The men who made up the Alaskan Branch of the U.S. Geological Survey, in its pioneering days, explored and mapped the last major uncharted wilderness in the United States. To create the topographic and geologic maps of the vast regions of Alaska, they left behind the roads and steamboats to travel by dog team, canoe, packtrains and by foot across the tundra and mountains of Alaska. Their adventures all too often were left out of the scientific government reports detailing the information they gathered.

We, as readers, are indebted to Mrs. Evelyn Mertie for recording many of J. B. Mertie's adventures in his Alaskan work as a U.S. Geological Survey Geologist from 1911 to 1942. As hikers, miners, canoeists or geologists today we can only be impressed with the miles covered by Mertie in these years. The people of Alaska were proud to count him among their friends, and as shown in this book, he was proud to call them his. Among Alaskans, he was universally respected and admired for the work he accomplished, a work that is still bearing fruit.

THIRTY SUMMERS AND A WINTER

EVELYN MERTIE
MAP OF ALASKA SHOWING PRINCIPAL TOWNS MENTIONED IN THIS BOOK
THIRTY SUMMERS AND A WINTER
John Beaver Mertie, Jr., August 29, 1915.
THIRTY SUMMERS
and a
WINTER

by
EVELYN MERTIE

U.S. Geological Survey Illustrations

Edited by Ernest N. Wolff and Bruce W. Campbell,
Mineral Industry Research Laboratory.

MINERAL INDUSTRY RESEARCH LABORATORY
SCHOOL OF MINERAL INDUSTRY
UNIVERSITY OF ALASKA
FAIRBANKS, ALASKA
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Bruce W. Campbell
PREFACE

My husband, John Beaver Mertie, a geologist, spent thirty summers and one winter in Alaska beginning in 1911. Alaska in those days was an unexplored land populated by natives and a few hardy frontiersmen. John came to love the country and its people and has spent many hours telling me of his life in what was then a remote country. I have retold the yarns as he told them to me. The winter trip is based on his account plus a day by day diary, long lost and forgotten but recently found in a old trunk full of papers.

During the 31 seasons John spent in Alaska he saw many changes take place. In 1922 the Alaskan railroad was completed from Seward to Fairbanks. This gave easy all-year-round access to the ocean and many places in between. About that time airplanes began to come into Interior Alaska but as there were no landing fields most of them were seaplanes. Gradually small landing fields were built. Often the mine owners made air strips by smoothing over the placer tailings with a caterpillar tractor. This tied the small towns and mining camps to the larger cities. The advent of planes was a boon to geologists also for now they could reach otherwise inaccessible places quickly. Had the winter trip of 1924 been postponed five years it would have been unnecessary. Planes could have flown the men and equipment in at the beginning of the summer. Aerial photography would have shown the drainage clearly. Smith would not have missed the Meade River and John would have been spared all the worry.

The days of danger and hardship are gone. As the mining has for a long time been unprofitable, gone too are the mining camps, roadhouses and small towns. The geologists now often have helicopters and pilots for their use and things are no longer the same. John says he does not envy them. He believed he was lucky to have been part of that earlier time, all the hazards and discomforts notwithstanding.
John was born in Baltimore, Maryland on January 22, 1888 and grew up in one of the red brick rowhouses for which Baltimore is so well known. In 1904, his father, a blacksmith employed by the B. & O. Railroad, accepted a position as shop foreman with the A.T. & S.F. Railroad at Raton, New Mexico. John did not go with his folks but stayed in Baltimore in order to continue his education. He did, however, spend his summer vacations in Raton for the next four years, working in the railroad shop with his father as a machinist's helper. It was back-breaking work for a young man but being large for his age he was able, at sixteen, to earn a man's wage — $1.95 for a ten hour day. John attended Baltimore City College (High School) and thereafter Johns Hopkins University taking the degrees of A.B. and Ph.D. in 1908 and 1911.

During his school years he played lacrosse and was on the swimming team but his special interest was photography. From 1908 through 1910 he obtained summer field work with the U.S. Geological Survey and in 1909 took the Civil Service examination in geology. In the spring of 1911, he asked one of his professors for a letter of introduction to Alfred H. Brooks, then chief of the Alaskan Division of the Geological Survey, and went forthwith to Washington, D.C. for an interview. A month later he was on his way to Alaska and the start of a long and challenging career.

His first trip to Alaska was as a field assistant to Louis Prindle. The season of 1911 also marked Prindle's last trip but during that summer he taught John a great deal in the management of pack horses and many details of life and survival in an unbroken wilderness devoid of population and any method of communication. He also introduced John to the complex geology of the Yukon-Tanana region and bequeathed to him the unfinished mapping of that area on
which John worked intermittently for a number of field seasons and finally, in 1932, wrote his opus magnum, U.S.G.S. Bulletin #872 which has now become a collector’s item. His work in Alaska consisted primarily of geologic mapping and the examination and interpretation of gold and platinum placers as well as certain lodes. He ended his Alaska work in 1942 as he felt that such hard work was getting to be too much for him.

Beginning in 1948 he worked in the states, two years in Idaho and Montana and 13 years in the southeastern states. These were happy years as his work, until then, had kept him from home for five or six months each year and twice for an entire year, but from 1943 on his wife Mary (Garrish) whom he had married in 1912, accompanied him on all his field trips. His work in the southeast was a study of all the granitic rocks of that region with special emphasis on minerals of economic value such as ilmenite, rutile, zircon and monozite. John retired in 1958 and in 1965 Mary died. The following year he married the author with whom he had been professionally acquainted for many years.

Though it was mandatory that John retire at age 70, he continued his geological work. In 1966, 1968 and 1969 he revisited Alaska to supplement his work of 1937. These trips resulted in U.S.G.S. Professional Papers #630 entitled “Economic Geology of the Platinum Metals,” 1969; and #938 entitled “Platinum deposits of the Goodnews Bay District, Alaska,” 1976.

In 1975 he published U.S.G.S. Bulletin #1390 “Monozite Placers in the Southeastern Atlantic States,” and in 1979 U.S.G.S. Professional Paper #1094 “Monozite in the granitic rocks of the Southeastern Atlantic States.” The latter was published on John’s 70th anniversary with the United States Geological Survey and the Survey’s 100th anniversary.


He is the author of 69 publications of which 43 are devoted to geology and mining in Alaska and one to geology in Montana; eight to stratigraphy; three to mineralogy; six to mathematical and related topics; six to geology and mineralogy in the southeastern states and two are memorials to his deceased survey friends (Prindle and Moffit). At the time of
his death, December 7, 1980, at the age of 92, he was engaged in the preparation of an original mathematical paper in the field of the theory of numbers.

There were two interruptions during his Alaskan work. The first, described in the book, was in 1918 when he and Moffit designed, had built, and put into use a photographic transformer which projected tilted airplane photographs into the plane of the horizon.

Again, in 1920 he took a years leave which he spent in South America for the Carter Oil Company, a subsidiary of the Standard Oil Company of New Jersey, searching for sites favorable for the production of oil. He worked mainly in Bolivia and Argentina. In connection with this work he carried out a geologic traverse of 250 miles on mule back across the Andes from Cochabamba to Santa Cruz and another of 450 miles across the southern Amazon basin from Santa Cruz to Puerto Suarez on the Paraguay River. Subsequent investigations were made in west central Argentina.
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INTRODUCTION

Alaska is a friendly country, with nothing there to harm a man except for an occasional bear which often, if not frightened, will run away. The Interior consists of the tremendous valleys of the Yukon and Kuskokwim Rivers, and lies between the Alaska and Brooks Ranges. It is a rolling country of hills and small mountains, heavily timbered to an altitude of about 2500 feet with spruce and a dense underbrush of alders and willows.

In earlier days there were no roads. In the winter, travel was by dog and horse drawn sled on trails ten to twelve feet wide, cleared along the valley bottom, and every thirty miles or so, along the well travelled routes, would be a roadhouse. The trails could not be used in the summer because, as the surface frost thawed, the thick cover of sphagnum mosses kept the underlying ground frozen, the water could not run off, and the land became swampy. All summer travel was confined to the waterways except for those who, like the geologists, were of necessity obliged to work during the summer months. The permafrost did yield one advantage — a man could always get a drink of cold water in the summer — usually along with a few wigglers.

I would be hard put to name two things I didn’t like about Alaska — I can, without hesitation, name one — the mosquitoes. The swampy land gives rise to plenty of breeding places and they live off the juices of the vegetation. When their season is at its peak the air is literally thick with them. At night, when at their worst, the noise they make is tantamount to a roar. One could hardly survive out of doors without a head net or at night without a mosquito tent.

One problem the men had was posed by the necessity of a daily trip into the brush. Oftimes we would seek high and windy sites on which to escape the clouds of mosquitoes. The year George Martin’s mission was simply to float down
the Yukon River noting and studying the rock formations along the way he was able to take his wife with him. Rather than have her suffer each day, Martin, who was an ingenious fellow, designed for her an exceedingly full, ankle length skirt. At times of necessity, her skirt billowed making an almost mosquito-free tent about her.

If people had trouble with mosquitoes so too did the horses because of their short hair. I once saw a gray horse so covered with mosquitoes that at first glance he looked black. For protection of the horses the men often covered a large fire with wet moss so that it would smoulder all night and produce a thick smoke. The horses were led into the smoke and soon learned to stay by the fire for hours to get relief.

