another conductor in the cable such as # 6 which, in turn, runs to the upper electrode of the bridle. A copper wire is then run from that electrode to armor or the steel covering of the cable. Thus, the armor effectively replaces the ground stake. With both sides of the SP circuit connected through parallel wires going down the cable, an induced voltage appearing in one will also occur in the other. They effectively cancel each other and only the voltage resulting from the down-hole SP electrode shows up on the galvanometer. This hook up is illustrated by the black circuit of figure 11-36 A. Figure 11-36 B should clarify this idea to even the less electrically inclined. There I show two identical red signals, one applied to each input of the recorder. Additionally, I show a black signal applied to only one input. As illustrated, the recorder only sees the black signal because the identical signals applied to both terminals result in no current flow through the recorder. Thus, the unwanted interference is eliminated, which satisfies the customer and utterly delights the engineer who finds great joy in solving such aberrations of nature. One might ask, "Why isn't a down-hole ground always run to prevent the phenomenon"? It isn't run because it produces an undesirable effect on the SP as the tool approaches the casing shoe.

A THREAT TO SOCIETY

I had been working two days and two nights on another well in the Choteau area for Shell Oil, which is also labeled D. Needless to say, I had a beard and a pretty pungent case of B.O. Besides, I was tired and I suppose, my face displayed that fact with its drooping lines and lifeless eyes. The mere sight of me would have scared any young child and most women. Upon my return, I elected to cut across on Montana 219 to Conrad and then up to Shelby on what is now I -15. Then, of course it was only a two-lane highway known as US 87. As I came within 5 or 6 miles of Shelby, I saw a lady headed south and pulled off to the side of the road. The engine was over heated and steaming. Without thinking about my appearance, I stopped and asked if I could help. As she came across the highway, her eyes focused on me and suddenly this terrified look came across her face. Even in my soporific stupor, I rather quickly realized the problem and tried to explain to her why I looked so bad. She wasn't exactly receptive and stayed her distance while we talked. I told her I would be happy to either deliver a message or even give her a ride back to Shelby if that would help. After conversing for about five minutes, I guess she decided I was to be more pitied than feared and was probably telling the truth because she decided to accept a ride back to town. When she climbed in on the other side, I noticed she sat right next to the door with her hand on the handle. I suppose she was ready to bail out at the slightest hint of ardor on my part and, of

Even in my soporific stupor, I rather quickly realized the problem and tried to explain to her why I looked so bad. She wasn't exactly receptive and stayed her distance while we talked.

course, the distance between us helped alleviate the cocoon of odor that surrounded my rather grimy body. Like light, the intensity of such stench falls off as the square of the distance from the source of contamination. Well, I was too tired to do much more than drive while the aroma of my presence was but little more danger than a slight exposure to agent-orange. Thus, she survived and I dropped her off in down town Shelby where she was to get a hold of her husband. I can only imagine the conversation that went on around their dinner table regarding her strange experience that day.

SHELL SHOCKED

At this point in time, the spring of 1961, the Sonic Log was an established service and its stepchild, the Cement Bond log, was beginning to be used for the evaluation of cement jobs. During these early years the latter device utilized the same equipment as the Sonic but the transmitting transducer of the sonde had to be magnetized with a polarity opposite that of the

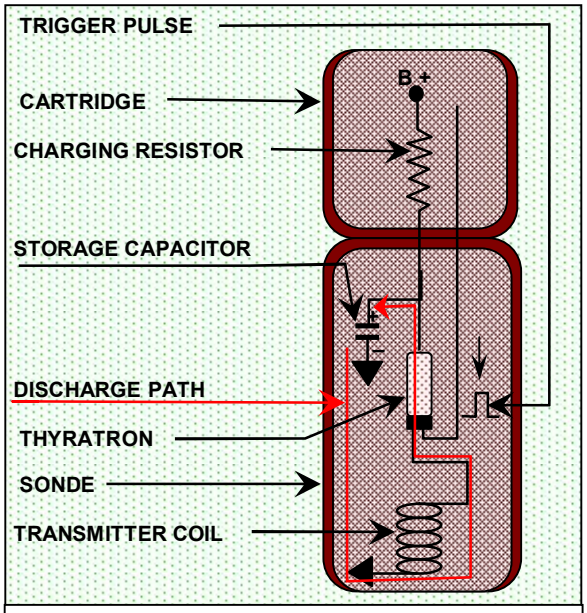

Figure 11-37 A drawing of the Sonic Tool firing circuit in sonde & cartridge.

Sonic. See chapter 7 on the subject if interested. To prevent improper use of either device, most locations kept both sonde types, and clearly marked them to eliminate such error.

Shell Oil Company was a very active operator in the Glendive, Montana area and, of course, they drilled in other areas of the state as well. They had recently drilled a deep test in the Choteau area on which we were to run a CBL. To facilitate the situation I borrowed a CBL sonde form Glendive to make the job and expected to send it back at the next opportune time. They were also drilling near Havre on a well I have labeled E in figure 11-32. We no sooner completed the CBL job than a call came in from Sohio for a Sonic, among other services, on a well north east of Shelby. The job was completed with only one small problem. That is, when we ran the Sonic, the tool quit with only a couple of hundred feet to log. The Sohio representative decided the missing zone was not critical and released us without displeasure on his part. We headed for the barn for some well-deserved rest and arrived there about 8 or 9 in the morning. I planned to get a little sleep and worry about what ailed the Sonic Tool later.