The horses were let loose at night to graze. Sometimes, when the mosquitoes were especially bad, they would go above the timberline to escape them. One horse was always kept back so that if the packer did have to go after them he could at least ride. The horse that was tied up was given plenty of cut grass, and one year Val Phillips, one of the packers, devised a head mask for his horse and wrapped a tarpaulin well about him to help stave off the mosquitoes. He looked so comical in his costume that he soon became known as "Sparkplug."

The geologic parties had to carry with them into the field all the equipment and provisions necessary for the entire season. The food we packed was mostly dried. We also took along tinned butter, considerable bacon, for grease as well as food, coffee and tea pellets. Because of the short work season we worked seven days a week, sometimes twelve to fourteen hours a day. On cold or rainy days I often took a few tea pellets, sugar and a small pot in the field. The pellets made a good strong cup of tea and with plenty of sugar it was an excellent restorative.

I recall that toward the end of one field season we had dinner at a roadhouse at Manley Hot Springs. The proprietor, Dan Green, was waiting table. I ordered a cup of hot water into which I put a tea pellet as I preferred the stronger tea. When Mr. Green came back and saw the tea he apologized, "I forget you ordered hot water," and took away the tea and brought a cup of hot water. The same thing happened a second time. The third time the bustling proprietor threw up his hands and said, "By God, I must be going crazy."

The last laugh was on us, however, for on our return to
Horses enjoying a smudge.

Val Phillips and Sparkplug.
INTRODUCTION

camp late that night we found everything in a shambles. Tents were down, flour and all the dried foodstuffs were strewn over the ground and the bacon and caribou meat were missing. A bear had paid us a unwelcome visit while we were gone. Luckily, there was a Northern Commerical store at Manley Hot Springs where we were able to replenish our larder. Had we been out in the field when it happened we would have known some hungry days.

Besides the food we packed, we hunted for meat along the way — mostly caribou and sometimes a mountain sheep but never a moose. The men liked moose meat as it tastes a great deal like beef and is not at all gamey. But they are large animals — a fullgrown bull weighing close to a ton — and most of the meat would have spoiled before it could have been eaten. The only time we killed a moose was when we were near a mining camp so that none of the meat would be wasted.

There were also ptarmigan, grouse and, if near a stream, grayling and sometimes trout. The country also abounds in berries. The two most plentiful are blueberries and cranberries. Lunch in the field was either sandwiches or bread and dried salmon strip purchased from the Indians and a large piece of chocolate.

Over the years it became the custom for each man in the field party to bring with him one hidden treat to relieve the monotony of the plain camp cooking. My treat was usually strawberry jam or orange marmalade and once or twice a plum pudding.

One of the hardest things we had to contend with was the rainy weather that came each year in late summer. We would get wet from head to foot and having but two or three sets of clothing often everything would stay wet. It was especially unpleasant on a side trip when we had no extra clothing with us. Many mornings we dressed in wet clothes, socks and boots. Anything we might wear to keep the rain off would only have made us steam on the inside.

A second difficulty was walking. Besides being swampy the ground was covered with clumpy vegetation and hummocky grass. A man could not set a swinging pace but had to watch each step he took or lose his footing.

The fever of the gold rushes was over by the time I started my work in Alaska. The white people who remained were for the most part trappers, miners and prospectors. Of
the natives, the Indians lived in the interior and trapped for a living; the Eskimos lived along the Arctic coast and wrested their living from the sea. Our main work and purpose in Alaska was geologic reconnaissance, that is, an examination of the general geologic features and mineral resources of the land.
THIRTY SUMMERS AND A WINTER
1911 saw me on my first trip to Alaska. What excitement it had for a young man who had spent all of his sheltered life within the city of Baltimore. My camera worked overtime and the film piled up, roll upon roll.

We journeyed by train, across the country, then by ship to Skagway, over the White Pass and Yukon Railway to Whitehorse, where we boarded a river steamer bound down river.

The steamboat trip down the Yukon was lively for at each stop everyone came out to welcome the first boat of the season. On the boat that year were three geologic parties. In our party were L. M. Prindle, geologist, two packers, a cook and myself. The boat also brought food, supplies and a bevy of prostitutes who stayed until the last boat left in the fall and who during their stay did a thriving business.

Our boat stopped as usual at Dawson, Yukon Territory, which was the transfer point for those continuing down stream. On this occasion, however, the passengers were not permitted to land because the town was under quarantine due to a smallpox epidemic. Several other boats docked there were in the same fix. Finally it was decided to put all the passengers, their luggage and the accumulated freight on a large barge and have it pushed down stream to Eagle by a small steamboat taken off the ways at Dawson.

Eagle is a picturesque little settlement on the Yukon River, a few miles below the international boundary and well above flooding. During our stay I met a number of people with whom I was later to become well acquainted. There was Bob Steele, postmaster and town marshal, formerly dog musher and later inn keeper. There was Jack Hilliard, customs officer and there was the local preacher who was interested in photography and allowed me to use his dark room to develop all my film. I also met John Powers, freighter and
Eagle, Alaska on the Yukon River, 1911.

Front Street, Eagle, 1911.
mail carrier and the town's leading democrat and fervid patriot. He later made several trips all the way to Washington to witness a number of presidential inaugurations and told with great emotion of seeing the president and other leaders of the country.

The boat finally landed our party at the small settlement of Woodchopper where we started the season's work. On this first trip to Alaska, and for several years thereafter, I went as an assistant geologist because there was much to learn before a man could safely head a party for four months in the wilderness.

I decided to go for a swim as soon as we landed and made camp. Swimming in the Yukon was unheard of as the water was little above freezing. I was an excellent swimmer but also young enough to be both foolhardy and a showoff. However, I got my comeuppance for no sooner had I taken off my clothes than I was attacked by hordes of mosquitoes. They were so bad that I was forced to dive quickly into the river but the water was so cold that I came out as fast as I went in.

The next day we packed nine half-broken-in horses and started up Woodchopper Creek for the great interior. For a man new in Alaska, it was a miserable day; warm, sultry and thick with mosquitoes, many of which were always able to find their way under the head nets. Furthermore, the packs, being over-large and heavy, kept slipping off the horses and the animals were continually getting stuck in the swampy places. The disheartening part was that not all the equipment could be taken at one haul thus the trek had to be made twice. After ten hours of hard labor we made camp on solid ground. Prindle, though physically tough, was a fine man of gentle disposition. After setting up the cook tent he and I started to set up our sleeping tent on mossy ground. Prindle suggested that we cut some spruce trees and make a bed of boughs on which to set the tent, but I was tired and couldn't see the sense in taking all that time and trouble. I thought just levelling the ground off with a shovel would do. With a twinkle in his eye, Prindle agreed. That is how I learned what sleeping on frozen ground was like. Even in my bed roll I almost froze during the night. The next day Prindle didn't mention it but from then on I made sure that our tent was set up on a good bough bed. Another problem that took some getting used to that first year was sleeping at night under a bright sun.
Once out of the swampy valley bottom the going was much easier but every day we had to make a temporary cache because we had to make two trips. One day I was left behind to guard the cache while the rest made the second trip. I was given a rifle in case a bear came around. Lo and behold one did — a big black one. I was sitting atop the cache when I first saw him. I sat very still so he wouldn’t see me. I guess he didn’t as I learned later that bears have poor eye sight. He most likely smelled our food — at any rate he kept coming. At first I was more curious than frightened for he was the first bear I had ever seen and he looked like a big teddy bear moseying along. But the closer he got the more nervous I became. He grew bigger with each step and I could see what a powerful animal he was. I was scared. I kept hoping he would amble off. When I realized he was heading right for the cache I started to holler, “Get out of here, you!” He hesitated a moment, looked up at me and kept right on coming. I made wild gestures and hollered louder, “Get the hell out of here,” but he kept coming. He was so close that I could see his teeth. I was terrified. I picked up the rifle with shaking hands and fired but the shot went wild. Much to my amazement the second shot did the job. The two packers, nearing camp, heard the shots and came running, “You alright?” I nodded. They were relieved to find me and the cache safe. So was I.

At the end of three weeks travel, we reached a point where it was feasible to make a permanent cache. To do this it was necessary to find three spruce trees growing in a small triangle. The trees were skinned of all their bark down to the bare wood so that any animal that might come along couldn’t get a foothold. High up — fifteen to twenty feet from the ground — the tops of the trees were cut off. On top of these we then built a triangular platform which we lashed firmly down with ropes. The supplies to be stored were put on the platform and covered with two or three layers of canvas which, in turn, were lashed down. With this permanent cache, double tracking was no longer necessary. This saved much time and labor and the supplies would be there waiting for us when we returned from exploratory loops.

We had lost so much time getting started due to the epidemic that the season’s work had to be done very rapidly. As a result we moved and camped seventy-three times in seventy-five days with only two lay-overs. It was hard on the
Pole cache with bark stripped 3-6 feet above ground, and supplies nailed in place.
packers, and the cook too for he had the added chore many nights of staying up, after the rest of the camp was asleep, to make sourdough bread for the next day or two.

The first lay-over was an unhappy one partly because it was in a swampy place. Then, soon after making camp, the cook was kicked by a horse and suffered a large gash on his forehead. Prindle had to take a dozen stitches to close the wound, which left a bad scar but luckily didn’t become infected. On the second lay-over the camp was in a beautiful glade along the banks of the Salcha River. The cook and the packers were so happy they outdid themselves by building a log table and stools. Prindle and I had been working hard, each on a separate but parallel ridge, and had agreed to meet at six o’clock and go into camp together. Around six o’clock I heard a faint yodeling; soon Prindle came along and we started walking down the Salcha River, knee deep in water, hunting for camp. At ten P.M., thoroughly tired out, we found the camp and the cook waiting with a good supper. That day’s work had entailed a thirty mile trek over unknown and difficult terrain. The next day the camp laid over. It was a memorable occasion.

Ridges do not remain everywhere above timber line. At some places they dip into the timber, and one may have to go as much as a mile through trees and thick brush. Prindle always sang at the top of his voice in crossing such “saddles” to scare away any bears that might be about as one would be helpless if a bear were encountered face to face. I, too, soon learned to sing. Above timber line bears can be seen at a long distance and avoided.

I learned another lesson from Prindle. Walking through the swampy land with its many small pools and creeks my boots soon filled with water. I was constantly stopping to empty them. Prindle pointed out that slits, cut on both sides of each boot just above the sole, let the water out as fast as it seeped in. What a relief. No more sloshing and stopping.

One of the most unforgettable experiences of that year came one day when I was sitting on a boulder atop a mountain having my lunch. The ridges were covered with caribou in every direction as far as the eye could see. There must have been 100,000. It was an inspiring sight. Suddenly a herd came up the mountain where I sat. As they reached me they split and trotted around both sides of me — hundreds of them. I was awed by the beauty and nearness of the animals.
and the rhythmic pounding of their hooves. Caribou differ from others of their kind in that all, male and female alike, are antlered. They are gentle animals, more like cattle than wild game. It was hard for the frontiersmen to understand how killing them could be considered a sport by hunters.

The last episode of the trip was near the end of the season when Prindle sent me to visit a nearby mining camp. The days were getting shorter and it was dark for part of each night. I had to travel in the low country with its timbered wilderness. That plus the darkness of night was confusing and I soon realized I was lost. I finally found my way to the Yukon River and followed it to Nation at the mouth of Fourth-of-July Creek where I found a cabin. There I met the first people other than our party, whom I had seen all summer, a man and his two grandsons. I still remember the feeling of great relief at finding a place to stay that night rather than having to stay out in the bush, cold and hungry. The next morning, I left early after thanking my host, and later that day found the mining camp. I had never seen a placer mine but being a geologist I was supposed to be an expert, so I bluffed my way pretending a knowledge I didn’t possess. Later the study of gold placers was to become one of my specialties. This camp was on the Seventymile River, thirty miles from Eagle by foot trail. The following day I left for Eagle trotting when I could and walking when I had to. I arrived in the afternoon, thus ending the field work for the season. In Eagle, I saw people again and got my first mail since May.

Prindle was amused when I told him of the friendly people who took me in the night I was lost. It was in reality a winter roadhouse. Prindle saw that payment was made for my food and lodging before boarding the upstream river boat.

Travel on the river was pleasant and relaxing. Since the boats used wood for power they had to make frequent stops along the way at wood piles put there by hired wood cutters who were paid by the cord. At all the stops the passengers got off to stretch their legs while wood was loaded on the boat.

On one such stop the passengers were surprised to see a young Indian woman with a blue eyed, red headed little Indian baby. Curiosity finally got the best of one of the lady tourists. “What a beautiful baby you have,” she said. “Does his father have red hair?” The Indian woman thought a
A small group of caribou; both male and female grow antlers, but shed them at different times.
Upper Yukon River, showing areas visited in 1911, 1921, 1922, 1925, 1928, 1929, 1931, 1936, 1938 and 1942.
minute and then said, “I don’t know, Ma’am, he didn’t take his hat off!”

One of the pictures taken in 1911, along the Charley River, shows Mr. Prindle standing on a large piece of “land ice” or “aufeis,” as the Germans named it. Aufeis is a rather interesting phenomenon. It requires, for its formation, a wide valley floor and a shallow stream which freezes solid in the winter. Water, resulting from overflows upstream, spreads out over the valley floor and freezes. This process, occurring repeatedly, ultimately builds up a wide, thick sheet of ice that extends laterally a long distance from the channel of the stream.

A valley with a steep wall on one side, and a wide valley floor on the other side of the stream, may acquire an asymmetric sheet of aufeis that is unusually wide and more than ordinarily thick.

In the spring, when the thaw begins, channels are cut here and there and, finally, the water cuts a channel through the ice to the valley floor of its original channel. Thereafter, a large sheet of unmelted aufeis remains on one or both sides of the stream, that may take all summer to melt; in fact it may not be completely melted by the next freeze-up, thus helping to build an even thicker sheet the following year.
SECOND SUMMER — 1912

My second trip didn’t take us to the Interior but to the Copper River country of southern Alaska. The reason for this was that our appropriation wasn’t granted until August and so we had to go to localities accessible to horse feed in the hope of continuing work during the fall.

We left Seattle on the steamship Mariposa. Also on the ship was a group of mining engineers headed by a man named Fisher. They were starting out on a two year expedition to study the coal fields in southern Alaska and were to disembark at Katalla. The captain planned to unload them behind a small island off shore which would act as a breakwater in case of a storm. As the ship arrived off Katalla the ocean was calm and there was no surf. Because the weather was so good Fisher wanted to save time by unloading directly on the beach. The captain pointed out that there was no harbor and if a storm should suddenly arise they would have no protection. Nevertheless, Fisher insisted. The captain demanded that Fisher sign an order taking full responsibility. The barges came and the men and livestock were loaded on the first barge. A wind was already starting up so the tug pulled the barge behind the island. A second barge, loaded with all their equipment and pulled by two tugs, headed for the island too, but the wind was a gale by that time. The barge broke loose from the two tugs and drifted westward until it smashed into a group of small rock islets and was totally wrecked. Fisher was a capable engineer but in his over-zealousness he neglected to heed the captain’s warning.

Our party disembarked at Cordova and went by the Copper River railroad to the Chitina valley where work began. The party consisted of three geologists, two packers and a cook. Because grass was mostly dead that time of year, we confined movements to places where we could get hay and
oats for the horses, staying a great part of the time near the railroad. As fate would have it, an unusually heavy and protracted rainfall washed out the railroad tracks and bridges. This left us stranded with no feed for the horses. One of the packers was sent with the horses to Valdez where they were sold. The rest of us were able to buy a small river boat and started to drift down the Copper River. We had to go through a dangerous stretch of water known as Woods Canyon. It is a steep walled canyon with swift water and many rocks. In a rapids, a boat must not move at the same rate as the current; it must move either faster or slower in order to maintain steerage way. With a motor, steerage is no problem and
though our boat was not equipped with a motor, we were not concerned because four men were rowing while the cook steered. My oar broke as we were passing through the canyon and only the skill of the helmsman kept us off the rocks. When we reached Fiftymile on the railroad we tried to land on a sand bar. I jumped out to lighten the boat and jumped right into a pool of quicksand and sank up to my knees before I realized what had happened. I quickly threw myself on my back and warned the others. I managed to maneuver myself up on the spit before they could get a rope to me.

Bogs are common in Alaska because the permafrost offers poor drainage. One never gets used to them. They are always frightening but usually of little danger if one does not panic. At Fiftymile we took the train to Cordova where we boarded the Seattle-bound steamship bringing the short and unsuccessful field season to an end.
THIRD SUMMER — 1913

The geologic field party of 1913 consisted of G. C. Martin, chief; R. M. Overbeck and myself, assistants; Jim Nelson and Billy Ledbetter, packers; and George Hansen, a crotchety, hard drinking Dane who served as cook. During the middle of the summer, Martin and the four other members of the party made an extended trip to investigate a new gold strike in the Nelchina country, leaving me with the topographic camp of R. H. Sargent who was also working in the area. During Martin's absence I mapped the bituminous coal fields of the upper Matanuska Valley.

At that time the navy was using coal for their ships and the Matanuska Valley was of great importance because it had deposits of high grade bituminous coal downstream from the mouth of the Chickaloon River and deposits of anthracite upstream from the Chickaloon. The navy later discovered that all the Matanuska coal was so badly crushed that it had to be washed before it could be used. It turned out that the best grade of West Virginia Pocohantus coal could be mined and transported cheaper than the Matanuska bituminous could be mined.

While in Sargent's camp I had a scare. I always wore a white canvas vest with numerous pockets in which I carried instruments, notebook and film. One day Charlie Anderson, Sargent's packer, and I made a trip up on Anthracite Ridge looking for sheep, as the camp was out of meat. While we were walking atop the ridge a rifle shot whizzed right past my head. We realized at once that other hunters on the mountain had mistaken my white vest for a sheep. We dropped to the ground and fired in return to warn the hunters of our presence. Finding no sheep on the crest of the ridge we started back down the slope. Going down a gulch Charlie and I spotted a band of sheep and each took several long shots, killing two lambs. We returned triumphantly to camp,
Rufus H. Sargent, September 1, 1915.
each carrying a lamb slung over his back. But the experience up on Anthracite Ridge unnerved me sufficiently that immediately upon returning I set to work sewing up a new vest of khaki colored canvas. The Bureau of Mines, on behalf of the navy, had a coal sampling camp at Chickaloon, and it was one of the men from the camp who had shot at me on the ridge, mistaking me for a Dall mountain sheep.