As I walked in the office door, our secretary, said, “Shell Oil is on will call for a job near Havre and they also want a Sonic”. You see, we didn’t run that many Sonics and she was surprised by the recent number of such orders. Typically, we only ran an I/ES Log and a Microlog, you may remember. I said, “Oh, oh, we’ve got a problem” and mentioned to her the tool failure we had just experienced. It wasn’t that easy to get an instrument technician in to fix the tool or to borrow one either. The technician from Williston came over once a month but his visit was still two weeks away and the job was expected for the next day. I decided I had a chance of fixing the problem myself and headed for the garage after turning in my paper work.

John and Bill had just finished cleaning and restocking the truck when I arrived with the news of the impending job. As I explained my intention of trying to isolate the problem and fix the tool, they groaned a little and began pulling the sonde and cartridge off the truck. Once the device was hooked up, I applied power and the result was the same as the previous night. There was no ticking sound, which was an indication the transmitter was firing. I looked over the circuit diagram and decided the big storage capacitor or the thyratron, as shown in figure 11-37, were the most likely culprits.

The circuit is simple. Let me explain its operation very quickly. The thyratron is normally non-conducting and consequently, the capacitor charges up to the voltage level of the cartridge power supply or B+, about 250 volts. When it reaches that point, current flow stops. Sometime later, a voltage pulse, called a trigger, is applied to the tube as shown in the diagram.

It momentarily allows the tube to conduct which discharges the capacitor through the transmitter coil as illustrated by the red arrow. This causes a sound pulse to emanate from the coil into the formation. After the pulse, the tube shuts off and the capacitor is re-charged. The process occurs 20 times a second which is called the pulse repetition frequency. This process produces the audible ticking sound I spoke of earlier and thus verification of operation.

We opened up the sonde and checked the capacitor first. We were in luck; it was shorted out, just as I had hoped. I knew I could borrow the capacitor from the CBL sonde and make the repair, which was easy and quick. I did that and fired the tool up again, expecting to hear that friendly ticking sound. No such luck, there was something else wrong. Next, I changed the tube which was easy but that did no good. Then I got smart and checked the voltage coming from the cartridge. There was none, so I opened up the cartridge and started looking for the obvious, i.e. a burned resistor. Sure enough, the charging resistor was open, having been ruined by the shorted capacitor.

He finally said, "Obenchain, this may be hard to believe, but I think the two failures were just a coincidence and you need to replace the capacitor again".

I didn't have any of the proper size and wattage but I was in a bind and decided to take the forbidden step of buying one from the local hardware shop. You see, our tools used nothing but top quality parts, which had to be special ordered. Even so, if I found the right size, it might make it through this one job. Once again, I couldn't find the necessary size and wattage or power rating, so I decided to combine two or more to achieve the proper values. That I was able to do and back I went to the shop. Soon I had the circuit hay-wired in a practical though not esthetic manner. Next we closed up the cartridge and sonde, applied power and voile, it worked like a charm.

We let it run as we sipped on a cup of coffee and patted ourselves on the back. We were now ready for the Shell job. I finished my coffee and started over to shut the tool off. Before I could get there the ticking quit and we all said, almost simultaneously, "oh no, it quit working". I shut the tool off, went back into the sonde and, would you believe, the big storage capacitor was shorted out again. I went back through the circuit checking every component. I felt something else had to be wrong to cause two capacitors to fail. I could find nothing and so I called Bill Garbutt, our Division Electronic Technician, in Casper, Wyoming. We went over the problem and discussed all the checks I had made. He finally said, "Obenchain, this may be hard to believe, but I think the two failures were just a coincidence and you need to replace the capacitor again". I didn't have a better answer and decided that was the thing to do. Bill had a capacitor but he couldn't get it to me in time and suggested I get one from Williston. Time was of essence because the job could come in any moment. I told Bill and John to go get some sleep while I worked things out.

I went to the office and, as I walked in, Dorothy said, "The Shell job came in. They want you there by noon tomorrow". Well, that settled it. I had to make a decision now. I called Williston to see if they could loan me a tool and meet me at the well. Their tools were busy and wouldn't be available for a couple of days. I finally settled for a capacitor and had them send it to the well to arrive by 10:00 AM. I would take my bad tool and install the capacitor while uttering a little prayer that everything would work. I called John and Bill and made arrangements to leave by 6:00, it being a 4-hour trip to the well. To make a long story somewhat shorter, everything worked like a charm. The hotshot with the capacitor arrived on time. I had the tool out ready to repair and installed the capacitor. It not only worked when I tested it on the surface but also made a flawless job. Shell was happy, I was relieved and my confidence in trouble shooting and decision making was bolstered. I drove home as a happy young engineer. Needless to say, the next time the technician came over to service our equipment, I had my hay-wired masterpiece removed and the proper resistor installed.

A SUPERIOR FORAY

In the fall of 1960, we had three deep tests going along the mountain front, i.e. Shell Oil near Choteau, Gulf Oil near West Glacier and Superior Oil just north of Babb on the edge of Glacier Park. All were playing the over-thrust, trying to pick up a major gas strike. There was such a field not too far north of the Canadian border. As the year ended, we had run final logs on Shell's well and also two runs on Superior Oil Company's well. Gulf wouldn't log until after the

first of the year. This particular story relates to the Superior well, which we logged a second time on December 23 and 24 of 1960 although it wasn't expected until a few days later.