Working the plane table was an onerous task during the mosquito season because the men found it necessary to roll up their veils while working, thus exposing face and neck to attack. The men would grumble and cuss a great deal but Sargent who was a very religious man intended to do his work and ignore the “beasts.” He worked methodically and with great aplomb singing hymns lustily, often, “I Am So Glad That Jesus Loves Me,” but eventually the mosquitoes got too much even for Sargent, and he would intersperse his hymns with a few hells and damnations whilst slapping his bloody face and neck, all in perfect rhythm, and entirely unaware of the humorous effect he was creating. Alaskan mosquitoes can induce profanity in the best of men.

One day, after Martin’s return, he and I were walking along the river when we came to a place where the water had receded leaving an isolated pool about twenty feet in diameter in which we could clearly see a good sized salmon. Martin, always on the alert for something different and exciting, thought it would be great sport for me to get into the pool and catch the salmon. I could see the humor of it too, and always enjoyed a challenge to my swimming so I undressed and jumped in. From then on pandemonium reigned. I couldn’t catch that darned salmon yet I couldn’t give up. In that small pool the fish and I thrashed around so that the water was a boiling turmoil. Martin stood on the bank a-hootin’ and a-hollerin’ and cheering me on. A couple of times I had my hand around the salmon for a fraction of a second only to lose it. In spite of my determination I had finally to give up for I hadn’t a breath left. Though I was never a fisherman, I too, can always tell my story of the fish that got away.

We had another water mishap that year. We were going down the upper Matanuska River in a small boat and found the current swifter than we could row. Under such conditions, in order not to lose steerage way, it is necessary to turn the boat about and row upstream. If the stern is pointed at
the obstacle one wishes to miss, the current will drive the boat sideways and push it clear. Hansen was manning a pair of oars, and, not understanding what we were doing, disobeyed orders by pulling on the wrong oar. As a result the boat got out of control. Try as we did to get it turned back we couldn’t. The rapids buffeted us about like so much flotsam. Miraculously we escaped hitting rock after rock, though we grazed some as we slid and tumbled by. I began to wonder if we might clear the rapids in spite of our predicament when our luck ran out and our boat crashed into a large boulder and was badly damaged. We jumped out to keep the boat from tipping — but not Hansen. From the second the boat hit the boulder he started praying. The rest of us drifted with the boat through the rapids making every effort to keep it upright until we touched solid ground. We made camp and repaired the boat using tin cans and pitch. When we started out again, Hansen would not get into the boat. He walked along the shore until he came to a place where there was no beach. There we had to pick him up, take him around the rocky headland, and put him ashore on the next beach. In this manner he walked the thirty or more miles into Chickaloon. The men were amused, but I suspected that because he had been a sailor for many years he was loathe to admit he couldn’t swim.

When the party was ready to break camp and head for Knik, at the end of the season, Martin started out ahead of the rest of us, telling me to stay until everything was packed. Martin could be overbearing and irritating at times, and we always grabbed eagerly at any chance to put one over on him. So Nelson and Ledbetter packed the horses faster than they had ever done before and as soon as they were packed it was agreed that I would set out for Knik trying to get there before Martin. I started out at an easy trot and in two or three hours spotted Martin ahead. How to pass him was the problem but it solved itself when he stopped at a prospector’s cabin. While he was inside I detoured through the woods and got by without being seen. When Martin strode into Knik there was I sitting on the porch of the inn, feet upon the railing, completely relaxed. When the others arrived I had to describe to them in detail the stunned look on Martin’s face when he spotted me. We had a good laugh.

While we were waiting in Knik for the ship out, Hansen constantly drank too much and caused trouble. I was dis-
gusted with his drinking, swearing and the unseemly epithets he used on us all. I could never see the need for bad language and it irritated me. One day he went too far and got my dander up. I whirléd him around and with my fist in front of his face said, “I’ve had enough, the next word out of you will be your last.” There was silence. Everyone was stunned because I was easy going; usually the one to step in to prevent trouble.

Martin thought the time had come to take action. He had rented a gas boat called the Traveller on which he and I had started searching up and down the inlet for coal. To avoid any more difficulty, Martin took Hansen and the other three twenty miles down the inlet to the beach at the Anchorage. The Anchorage was the place where the steamboats from Seattle anchored to discharge cargo. Later this lonely place was to become the city of Anchorage but at the time of this field work it was just a desolate spot. As soon as Hansen realized they were going to be shipped out he filled his duffle bag with liquor but Jim Nelson found the supply and threw it overboard. When Hansen discovered his loss he was furious. To make matters worse it was an unusually bad season for gnats. So all four men had a miserable ten day wait. Martin and I spent the ten days on the Traveller. Whenever we passed the Anchorage Martin would provokingly let loose a long blast on the boat’s whistle and the men on shore would gnash their teeth and cuss. Martin and I joined the men in time to make the Seattle boat and the work of the 1913 field season came to an end.

The area near the northern part of the Alaska peninsula is a volcanic region containing Katmai volcano and the Valley of Ten Thousand Smokes. The volcanoes of this area are of the explosive type and nowhere else in the world is there a finer display of volcanic action.

The eruption of Katmai in 1912 was one of the worst in recorded history. It explored after centuries of quiescence and a week of numerous earthquakes. When it blew its top, molten rock was spewed into the atmosphere and its ashes travelled round and round the earth causing red sunsets for several years. These paroxysmal explosions lasted more than two days. In the area of the eruption a cloud of ash was formed so thick that it blotted out the sun and turned day into night. People took to their homes for the atmosphere was so dense with ash they feared they would suffocate. There fol-
followed several weeks of lesser but violent eruptions. All plant and animal life in the region was destroyed. Many fumaroles were formed in the hot ash from which gases escaped. Because of these the area around Katmai became known as the Valley of Ten Thousand Smokes. A few of these fumaroles are still smoking.

A year later, in the fall of 1913, when we were returning to Seattle, our boat stopped at Kodiak Island which is 100 miles from Katmai. We found the entire Island still covered with white volcanic ash a foot deep. The trees too were laden with ashes and the whole scene looked very snow-like.

Katmai now has a crater about three miles in diameter and
two thirds of a mile deep. It has since filled with water forming a beautiful lake. A glacier feeds into the crater but the heat beneath the lake keeps the water from freezing.

A number of years later, the area had cooled sufficiently to allow a geologic party to enter. In the course of getting there they had to go up a treacherous river wild with rapids. As R. H. Sargent, chief of the party, was the first person to map this area he was privileged to name places and points of geologic importance. Hoping to disguise his animosity against the terrible terrain under a little Russian verbiage, he called this stream the Sonofovitch River. The U.S. Board of Geographic Names saw through his subterfuge and the name was discarded.

Another decision of the board created quite a humorous stir. Because the ending “na” means river in Athabaskan they decided to drop it so as not to be redundant. The Tanana River would become the Tana River. George Martin, when he became too old for the arduous Alaskan work, had taken a position on the Board of Geographic Names. He was very much against interfering with the original native names and soon brought the matter to a quick end by asking what they intended to do about the Oshetna River.
The 1914 field season was spent in the mountainous Copper River Valley studying the geology and mapping the copper deposits, completing the work started in 1912. Sam Witherspoon and I went into the field early in order to do some triangulation. This required a great deal of mountain climbing. The first two climbs were difficult since it was but the first of May and the snow line was still low. As we neared the top of the first mountain a dense fog rolled in and our visibility went to zero. We had to make the same long, hard climb all over again the next day. The second mountain was particularly difficult to climb for we sank waist deep into the wet snow in many places. On the top of this mountain we suffered more from wet clothes and a cold wind than from fatigue. Our fingers were so cold that we had to take turns operating the theodolite. When it was time to return we found the descent even harder than the climb so we sat on the snow and tobogganed down hill for about 3,000 feet. When we got down to the snow line I was completely minus the seat of my breeches.

During this time we were prevented by thick fog from working for a week, first because we could not see the rocks or chart them if we saw them and second because we could never find our way back to camp if we got out of sight of it. Working in Alaska one’s footwear is nearly always wet and we were in the habit of leaving our boots outside our sleeping tents at night and putting them on wet again in the morning. Because of this we were troubled by ubiquitous ground squirrels (gophers) who would gnaw the leather boots at night, attracted doubtless by the salty taste. So one day during this week of inactivity, I set out with a 22-special rifle to decimate the gophers around our camp. I shot many of them and also shot a weasel; a small fur-bearing animal related to the mink. I returned to camp, entered the cook tent and
proudly held up the weasel. Bert Palmer, our cook, was preparing dinner and Moffit was sitting on a grub-sack behind the camp stove, engaged in his favorite pastime of whittling. Moffit looked at me and though he said nothing I felt his disapproval but Bert spoke up rather harshly, “Well, now you have it. What are you going to do with it?” I left the cook tent without a word. Alone in my own tent I thought over the matter and felt the justness of Bert’s remark and was crestfallen and ashamed, and determined then and there that I would never again kill an animal unless I was endangered or unless I needed it for food. I held to that promise all the rest of my life. To be sure, I had to kill horses and dogs because they played out and I could not leave them to the wolves and I killed wild animals such as caribou, sheep and (twice) moose because I was out of meat and had to have food. Bears, left alone usually retreated, but on one or two occasions had to be killed. This is the end of the story except to say that, over the years, I have acquired a great disdain for sportsmen who kill for heads and hides!