To help you understand this situation, let me explain a general Schlumberger philosophy, which is to establish locations with sufficient engineers and equipment to handle the average day to day business. Of course, our business depended upon the number of wells being drilled as well as the market share we were able to receive from the various active operators. Activity in the Cutbank area could be quite high in the summer months, average in the fall and spring and almost non-existent in the winter from January through March. In any location, activity occurred in peaks and valleys. One week, or even day, a 3-truck district might need 5 or six trucks and the next week 1. Of course, engineer's field time varied in the same manner. We did our best to move trucks around so as to provide the best possible service for the customer and it wasn't unusual for a given district to request help from time to time.

On the twenty first of December, I got a call from Cody, Wyoming, a distance of almost 500 miles, for help with a job in Elk Basin Field. As I remember, it required a Laterolog 7, a Microlaterolog and a Sonic Log. I had no will-calls and knew of nothing that would be logging anytime soon, so I accepted and we headed south that morning. Counting coffee stops, etc., the average speed of our logging trucks in the Rockies was in the neighborhood of 35 miles per hour. That wasn't a bad figure when determining arrival times some distance away. Using that measuring parameter, we were 14 hours from the Cody well.

Also, we had recently added 9000 feet of cable to the truck to be ready for Superior who would TD at about 13,500 or 14,000. That also got us ready for Gulf who would TD at 10,500. Other jobs were seldom more than 6 or 7 thousand feet in our district. I have included a map of the Chief Mountain area where the Superior well was located as shown in figure 11-38 for later reference. Though the Peak of Chief Mountain is designated in the upper left of the figure, the whole green area is part of the mountain complex. It enlarges the immediate area of figure 11-32 where the well is designated as F.

Because the truck had two drivers who could spell each other, I made it a practice, when tired, to run ahead of the truck and find a nice parking place alongside the road to nap. As the truck came by me, John or Bill would give me the air horn and I'd take off again to get another hour or so ahead. We would repeat the process all the way to our destination. We had agreed when we left Great Falls to stop and eat at Laurel, Montana just west of Billings. We leapfrogged then, until I finally arrived at the coffee shop where I would wait to eat until they arrived.

As I sat there drinking coffee, a staple food of mine, the Division Superintendent, Larry something or the other and the Division Mechanic, Jim Ford, came in. It was probably 10:00 PM. As we sat there and talked, I told them where we were headed and that I expected Bill and John shortly. They didn't show up as expected and I was about to go back and look for them in case they had broken down. They pulled into the parking lot as I was headed for the car and so we went back in to eat and visit with Larry and Jim. Bill said they were held up at the weigh station and they didn't think they were going to let them go. The truck was over weight as compared to the registered GVW and we needed to correct that at the local courthouse. Unfortunately, this was Friday night and it wouldn't be open until Monday. Bill explained the situation and they wanted to talk to me. I guess he called the restaurant but to no avail, fortunately. Anyway, the attendant decided to let them go but warned them when they came back, he would shut them down. I realized then, that the extra cable we had just added had put us over the weight the truck was registered for. I was afraid the courthouse wouldn't be open until after Christmas and we couldn't afford to be shut down that long. The Superior well could possibly come in before that. As we talked, Jim told us of a way to get around the weigh station by making an end run on a dirt

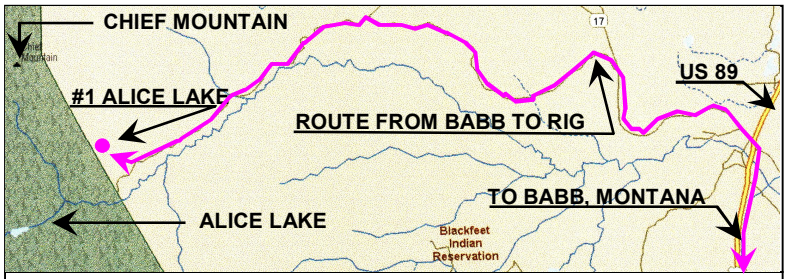

Figure 11-38 Enlarged map of the Chief Mountain area, the site of the Superior Oil Company's No. 1 Alice Lake.

road to an old bridge over the Yellowstone River. He drew a map, which I stuffed in my pocket. Then we became worried about getting around the weigh station in Wyoming who would surely shut us down as well. Jim came to our aid once again and told us of a back road going into Elk Basin, which bypassed all weigh stations. He drew a 2nd map and gave it to Bill. Bill would lead and I would follow.

It was midnight or so when we left Laurel. I followed the truck and we wound along some back roads, finally arriving at the well. Everything went well and we had finished the job by late afternoon. As we were rigging down an operator showed up from Cody with a message telling us the Superior well would be ready at 6:00 PM on Sunday the 23rd. We knew we would have to hot foot it back to Cutbank to get there on time which now made it imperative that we dodge all weigh stations. We went back into Montana the way we had come.

We knew we would have to hot foot it back to Cutbank to get there on time which now made it imperative that we dodge all weigh stations.

It was snowing lightly when we approached Laurel. The map we had been given showed a road just out of Laurel on the south side of the Yellowstone, which led to a bridge east of the weigh station. If we crossed there, no more weigh stations lay twixt Cutbank and us. Once there, the weight registration would change.

We wandered along this old dirt road, which now had a couple of inches of snow on it. The map wasn't too clear and we had to back-track a couple of times before we found the bridge. Such a maneuver wasn't easy with big blue and it took time to find an appropriate place. Once there, we found there was no weight limit posted on the bridge. It was old, 100 yards or so long and didn't seem all that sturdy, the latter of which certainly didn't add to our confidence. I drove across in the car and looked it over but that didn't really help my decision. I went back and asked Bill what he thought. Was he game to give it a try? I felt it would hold but we had a lot at stake and, after all, this was a 21-ton truck. Besides, it was at least a 30-foot drop to the water. He said, "What choice do we have? Let's give it a whirl". As he eased big blue out on the bridge, I could see the structure shake and my heart kind of jumped up into my throat. The truck moved slowly across the bridge. I knew Bill was being sure not to place any extra stress on any part of it but it seemed to take forever to get across. As he cleared the other side, I gave a real sigh of relief, fired up my car and followed. From there on, it was clear sailing and we arrived in Cutbank about 10:00 AM employing the same leapfrog technique we used on the way down. Having just finished a 1000-mile trip and a 12-hour job, we dropped by our respective houses to shower and eat before heading for Babb around 1:00 PM., Dec. 23rd.

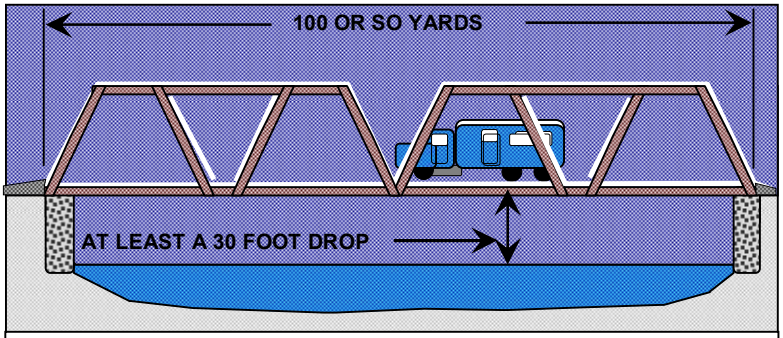

Figure 11-39 An illustration of big blue inching her way across the mighty Yellowstone that fateful snowy night.

It was a good three-hour drive to the well (well F in figure 11-32) because of the several hills and numerous curves. We arrived on time, however, and checked our equipment as they came out of the hole. Total depth was 13,000 feet but we had logged it to about 6500 feet earlier. Figure 11-40 is a photo of the rig, which we took on that first run. We got the hole around 10 PM and ran an I/ES, a Microlog, a Sonic, a GRN and a Dipmeter, which took 24 hours or so. Everything went well but it was still around 10:00 PM some 30 hours after our arrival when we finally headed for home. I was dead tired, having slept little in the past 80 hours, but it was Christmas Eve and I wanted to be home for Christmas. I looked forward to that special day as much as Esther and the girls and consequently, was determined to make it home.

Without question, I would have trouble making it home but felt I could make it if I snoozed a few times along the way. Consequently, I asked John and Bill to give me the air horn if they found my car parked alongside the road and headed out. We decided to take Montana 464 from Babb to Browning even though it was dirt because the road was straight and we could maintain a better speed. I

sailed through Babb as well as past Duck Lake and made the turn south towards the Milk River. I slowed down, however, as I got sleepier and sleepier. Finally, I began looking for a place to pull over to get a little shuteye. This was about where the first arrowhead of the blue line is on Montana 464 in figure 11-32 I came to a spot, which seemed wide enough and pulled off, left the car running in neutral and set my emergency brake. I suppose it took all of five seconds before I was off in la-la land. It seemed I had just fallen asleep when I heard the air horn. Man, it seemed the truck was right beside me. I came to and realized the truck was, indeed, stopped right behind my car. They couldn't get by. I had not only stopped in the middle of the road but also on the crest of a hill. Had the emergency brake failed for any reason, the car would have rolled down the hill into the Milk River, that is, if it made it that far. Obviously, my reasoning power was in question because I thought I had stopped in a safe and secure turnout. I took off in a cloud of dust and, after a few more similar but not quite so stupid incidents; I arrived in Cutbank more than just a little bit fatigued.

Well, it was about 2:00 AM and I didn't want to wake anyone. So I took off my shoes and began tiptoeing through the house on the path illustrated in figure 11-20. I had the furniture placement memorized so I could come in without waking the kids. I made it through the kitchen but as I slipped through the living room, I started running into things. Soon Esther was awake and came out wondering what was happening. I told her I was trying to be quiet but things didn't seem to be where I remembered them. She said, "Oh yeah, I rearranged the furniture while you were gone". I replied, "Thanks babe", while nursing my bruised shins.

Well, I had made it home for Christmas as planned but having slept about 6 hours in the last 92, I passed out and didn't stir until late Christmas afternoon. My objective was realized but my purpose of spending Christmas morning with the family went down the drain. The girls were really disappointed that daddy wouldn't wake up to see their toys and maybe play a little. At least I was able to half way function when I did come to and thus, ease their disappointment.

THROW A ROD AND SPOIL A COST RATIO

This little experience is in harmony with that old adage, "spare the rod and spoil the child". Hence the title I chose. As I indicated earlier, drilling pretty well shut down in the Cutbank area about the end of December. Any deep tests going, of course, must be completed. We, quite fortunately had two, which I mentioned earlier, i.e. Superior and Gulf. The latter had not been logged as yet and would produce 7 or 8 thousand dollars worth of income in January,