Late in the summer Sam and I climbed the last high mountain to complete the triangulation. It was a good 6000 feet but by that time the snow line had retreated so far that we were on hard rock all the way so the climb proved to be relatively easy.

The entire area in which we were working was very mountainous so that every day we were obliged to make long, often precipitous climbs to study the rock. An additional difficulty was the wind which seemed to blow unceasingly. I recall that on one occasion when I was walking on a high ridge, the wind became so strong that I had to crawl on all fours for a considerable distance to keep from being blown down the steep lee side of the mountain.

I was very tough in those days, nevertheless, I recall a sense of great relief in the fall when we came out into the flattish country of the main valley. Moreover, it was wonderful, after all those months, to be able to look out at a large expanse of land. I felt a great uplift in my spirits and I was glad to be a part of the world again.
1915 was a memorable year to me as I became a full-fledged geologist and began my first independent work. During the summer we mapped the area from Poorman to Iditarod. The mines were so desperately in need of horses in Iditarod that at the end of the season Sargent auctioned ours off. I took in the money ending up with $1200 in gold in my pockets as there was no paper money at all in Alaska until sometime in the thirties. At the close of the season I wanted to visit a nearby mine, so I left camp a couple of days ahead of the others. When I finally arrived at Flat a gala Labor Day celebration was in full swing and the big horse race was just getting under way. I joined the crowd at the starting line. A young fellow, standing next to me, told me that the Muchler brothers, teamsters in Flat who organized the race each year, had gotten hold of a fairly good horse and had bet with everyone they could. Somehow, they had persuaded the Black Bear, one of the prostitutes, to put up most of her money on the race. She lost!

I took a room at the roadhouse and later that evening went into the restaurant for dinner. As I closed the door behind me, I saw, sitting at the counter, a bleary-eyed, dirty old miner and two of the prostitutes, Black Bear and Red Fox. The entire conversation was taken up with the Black Bear’s bemoaning to her friend over the large amount of money she had lost on the horse race. The old miner sat quietly eating his dinner until the complaining got too much for him. Finally, he reached over, patted Black Bear on the back and said in a drunken drawl, “Don’t worry, dearie, you’ve still got the ‘ole claim’ left!”

From Flat we went on to Holy cross where we stayed at the Salmon Hotel while waiting for the boat and the start of our homeward trek. The hotel was an old river boat from which the engine had been removed and which was moored
to the bank. It took its name from the fact that frequently the only thing on the menu was salmon caught in the river alongside. Sargent and I shared a room on the upper deck. Late one night as we were getting ready for bed, we heard a pita-pat outside our port hole. Looking out we saw one of the guests, a sporting woman, known as the $30,000 Kid, hurrying along the deck to the bathroom — stark naked. She acquired that name because she took the $30,000 a fellow in Dawson had stolen, or in any case came by it illegally, and skipped off on the next boat to Alaska. Subsequently, the fellow was tried, found guilty, and served time. I believe he tried to implicate her at the trial. Anyway, the word spread and she became known as the $30,000 Kid.
The others all took the upstream boat but I decided to wait for the downstream boat in order to leave from Nome as I had never been there. I found Nome to be a muddy and unattractive town. Unfortunately, I had a long wait there. To make matters worse the hotel was filled up. However, it worked out well, for the American Express agent invited me to stay with him in his room behind the office. He didn’t have an extra bed but I used my bed roll. He was a fine amateur botanist and as botany had been a hobby of mine since boyhood, we enjoyed a common interest.

A second memory I have of Nome is seeing the fire engine clanging down the main street pulled by a dog team!

The steamship finally arrived. It was the old U.S. Senator, a full fledged steamship but fully equipped with sails which were used both as stabilizers and for auxiliary power. It was a great surprise to me to see the manner in which the passengers were landed. As Nome has no harbor the ship lay at anchor about a mile off shore. Moored to her was a barge, which of course, bobbed up and down with the waves. Therefore, it was necessary that the lower end of the gangplank, that ran from the ship to the barge, be lashed to a hand truck so that it could roll back and forth on the barge in accord with the movement of the ocean. At the end of each motion there was a lull during which a passenger could jump off the gangplank. When they were all down off the ship, a good sized gas boat transported them from the barge to a pier that extended from the shore out to deep water. To embark the procedure was, of course, reversed. The pier had to be replaced each spring, for it was torn to pieces every winter by the milling of the ice.

The trip to Seattle took two weeks of rough going in the Bering Sea and the Pacific Ocean. On the last day we entered the Straits of San Juan de Fuca with its calm water and all who had been sea-sick and bedridden were able to leave their beds and enjoy a hearty meal after so many days of misery, and I was glad to see the dining room filled again with people and laughter.
I went to Alaska alone in 1916 with several missions. One was to map the Tolovana River which flows into the Tanana River through a broad flat (Minto Flats) east of Manley Hot Springs. The steamboat let me off at a place called Tolovana Telegraph Station. All that was there was the telegraph station and a roadhouse full of bed bugs. I didn’t know just how I would get further up the river but about three days later along came two men in a gasoline barge. They were more than willing to take me with them but they couldn’t stop along the way to accommodate my mapping nor could they lay over at night. So I sat up in the bow of the barge for two days and two nights mapping by time and compass, as we travelled along. Finally, at the “log jam,” they tied the boat up in order to portage around it. The men had a mosquito tent just big enough for two. The mosquitoes were so bad that no one could sleep without a net. Not having one, I started walking up river along the bank. I knew that some place along the river there was a roadhouse. I was so tired from lack of sleep that I was having hallucinations. I would see people picnicking, women and children waving, and people inviting me to come into the river. I knew what I saw wasn’t real and forced myself to go on. Twelve hours later, I staggered into the roadhouse and ordered a meal but fell asleep at the table before the food came. The proprietor helped me to bed, where I slept for eighteen hours. Looking back on that trip, I believe that I came close to cashing in. The next day, along came a miner from Fairbanks bound for Livengood.

My second mission was to visit the gold placer mines at Livengood so the two of us set out together. During the three weeks spent visiting the mines, I stayed with Tom Craig, a miner whose wife had gone into Fairbanks the winter before to have a baby, and who could not get back until the follow-
ing winter. There was no surficial mining in Livengood as the deposits lay 30 to 70 feet underground. Nevertheless I descended and examined every underground placer. This was not a happy chore for me as I never felt comfortable below ground. While in Livengood I made a first “discovery” (gold) on Amy Creek. This is how it came about.

Most of the tributaries of the Livengood Creek are merely small gulches. The largest of them, however, was a good sized stream called Amy Creek. One day I decided to visit Amy Creek and two miners asked to go along. After the long trek we stopped to have lunch at its headwater forks. The miners asked what I thought of Amy Creek as a possible producer of gold. I pointed out some weathered granite, not visible on the walls of the creek but only at one site close to us, and suggested that this was a possible indication of gold in the valley of Amy Creek. The two men returned to Amy Creek the next day and staked claims. A placer claim is 1320 feet by 660 feet. Others hearing of it soon came too. Amy Creek was prospected, a good placer deposit was located and
within a year numerous gold placer plants were mining. It was a highly profitable site. When I revisited Amy Creek with Ohrenschall in 1966 one plant was still in operation. Thus the creek had been mined for fifty years.

While in the Livengood area I met a very likeable man of somewhat superior education who was called “Alabama” because of his slow southern drawl. He owned some claims on a tributary of Livengood Creek upstream from Amy Creek. It was after spending a great deal of time thoroughly prospecting his claim and in the end finding little or no gold that, out of heart break and frustration he named the stream “Hard Luck Creek.”

From Livengood I walked to the Fairbanks area to inspect the gold lodes there. I was accompanied on the trip by young Judge Atwater who was a lawyer and part time judge in Fairbanks and who was returning from a visit to Livengood. It was a hard trip especially for Atwater who was not used to outdoor life. I stayed about thirty miles out of Fairbanks at Dad Douglas’ Summit Roadhouse.

A rather humorous incident occurred there. Two prospectors had found a rich gold-bearing vein about a mile from the roadhouse. Not realizing how soon the vein might play out, they thought they had it made and started to live high off the hog. They went so far as to bring two sporting women out from Fairbanks to live with them. Before long the two women got into a quarrel and one shot the other with a .22 rifle. Returning that evening from my day’s work. I saw a hilarious group of miners in front of the roadhouse. When I got closer I was astonished to see one of the ladies of easy virtue bent over, skirts pulled up and whimpering — and Dad Douglas down on his knees, pen knife in hand, trying to remove the bullet.

A narrow gauge railroad was built around 1905 to afford transportation from the town of Fairbanks to the early placer mining areas, at that time mainly on Cleary and Fairbanks Creeks. It had a total length of perhaps 30 to 40 miles. Leaving Fairbanks the track led northward to Goldstream Creek and up the Goldstream Valley. The tracks then ascended the ridge north of the little settlement of Fox and descended on the other side to the settlements of Olness and Chatanika. The little locomotive used wood for fuel and along the line sparks, issuing from its chimney, set fires which the local
people extinguished but not before all the spruce trees along
the right of way had been destroyed.