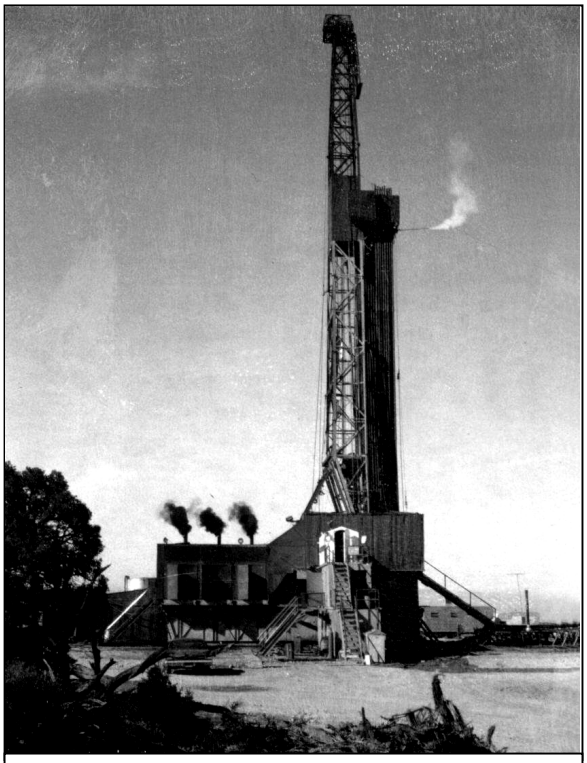

Figure 11-40 Denver Golden drilling rig on site at the Alice Lake # 1 for Superior Oil.

when it reached TD of about 10,500 feet. Similarly, Superior Oil would also log its final run that month and produce another 6 or 7 thousand bucks. Adding on a few shallow-hole rigs working, I forecast an income of 16 to 17 thousand for the month. With my typical expenses of $5000 a month, my cost ratio would be about 33%. Anything less than 50% was good and I knew those of February and March would probably jump to a 100% or more. In fact, I would be more than fortunate to break even during those months. Thus, I looked forward to a good January and maybe a first half ratio of 65 to 70%. This would put me in line to reach 50% by year's end, a situation seldom realized in Cutbank, Montana.

DOUBLE BUBBLE BRINGS BIG TROUBLE

Around 6:00 PM on New Year's Eve, Superior Oil called in for a five-bagger (5 logs) and would be ready on arrival. Boy, was that a break. We

could complete the job on New Year's Day and receive double bonus for each and every service. You must remember, the bonus for the average log in Cutbank district was $7.00 for the engineer and $3.50 for the operator. Here we are talking about 10 times that, considering the well depth and the double bonus. We checked everything out and headed for the well. I arrived about 10:00 PM and visited with the geologist, fully expecting the truck by 11:00 PM. Eleven came and went. By twelve, I knew something was wrong and headed back to find them. It didn't take long because the truck was pulled over to the side of the road near Duck Lake. The engine had thrown a rod, which meant we were shut down for a week at least. Our dreams of $400 and $200 bonuses respectively faded with the din of a new year's gala celebration. They simply were not to be, a perfect application of, "Don't count your chickens before they are hatched".

My first concern was to provide the requested service for Superior Oil. I would have to get a truck from Williston, North Dakota, a matter of 12 hours. First, I went into Babb and called the

Neither well had placed a will call which was highly unusual, both came in on double bubble day, the Cutbank crew would get none of the lucrative bonuses, I had a $1500 engine replacement to pay for and, worst of all, my location would get none of the income.

Williston dispatcher. Fortunately, they had a truck and would get it started right away. I then drove quickly back to the well and explained the situation to the geologist and tool pusher so the rig wouldn't begin pulling pipe. Arriving back at the truck, I found the operators had secured the truck and we headed for Cutbank to get a tow truck. The next order of business was to get the truck into town so the engine could be replaced. We arrived in town about 4:00 AM and made the necessary arrangements. Bill would ride the tow truck and help bring old blue home to the shop.

As we sat there sipping a cup of coffee and consoling ourselves about the bonuses we wouldn't receive, the phone rang. It was Gulf Oil Company. They would be ready on arrival for five logs with TD at 10,500 feet. I couldn't believe it. There went another $8000 to another district. Neither well had placed a will call which was highly unusual, both came in on double bubble day, the Cutbank crew would get none of the lucrative bonuses, I had a $1500 engine replacement to pay for and, worst of all, my location would get none of the income. There went my cost ratio for the month and the year. What once seemed safe and secure would now prove as illusive, as streamers of the aurora borealis playing across the northern horizon this bitter night. Not that it was cold but, most certainly, the taste this experience left in my mouth was as bitter as any I had yet experienced in my five years of working with Schlumberger. Little did I know that others, even worse, would come along as part of life.

I explained my situation to the Gulf geologist on the phone and said I would get back with him as soon as I had definite information regarding the

There went my cost ratio for the month and the year. What once seemed safe and secure would now prove as elusive as the streamers of the aurora borealis playing across the northern horizon this bitter night.

availability of a truck and its arrival time. I called Williston again because they could respond quicker if they had another available truck. No luck. I then called Cody, Wyoming who was a good 500 miles from the well and, fortunately for Gulf and Schlumberger, they were able to help. I explained the situation and asked them to expedite things to minimize the lost time for Gulf. Finally, I notified Gulf of my arrangements and explained it would be 17 or 18 hours before a truck would be able to arrive. Then, I slumped back in my chair to soothe my feelings and strive to stomach the bitterness that welled up within me. Though I wasn't one to cry over spilt milk, it seemed my world had come apart. I knew then the road to a successful year in Cutbank would be a long hard one. Yep, life has its ups and downs and I was definitely on a downer. I just hoped the bottom had finally been reached.

We had a budget meeting in late January wherein we had to explain our forecast and progress to date. Needless to say, mine had been radically revised after New Year's Day. When my time came to review Cutbank's status, Ralph Burton, our Division Manager, began by saying, "We'll now hear from Cutbank. Their forecast and performance would have been rather optimistic if Tom hadn't decided to give all his business away". This resulted in a big laugh and made it somewhat easier for me to present a less than rosy budget for 1961.

MURPHY'S LAW

The winter of 1960-61 was slow in terms of activity. We made a few jobs here and there but

none were big income producers. The cost ratio for Cutbank was near 200% in spite of all efforts to trim expenses. That basically meant we were spending twice as much as we were bringing in because of fixed costs such as salaries, rent, capitalization costs, etc. I was looking everywhere for business and particularly some of the work-over perforating business in the Cutbank field. I managed to get a few jobs but the bulk of such work was being done by Lane Wells who kept a perforating truck in Shelby, about 25 miles to the east. This next story is the last field experience I'll share with you from Cutbank. It proved to be a bigger fiasco than did the one I began with in that saga involving the wheat farmers near Joplin. At least, it cost Schlumberger a perforating customer and embarrassed me something awful. I could title it "The day I was scalped near Cutbank" but I guess I'll settle for scalloped.

TEXACO AND SCALLOP GUNS

I had been seeing the local Texaco completion engineer whose office was in Cutbank on a regular basis. What work they did was going to Lane Wells. Even so, I developed a good rapport with him and was constantly asking for a share of the work. I assured him that we would provide top quality work. To my delight, he called me one day and said, "Tom, I've decided to give Schlumberger a perforating job. Would you come over to the office so we can discuss it?" I was over there in a flash to get the details.

They had a well just south of town near the airport in which they wanted to set a plug and perforate a new zone. It was a tubingless completion in that the casing was 2 7/8" and served as casing and tubing. The plug was no problem because I could get Baker Oil Tools to furnish both plug and setting tool. The perforating was another matter. They wanted to use the new scallop gun, as described in chapter 8, to eliminate any junk or debris from the gun. The gun had just been introduced to the field and was only available out of New Castle, Wyoming. I had never seen the gun before but was confident I could borrow enough equipment to accomplish the job. I agreed to check out its availability and get back with him. This I did and the job was set up for the following week.

Next I made arrangements with the New Castle manager to have one of my operators pick up all the gear, including a complete set of instructions, in Glendive, Montana. He returned with the equipment and we began loading the guns on Monday, two days prior to the job. We knew the work would be tedious and slow with several potential possibilities for error.

PREPARING THE GUNS

The gun preparation was tricky but the directions for assembly seemed straightforward and we moved ahead slowly. Scallop gun carrier material came in 20-foot lengths and had to be cut to size. I had 3 zones to shoot and cut the necessary stock to proper length. Heads and butts had to be inserted in each gun and sealed with o-rings. Figure 11-41 depicts the situation. Consequently, the end of each scallop section had to be reamed to provide tapered openings for the o-rings on the head and butt to slide into. Next, each charge was slid into the carrier individually along the prima cord and secured in place with a screw as illustrated in figure 11-41. The screw was seated in an o-ring to seal that opening from external fluid, similar to the head and butt. Since each charge was secured individually to the carrier, the number of o-rings and consequently the number of potential leaks was extremely high. If any leaked or weren't properly inserted, the gun would fail.

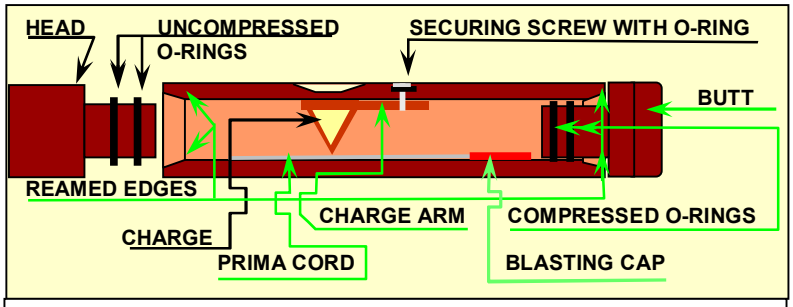

Figure 11-41 An illustration of scallop gun stock with head, butt, their o-rings, some prima cord, a blasting cap and a mounted charge with its securing screw and o-ring.

MAKING THE JOB

We were all ready the night before our job and headed for the well early the next morning. Though I don't believe in omens, I should have taken notice of the first problem that arose. Our truck started acting up just a mile or so from the work-over rig. There was a problem with the carburetor. We struggled with that for a couple of hours and arrived at the well a little late. Even so, the Texaco engineer wasn't upset, yet.

Soon we were rigged up and started in the hole with a gamma ray collar log. I had checked the tool thoroughly the day before. It worked fine until we got to total depth where it promptly quit. As we came up hole it started working but quit again as we went back to log. This kept up and so we brought the tool out and opened it up. I found an intermittent connection. Back we went and ran a good GR/CCL. Next we set a 2 7/8" plug above the old perforations with no problem. I looked like we were on our way to making a slick job. However, that turned out to be the best part of the job.