One of the peculiarities of Alaska that I never understood
was the seemingly spontaneous appearance of red raspberries. In woods one rarely ever saw any plants but as soon as
an area had been burned over a prolific growth of them
began. Thus, on both sides of this little railroad, on top of the
ridge between Goldstream Creek and the Chatanika River
there were myriads of red raspberry plants. When the berries
became ripe in August they were eagerly sought after. They
made fine eating and fine preserves and like blueberries
could be heavily sugared and put down a cold shaft to freeze,
and thus were a delicacy throughout the entire winter. So, in
August everyone on the train came prepared with big buck-
ets and when it came to the Goldstream-Chatanika ridge the
engineer stopped for an hour or two to let the folks gather the
berries.

In those days the Department of Agriculture had an ex-
perimental station at the present site of the University of
Alaska. The cows kept in the dairy section yielded an unusu-
ally fine rich milk, the excess of which was sold in Fairbanks
where a real high grade ice cream was made. At the old Ar-
cade restaurant the man behind the counter always knew my
dessert without asking, to wit: a double vanilla ice cream
smothered with red raspberries.

From Fairbanks I took a small river boat to Tanana and
thence a large river boat to the mouth of the Yukon River at
St. Michael where I crossed the gulf to Nome. There I ex-
amined the gold deposits of the Seward Peninsula in an ef-
fort to discover the source of the gold that had provided the
many placers of Nome and elsewhere on the Seward Penin-
sula.

Another narrow-gauge railroad, then abandoned, had
been started northward from Nome in the early heydays of
mining but construction had continued for only about seventy-five miles. In order to get to Nome some of the min-
ers living nearby had railroad hand cars to which they
hitched their dog teams. Going up hill the dogs worked hard
but the minute they reached the crest they hopped on the car
and rode down. On one occasion I rode into Nome with one
of the Hed brothers and was amused as it seemed as though
the dogs worked extra hard pulling the car up hill because
they anticipated the fun of the downhill ride.
This had been a lot of work for one season and I finished just in time to catch the Victoria on its last trip out before the freezeup. The insurance companies required that the ships be out of Bering Sea (Unimak Pass) before November 1.

I wasn’t in Flat in 1916 but I heard that during the summer the Black Bear had sent to Seattle for a race horse. She took everyone by surprise and more than made up for her losses of the preceding year. It was the Muchlers who this time were bewailing their losses, all of which went to the radiant Black Bear.
By 1917, the year of our entry into World War I, I rented a boat with a captain and an engineer in Ketchikan for a trip to locate a possible nickel deposit in the area surrounding Lituya Bay, a large bay about fifteen miles in length in an uninhabited part of southern Alaska. An interesting feature of this bay is that the inlet from the ocean is but fifty yards wide and beset with rocks and shoals. Through such a narrow inlet a rapid tidal current runs steadily all day discharging and replacing a huge amount of water except for a few minutes at the turn of each tide. The speed of this current is so great that the bay can be entered or left only at slack water during a tidal change. As the inlet is directly on the coast, there is also a rough surf to reckon with, for unless the ocean is more than ordinarily calm the sea breaks clear across the entrance.

Lituya Bay was discovered by the French explorer La Perouse in his search for the Northwest Passage from the Pacific side in the course of a trip around the world on which he set out in August 1785. He cautiously sent two scouts ashore to discover the channel and to locate a good anchorage inside the bay before attempting passage. On July 2, 1786 after receiving their recommendations, his two frigates, La Boussole and L’Astrolabe, towed by boats, entered on slack water but were nearly wrecked in the entrance by an unexpected northwest wind that arose suddenly and blew them shoreward. By the use of their sails, however, the passage was effected with but minor injuries to the ships. On July 13, when the expedition was preparing to leave, a surveying party came to grief at the mouth of the bay. This party, in three ship’s boats, had set out in the morning to make a last tour of the bay, but going too close to the entrance as the tide was going out, they were drawn into its bore and two of the three boats were wrecked, the third escaping by a narrow margin. All six officers and the fifteen
crew men in those two boats were drowned, and none of the bodies was recovered. In memory of his unfortunate comrades, La Perouse erected a stone monument upon an island in the middle of the bay to which he gave the name Ile du Cenotaph. It is now called Cenotaph Island. At the bottom of the monument he buried a bottle containing a paper giving a brief account of the disaster and the names of its victims. The following inscription headed the account: "A l'entrée du port ont peri vingt-un braves marins; qui que vous soyes mêlez vos larmes aux nôtres." (Twenty-one brave seamen perished at the entrance of the bay; those who see this mingle your tears with ours.)

Lituya Bay visited in 1917, after La Perouse (top map), modern map at bottom for comparison.
At the time of La Perouse's visit the Lituya Bay area was populated by Indians who occupied several villages along the beach. They lived by fishing and hunting and travelled the bay and adjoining coastline in pirogues, or canoes made by hollowing out logs. They were familiar with the use of iron — in fact, most of them had iron poniards suspended from their necks, that they had probably obtained from the Russians. They also had copper and bronze ornaments, evidently of local origin. Of all things, they most desired iron, and most of the trading done with them by members of the expedition was based upon an exchange for bar iron, nails, and other iron implements. They gave the impression of being sun worshippers and cremated their dead, except for the head, which, with the ashes from the body was sewn up in skins, inclosed in a wooden container, and mounted on four stout poles driven into the ground.

La Perouse found the natives of Lituya Bay to be an unattractive lot and the only reason they were not openly hostile was that the members of the expedition took pains to demonstrate the superiority of their weapons. An observatory and repair shop was established on Cenotaph Island by the expedition, a part of the officers and crew living ashore in tents; but the continuous thievery of the natives finally made it necessary to quit the island. La Perouse, after visiting their villages, concluded that those natives were about the least acceptable people he had ever met. At the time of our visit no natives lived at Lituya Bay, for, like all immigrants who seek a better life, they had migrated slowly over the years toward more prosperous settlements.

On our 1917 trip we knew that to enter or leave through the inlet during the few minutes of slack water at either high or low tide it was essential to follow accurately a tidal table. The only available table was one that applied to Sitka some 125 miles south. At what he judged to be low-water slack, Captain Howard steered that boat into the inlet but found the tide still running out. Before he could turn the boat about and return to sea, a large wave hit us carrying us farther into the inlet and right toward a huge rock awash but clearly visible to me, for I was standing forward in the prow. We were headed straight for it. I thought we were done for. I was sure it was the end. I grabbed on to the rail with both hands and I think never before or since have I felt so helpless in the face of danger. I could not take my eyes off that rock. We came
unbelievably close to it; it was only the force of the outgoing current that kept us from being dashed into it. I turned to look at Captain Howard and could sense rather than see his tension. We were still at the mercy of the ocean, for if another large wave came along before we could return to sea, it would be all over. In spite of that, Captain Howard took his time and turned the boat carefully and deliberately about, as we were being buffeted by sea and tide. I thought he must have nerves of steel to have such control in the face of such uncertain odds but we made it. We were back out at sea! As I turned, smiling to congratulate him, he let out a tremendous sigh of relief and smiled back. “That was close” was all he said.

Captain Howard realized that the Sitka tidal table was not sufficiently accurate for Lituya Bay, but he could only guess at the time difference. He waited fifteen minutes out at sea and then decided to try again. This time we made it, and, knowing about the boulder, carefully avoided it. Once in the bay there was a cove off to one side where we could drop anchor along a sandy beach, but because of the suction of the outgoing tide it was necessary to put out a shore line lest during the out-going tide the anchor drag and the boat be drawn into the bore.

We were surprised to see a fishing schooner tied up in the lonely cove where we were anchored. Our curiosity was aroused but not for long for early the next morning the captain of the schooner paid us a visit. He told us that he had brought up three men and their wives from Juneau with a two year supply of food. They had left before the men were called upon to register for the draft and so they intended to wait out the war and avoid being called.

On the day after our arrival the captain went with me to hunt for the nickel deposit reported to exist near the head of the bay. We followed a steep gully that took us 2000 feet above sea level. We had located the deposit with little trouble and were returning, walking in waist deep grass, when we spotted a recumbent grizzly bear. We were unarmed and there were no trees to climb. It was my idea to make tracks out of there so I was astonished when Captain Howard suggested taking a picture of it. Not wanting to appear cowardly, I took out my Graflex and when I was all set the captain let out a shrill whistle; the bear literally jumped up into the air and I snapped the picture. He was a huge fellow but seeing
two people ambled away, much to my relief. When the picture was developed, it showed only two outstretched hind legs.

Later, when we had returned to the boat our engineer lassoed a small iceberg to replenish the ice in our refrigerator on the boat. While pulling it in, the rope slipped off and he toppled over backwards into the icy water. We quickly pulled him aboard for one can last but a very few minutes in such freezing water.

We explored the beaches east and west of the bay, did much panning, collected fossils from the beaches and from Cenotaph Island and in panning found traces of both gold and platinum.