We headed in with the first gun and couldn't get passed 1200 feet. Something was blocking the way. Texaco decided to go in with a bit and, LO and BEHOLD, out they came with a red rag soaked with diesel. The rag was unmistakably ours. How it had gotten in the well, I didn't know but it was our fault. My face was red as we headed back with the gun. It shot okay, as did the # 2 gun. Gun # 3 misfired, however, and we found it full of diesel when we pulled it out of the well. Diesel was used to prevent any formation damage after we perforated. We had to go back into town and reload the carrier. We found a bad o-ring on one of the charges. Back to the well we went and managed to complete the job some 16 hours after we started. It should have taken about 6 or 7 hours. My friend, the Texaco engineer was patient all the way through the job but I knew we had failed our test. Everything that could go wrong had gone wrong. Murphy's Law was definitely in action and I had to learn to forget it as water passing under the bridge

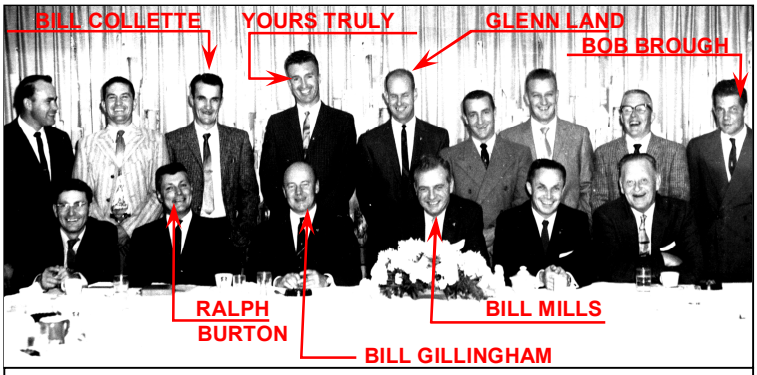

Figure 11-42 A photo of an awards banquet with the "Brass" in Billings, Montana in the spring of 1961.

The truck problem and the gamma ray problem could both be attributed to the "fickle finger of fate". That is the units had been thoroughly checked and no indications of problems were found. We could hardly have prevented the problems in our situation. The leaking gun was preventable through better design and/or loading techniques. The red rag was due to an operator fiasco. It had been wrapped around the cable just above the torpedo and taped in place to prevent the flat top from hanging up on BOP rams, etc. I was unaware of it. Apparently it was standard practice in Cutbank even prior to my arrival. It was fine in fresh mud but the diesel caused the tape to unravel. It was inexcusable and we should have known better but hindsight is always better than foresight. In any case, we had blown our chance to get part of their business. I was promoted and transferred soon afterwards, in spite of that job, and we never got a chance to prove ourselves to Texaco or my friend, the completion engineer.

MY FIRST AWARDS BANQUET

Schlumberger had a policy of conducting annual awards banquets in which employees received, every five years, a pin or tie clasp denoting their seniority. I received my five-year pin in the spring of 1961, though my five-year seniority date had been the previous July. Figure 11-42 is a photo of the event, which was provided to all recipients. The VP of Operations, the Area Manager and the Division Manager attended the dinner as well. After a pleasant cocktail hour in which the brass chatted freely with all who were there, a truly delicious dinner was served. Schlumberger cut no corners in this event and it was a highlight for all whose fifth, or multiple thereof, anniversary had arrived. I believe it was effective in establishing a certain feeling of togetherness or camaraderie. I have identified Bill Collette, my senior operator, as well as myself. Additionally, I have identified Glenn Land, an engineer I spoke of in Rock Springs, as well as Bob Brough, an operator from there. I later had many pleasant experiences with Bob and also his brother, Gib, who worked in Vernal. That was after I transferred back to Rock Springs in the spring of 1965 as location manager. Of course, I also identified Ralph Burton, whom I have already spoken of, as well as Bill Mills (Area Manager) and Bill Gillingham, VP of Operations. The latter two were also mentioned in chapter nine and six respectively.

A CHALLENGING OFFER OF TRANSFER

During the summer of 1961 I was surprised by a call from Bill Mills, the Rocky Mountain Area

Manager. I had a great relationship with him and he proved to be a supporter of mine throughout my early career. Typically, he would have had Ralph approach me because I reported to him. However, for some reason he decided to call me directly, I suppose because a job offer was being made in the Southern Rocky Mountain Division. It might also have been due to my having expressed my reservations about my sales ability in times past. In any case, he offered me a position as Senior Sales Engineer in Farmington, New Mexico. Though I expressed my doubts, once again, about my ability in that area, he eventually convinced me and I accepted. I realized that progress with the company I had chosen required me to broaden my perspective and step outside the technical shell I had lived in most of my life. I also realized that such an assignment would not be easy for me even after making the commitment.

THE FARMINGTON CHALLENGE

It seems that my venture in Farmington was to at least help stabilize our market share which was falling and to try to turn it around in so far as possible. Though 100 % was always the goal, reality was more in the range of 70% because many wells, which were drilled, required little in the way of interpretation. Service was also relatively easy, that is, well depths were relatively shallow (4000 to 8000 feet) and Schlumberger's undeniable superiority in those areas was of less value to customers. I was now faced with a real challenge for which my natural inclinations towards technique and hard work were of limited value. I left for home to tell Esther the news in a somewhat somber state. Could I accomplish what was expected of me? Was this really a good move? It would be fine for the family but I wasn't sure about my future. I did, however, know that I would give it my best shot. The transfer was to be immediate and we had to begin preparation for the move at once.

ESTHER'S PERSPECTIVE

Esther had had such doubts about coming to Cutbank; based on the stories she had heard and I was confident she would be pleased. Much to my surprise, she was not. She enjoyed the house we were now in as well as the school the girls attended. She enjoyed the little branch of the Church we attended and she felt at home in this little town because it was somewhat like the one she grew up in. Our doctor lived next door, on the corner, and we were good friends with the couple on the other side of us. Driving, even in the old Junker she had, was hardly intimidating because traffic jams consisted of waiting at an intersection while another car went through. In short, life was comfortable for Esther. Of course, as always, she was ready to go, she realized success in my job depended upon such transfers and she always supported me for which I was thankful.