In the woods bordering the bay we came upon large glacial erratics consisting of boulders larger than good sized houses, emphasizing the intensity of the Wisconsin glaciation in the region. At that time Lituya Bay and all the area along the coast were buried deeply by a thick sheet of slowly moving ice extending from the Alaska Range far out into the Pacific Ocean. Such ice sheets carry enormous quantities of rocks that drop from the valley walls or are plucked loose from the walls by the grinding power of the glaciers as they move down hill, only to be deposited miles away as the ice melts.

Another discovery, far less inspiring but nevertheless most welcome, were the strawberries growing wild along the shore. I had never before seen or heard of strawberries in Alaska. Moreover, these were the largest I had ever seen. I made a point of keeping us well supplied during our stay. Sometime later I found that they were cultivated in places along the coast and with good care often grew to the size of small apples. We remained for several days and then left on a high water slack with no difficulty whatever. Both Captain Howard and his engineer were capable boatmen.

Another example of treacherous waters along the coast of Alaska is in Turnagain Arm adjacent to Anchorage. Here the tide comes in with a terrific bore with waters about forty feet high. Many people, attempting to cross in small boats, have been overwhelmed by this wave and drowned. This is the second highest tide in the world, the highest being at the Bay of Fundy in Novia Scotia.

My next trip was on Kenai Peninsula which I reached by steamship from Ketchikan. There I roamed the peninsula for
Panorama of Lituya Bay, entrance to the left, July 22, 1917.

several days visiting the gold mining camps. My principal recollection of that trip was of travelling along late one evening and coming unexpectedly upon a large number of porcupines barely visible in the high grass. The barbed quills are not only painful but easily cause infection. I wanted no truck with them so I made a large detour hoping to miss them all — and I did.

Little did I think at that time that Kenai Peninsula would become a thriving oil field. It is what is known as a blind field as there are no seepages and the surficial rocks are not oil-bearing. It was discovered years later by wild-cat oil drilling.

My third trip started from Seldovia on Cook Inlet which I reached by steamship from Seward. The reason for this trip was to examine some outcrops of chromite ores on the high mountain not far from Seldovia. But to climb this mountain from Seldovia was highly impracticable as its sides were heavily timbered with devil-club, alders and other brush. I found an Indian in Seldovia who knew of a trail that led to the crest of the mountain. So one evening we left in a motor boat for Jackelof Bay where the trail started. With us was a young man by the name of Littleton, from the Bureau of Fisheries who was stationed at Seldovia. We got about five hours sleep at Jackelof Bay and then about 2 A.M. started up the mountain. The climb took five or six hours as the trail was overgrown in places and had to be chopped clear. Arriving atop the mountain in the forenoon, I spent all day mapping and sampling the veins of chromite. Thereafter, we returned to our boat, arriving near midnight. The Indian was exhausted by the return trip and I feared at times we would have to stop and camp but he finally made it to the boat. He wasn’t old, in fact, he was quite young, but many Indians suffer from disease and malnutrition and are not as stalwart as we have been led to believe. Needless to say we had a sound sleep that night.

At Seldovia Littleton showed me how to cut up and salt fish and aided by him I salted down a quarter-barrel of fine salmon trout which were obtained free from the brailings of a nearby fish trap. At that time only salmon were saved and all other fish were gaffed and thrown overboard. Standing on a piling with my camera, I got some good pictures of the brailing of a fish trap. Littleton saw to it that my fish were sent to
Several good sized halibut from the trap, Katchemak Bay.
my home. However, I never received them. They were either lost or stolen. It was a great disappointment.

The last trip of 1917 was to visit the mines at Cache Creek. I started from Anchorage, by now a small settlement. An underpowered riverboat operated by the owner and his 16 year old helper was about to leave with supplies for McDougall, on the Yentna River, and I secured passage as a second helper, without pay and without charge. The boat was not seaworthy in rough water and so when we ran into a gale after leaving Anchorage, we took refuge in the lee of Fire Island at the mouth of Turnagain Arm where we anchored over night. With good weather in the morning we planned on lifting anchor but we found that it had sunk deep into the silty floor of the inlet. After three or four unsuccessful attempts to raise it, I undressed and made several dives to the bottom and finally succeeded in scraping away the silt. My fingernails were worn to the quick but we saved the anchor. It took two days to reach McDougall. We arrived after dark and so slept on the boat that night and were, therefore, unaware of a rather severe earthquake that had rocked the land during the night until we heard about it at McDougall the next morning. The trip up the Susitna and Yentna Rivers was otherwise uneventful, except that the helper was an obnoxious lad who irked both the captain and me. I came close to tossing him overboard with a tow line tied to him on the theory that by the time he was hauled back in, he would have learned some manners.

At camp No. 2 on the Kahiltna River I got a lift to the mouth of Cache Creek by two men on a freighter. They were a jolly pair always joking at meals about Libby, McNeil and Libby, whose canned foods were their mainstay. After leaving them I was looking for a way to get out to the dredge on Cache Creek. As it turned out I was able to hitch a ride over a primitive wagon trail in a horse drawn truck. Bumping along on the rocks and especially over boulders in the riverbed which we forded several times was uncomfortable but became even more uncomfortable when, after we were well on our way, the young driver said, “I guess the mine will be glad to get this dynamite.”

I passed two or three pleasant days at the dredge. Thereafter I set out to visit some camps further upstream, and also in the valleys of Peters Creek and the Tokichitna River. This proved to be an onerous undertaking as it rained continu-
ously and I was always wet and cold except at night when I could dry out at some welcome camp stove. I visited mines on Willow, Poorman and Long Creeks. From there I walked to the head of Cache Creek, which was in flood and raging, and continued downstream for miles along its south bank looking for a ford to cross in order to reach the mining camps, all of which were on the north side. The stream was high and in one attempt to cross to the north side I lost my footing and barely escaped being washed away, so I stayed on the south side. When I reached Nugget Creek the stream divided into two channels. Some miners at the mouth of the creek saw me and told me to ford the smaller channel. The men then tied themselves together and linking hands stood well out in the

Map, Cache Creek area, visited in 1917.
stream. I started walking across but lost my footing and so swam toward them and they grabbed me and pulled me ashore. I spent two days at Nugget creek camp drying out and visiting their placer plant. Continuing downstream I visited camps at Thunder, Falls and Dollar Creeks with no further mishaps, but wet and cold as ever. Thence I returned to the dredge. This had been a difficult trip but had yielded much, including a significant fossil find and traces of platinum in several new localities.

The dredge was closing down for the season when I returned and in a day or two I left for Camp No. 2 with the owners Messrs. Harris and Murray. We started downstream to the mouth of Cache Creek. We had to ford the creek at one place, and roped together and with poles to support ourselves against the current, we made it. They had a small boat moored at the mouth of the creek. It was a frail craft of ¾ inch lumber, driven by a small outboard motor and operated by a man they called Sandy. The trip downstream was uneventful until we got to the rapids above Camp No. 2, and that would not have been difficult except that it had become dark. Sandy wanted to camp overnight and run the rapids in daylight. But Harris and Murray wanted to get to Camp No. 2 that night. So we ran those ten miles of rock-studded rapids in the dark and never hit a rock. Sandy shook his head and said, “Well it’s alright when you get there.” I agreed with Sandy. Such boating is not conducive to peace of mind.

Back at McDougall I wanted to visit Parker’s camp on the Kahiltna River. The trail went through deep woods. Parker was delighted to have me visit his camp but upraided me for coming unarmed across the trail which was a hot bed of grizzlies. I had seen none but he would not allow me to go back to McDougall alone but sent one of his men with me armed with a high-powered rifle. Sure enough we met a bear and wounded him but he got away into the thick woods.

The trip from McDougall to Anchorage was uneventful but I remember this as one of my hardest trips, wet and chilled to the bone and with several escapes from drowning. It had been an interesting but hard summer, and I was ready for home.

Incidentally, there are a great many canning companies in southeastern Alaska. There is an amusing but true story about white salmon called dog salmon by the natives but properly known as chum salmon. It has as much flavor and is as
healthful as red salmon but because it lacked eye-appeal it did not sell. One of the canning companies, in an effort to outwit the public, had printed on the label: “THIS SALMON GUARANTEED NOT TO TURN RED IN THE CAN.” Eventually they were made to stop; the government considered it fraudulent advertising.

It saddened me greatly to learn, at the end of the season, that Tom Craig, his wife and young child had been drowned in the Tanana River when their small boat was caught in an eddy and overturned.
WORLD WAR I INTERLUDE

I did not get to Alaska during the season of 1918. Photography had been a hobby of mine since boyhood. It had proved to be very useful in my Alaska work and from 1911 to 1917 I was generally known to be somewhat of an expert. During the war, it became necessary to compete with the Germans by building a photographic transformer to project photographs from one plane or planes to another and Fred Moffit and I were picked for the job. Moffit was a mechanical engineer by training and it was he who designed the transformer, making all the drawings that were needed and Mr. Au, a graduate of Rensselaer Polytechnic and a fine instrument maker, made the parts in his New York shop. I did all the experimental flying, built a photographic laboratory for handling the long films and taught a class of Army officers the elements of airplane photography for multi-lens cameras and taught them the necessary developing and printing techniques of the film and how to use the universal transformer.