Esther wasn't about to drive the old gray Chevy to Farmington, no siree. We had little trouble selling it for what we had in it, about $200. We then contacted Mayflower and set up the move. It would take a couple of weeks for the move because our stuff was only a partial load. That was okay, however, because it gave us time to take a leisurely trip and find a house when we arrived. We were told the housing market in Farmington was good for the buyer or renter and we should have little trouble. That was good news and unlike any we had experienced in all our other moves. Soon Mayflower arrived and we loaded all the household goods. My replacement, a field engineer from Williston, arrived in Cutbank and I gave him a quick run-down on things. We visited the couple of offices, i.e. Texaco and Union Oil of California and took our morning coffee at the Northern Hotel where he could meet the oil field crowd. There was little in the way of complications to explain. He was a seasoned general field engineer and should have no problem adapting.

Esther was now the proud owner of a room full of African violets, none of which she wanted to leave. She handled them with tender loving care. She talked to them, fed them just what they liked and catered to their every whim.

THE AFRICAN VIOLET DILEMMA

One domestic problem did, however, rear its ugly head right away. Esther was now the proud owner of a room full of African violets, none of which she wanted to leave. She handled them with tender loving care. She talked to them, fed them and catered to their every whim. They got more attention than I. How was she going to get them to our new abode? Obviously, they couldn't go in the moving truck and we had limited room in the company car. Finally, after discussing the problem at length, we decided to devote the car trunk to them and take them into the motels each evening of the trip for their food, water and pep talk. Even so, we couldn't take

them all with us. She simply had too many. I must admit, they were pretty and deciding which to give away wasn't easy on Esther's part. Basically she selected the nicest of each variety and gave the rest to appreciative neighbors.

THOUGHTFUL CHURCH MEMBERS

The members of the little LDS branch in Cutbank expressed their sorrow at our leaving and then proceeded to give us a going away party. I remember having a little potluck at the church building after which we were given a book titled "A Marvelous Work and a Wonder" by Le Grande Richards. I knew Esther had really enjoyed attending that little branch and had made many friends as well. She loved working in the primary with our girls. I too had developed close feelings for them. They had accepted me

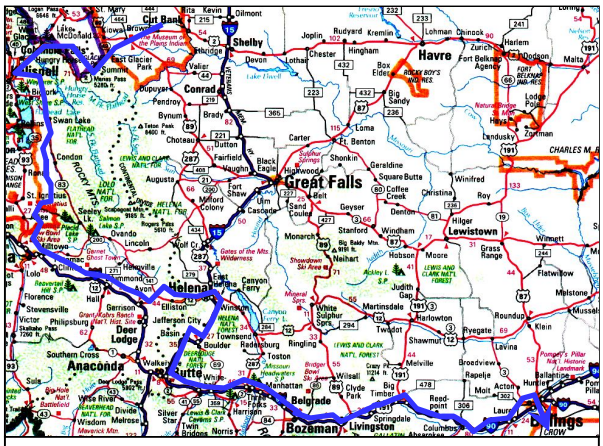

Figure 11-43 An illustration of our meandering route from Cutbank to Ronan and thence to Billings in the summer of 1962. From there we headed south to Denver and eventually, Farmington, N. M.

even though I wasn't ready to join the Church. The fellowship I had enjoyed influenced my later decision to join in Farmington.

THE ROAD TO FARMINGTON

Our travel plans were to go west over Marias pass at the south end of the Glacier Park, see Flathead Lake and then visit Dewey and Nila, the latter of whom neither of us had met as yet. They were living in Ronan, Montana at that time where he was the minister of a small church. From there, we would head down to Denver through Wyoming to check in with the Southern Rocky Mountain Division Manager and finally to Farmington, New Mexico.

Figure 11-43 with the magenta arrow describes the route we followed in Montana ending up just east of Billings. The first day we stopped by Hungry Horse Dam and took a tour of the electrical generating system. I found it extremely interesting, although I can't speak for the rest of the family. It probably cost us a couple of hours. Roads were not the best in those days but traffic was considerably lighter. Even so, we were good and tired when we arrived in Kalispell where we spent the night. The next morning we went around the east side of Flathead Lake, which is still a beautiful drive. We were amazed to find it was cherry country, something unexpected deep in the Rocky Mountains. Of course, we bought several pounds of cherries including both Lambert and Royal Anne varieties. It was around lunchtime when we arrived at Dewey's as I remember. We chatted a while, maybe a couple of hours, before going on. From there we went to Missoula where we stopped by the big fire-fighting center, another item of interest to me. I don't know where we spent that night or those following but I do remember going through Helena, the state capital, as well as Butte and Bozeman. Consequently, the route shown may not be exact but it is close. Some three days later we arrived in Denver.

The next morning, I went into town to the division offices, which were located in the Mile High Center, one of the nicer buildings at that time. There I met the Division Manager whose name I seem to have forgotten and the Division Sales Manager, Rex Curtis. The sales problem in Farmington was described to me, as were their expectations of me in helping Schlumberger improve their market share. Howard Sorenson was the Farmington manager with a fleet of four operating trucks and 6 engineers. In addition, they had a sales engineer whom they would soon transfer. I could see the work was cut out for me. I left and headed back to the motel to pick up the family somewhat lost in my thoughts. This was truly a challenge that I seemed ill suited for.