My airplane equipment was a Curtis training plane with two seats with a pilot in front and me behind him. Open cockpit! No self starter! And powered by a 150 horsepower Hispani-Swizo engine. We fought to attain a height of 5,000 feet! And if we had to stop to talk to one another the pilot had to cut the engine. To restart the motor the pilot had to dive two or three thousand feet! What one must do to make a living!

We were very late doing this job, because our army was unaware of its need. Colonel Scheimphlug, of the Austrian Army, had worked out all these problems several years ahead of us and took care not to publish the details. The Germans, even at the start of the war, were using a 9-lens camera, with one lens pointed downward and the other eight pointed outward, in order to cover a large area with one exposure. The eight outer pictures were transformed to the plane of the cen-
tral picture by Scheimpflug’s transformer. Our difficulties were manifold, but the worst was that we had only one first class manufacturer of photographic lenses (Bausch and Lomb Optical Company). We needed three or four lenses of identical focal length, and B & L could not, for some reason, supply them. This introduced a number of complications into the design and use of our transformer which were eliminated after the war when it became possible to get such lenses. At the end of the year I was very glad to return to my geologic work.
EIGHTH SUMMER — 1919

Part of the 1919 field season was spent at Glacier Bay, a body of water sixty miles in length on the coast of Southeastern Alaska, northwest of Juneau. The bay has a number of inlets with glaciers at their heads. One of the things that had to be done that year was to photograph the glaciation in order to determine whether the glaciers were advancing or retreating, and at what rate. The station from which the pictures were taken was on a very conspicuous eminence near the head of the Bay, from the top of which one could view a large part of an immense ice field, which flows down numerous valleys leading to Glacier Bay and adjacent inlets to the east and west. This mountain was long recognized as a critical site for photography leading to photogrammetry, by means of which the glaciation could be measured and appraised. For this purpose, photographs had been taken by Dr. H. F. Reid of Johns Hopkins in 1895 and by Fred and Will Wright in 1907 and 1908. Now I was to make the third set. The station was 3000 feet above sea level and I had to make the climb three times before I could get pictures because on the first and second attempts a fog rolled in at the last minute.

The ice has retreated in recent years, so nowadays there is very little floating ice, but in 1919 icebergs were a danger to boats on Glacier Bay.

I had rented a boat manned by the owner and an engineer in Ketchikan. They anchored the boat half way up the bay at Geikie Inlet. One night, when we had been there a week or two, we were awakened by the sound of grinding ice. Rushing on deck, without dressing, we saw we were surrounded by ice floes. Grabbing sounding poles, we fended off ice for several hours to keep the boat from being crushed. Having gotten clear of ice, we moved down the bay to a safer anchorage.

One of the first glaciers visited was in Adams Inlet. Going
up the inlet in a small boat and looking up toward the glacier, we saw what appeared to be a huge waterfall pouring off the top of the glacier into the inlet. It came without warning and could only mean that a lake of melted ice had broken through and that in a few minutes we would be subjected to a tremendous wave coming down the inlet. Escape was impossible. We could neither get down the inlet in time nor climb its straight high walls. We had no choice but to go on, hoping that we would be able to ride the wave when it came. So we continued deliberately but with every nerve strained. As we came closer to the waterfall we noticed that the height of the falls seemed to diminish. Suddenly, it disappeared entirely! What we had seen was the melt-water from under the glacier,
displaced and magnified by the atmosphere, creating a sort of mirage. We could breathe easily again!

We continued to explore the glaciers and saw great masses of ice break off and come roaring down to the sea and become icebergs. We examined all except the Grand Pacific glacier. Its inlet was so clogged with ice that our boat would have been crushed had we dared to venture in. Later, going up another inlet, our boat, a fifteen foot inboard, was almost overturned by a whale that surfaced suddenly underneath us. When this happened, we were again in a steep walled fiord and had we overturned there would have been no place to go ashore nor could we have survived long in the icy water.

The glaciers entering the bay from the valleys are simply tongues of ice from a huge ice field that covers many square miles in the high mountains. These are relatively small glaciers, probably from a quarter of a mile to two miles in width. A fine example of this type is Muir Glacier. Its face is 265 feet high and about two miles wide. Further west huge glaciers from the same ice field come to the sea with a width as great as thirty miles. Malaspina is one of these large glaciers.

Glaciers are not rigid except for the top 100 to 200 feet and flow like a viscous liquid. The top, because it is inflexible, is constantly being cracked by movement below. Sometimes the strain becomes so great that with a huge, deafening report a large crevasse is formed. The early Tlingit Indians who had lived on the coast in the glacial areas had a sort of speaking acquaintance with nature. They believed that the cracking and creaking of the glaciers was their way of talking. Whenever they heard them they were said to have called back a friendly, “Hello, hello.”

Glaciers are powerful eroding agents. The rocks cemented in the bottom of the glacier by ice under pressure scour the ground beneath. The grooves formed by this scouring are so deep they can often be recognized hundreds of thousands of years later and used to prove the presence of former glaciation. Glaciers can move boulders as large as houses and re-deposit them elsewhere. The top surfaces of glaciers are often very dirty with debris, but at the mouth where the bergs are formed they are a beautiful blue-green color.

I spent the remainder of the season inspecting the mines in southeastern Alaska among which was the Admiralty-
EIGHTH SUMMER — 1919

Stopped for lunch, mouth of stream, two miles west of Sebree Island, Glacier Bay, 1919.
Alaska Mining Company, owned and operated by Sam Peckovitch. I visited his mine twice, once in 1917 and again in 1919 and both times stayed at his cabin. He and I spent most of the days scouring the surrounding mountains. Sam was of Slavic origin and a remarkable man in many ways. For one thing he was so warm and open that he begat a feeling of friendship almost immediately upon meeting him. He also had a penchant for taking the shortest path, never the easiest or safest. I recall that on one of our trips we descended from the crest of a ridge down the somewhat precipitous side. We slid down steep slopes, jumped down drops and ended up by getting ourselves caught on a ledge in such a position that we could neither continue down nor retreat uphill. I was standing there pondering our dilemma when to my surprise and amazement Sam suddenly jumped out and grasped the uppermost branches of a spruce tree several feet away. Once in the tree he put his weight on a branch so that by reaching uncomfortably far over the ledge I could grasp it. As we climbed down the tall tree and down off the mountain Sam talked on as if nothing untoward had happened. I don’t know
how I would have gotten down but it would not have been by jumping across a forty-foot drop with the hope of grasping a tree limb — death is such a permanent state.

Sam lived on Amiralty Island on the eastern shore of Funter Bay. It was quite a busy little harbor because many fishing boats took refuge in it during the sudden gales and heavy fogs characteristic of that area. It was there that Sam spent most of his life in a search for gold.

Many small quartz veins and stringers were known to be present in the mountains east of Funter Bay, some of which were auriferous though none had been found that was rich enough to be worked for a profit. Sam believed that these
veins and stringers were the upper horizons of a large lode deposit that existed in the bowels of the mountain and that this “mother-lode” could be reached by a tunnel into the mountain.

He was an able hard-rock miner and the tunnel he drove into the mountain was well constructed, properly timbered and of a height adequate for walking. He laid a narrow-gauge track along the floor for removing the excavated rock. The tunnel eventually went over 2000 feet into the mountain. If ever a man was entitled to success by persistence and honest toil Sam was that man, but in this haphazard world the reward does not always go to those who deserve it.

Sam had several men working for him and his operation was well equipped. All this took money and so every two or three years he made a trip to New York to raise it. His personality and complete self confidence yielded him access to some of the wealthiest financiers and bankers of that day such as Andrew Carnegie and J. Pierpont Morgan. He was a good talker and was soon back at the mine with a substantial sum of money all of which went into the mine for Sam was as honest as the day is long.

On our last trip on the mountains, the day before I left, we came upon some exposed nickel-bearing rocks. It looked at first to be a rich find and because he wanted me to take full credit for the discovery, Sam quickly called it the “Mertie-Lode” though in fact we had discovered it together. This was a long time ago, yet whenever I think of Sam I still feel very sorry that although he found many deposits he never found his mother lode.

The year before, on October 25, 1918, a Canadian ship, the Princess Sofia struck a rock in Lynn Canal near Skagway. All 343 passengers and crewmen were drowned. Now a year later, while working in southeastern Alaska, I met a number of miners who had witnessed the accident and they told me that a heavy fog had hung over the canal that day. At such times United States’ boats, caught in such a fog, would cast anchor and wait it out. The Canadian Pacific Railroad ships, on the other hand, because they met the railroad and had to keep on schedule, would continue right through the fogs. This was not quite as dangerous as it might seem as the water-way was well charted and the captains were experienced seamen.

In spite of this, the Princess Sophia struck a sharp reef
which tore out a great part of the bottom. They were, however, in no immediate danger of sinking as the boat was hung up on the rocks. These very miners went out in their boats to the Sophia and offered to take the people ashore. The captain, either because of his pride or his unwillingness to incur any additional expense, refused to let anyone leave the ship. He chose, instead to wait for help from another CPR boat. But during the night a strong wind blew up and that plus a rising tide dislodged the boat and with its bottom gone, it simply went straight down in the deep water and all 343 people were lost.

When I returned to Ketchikan at the end of the season and was awaiting the ship going south, I was waylaid by the town marshall and asked to serve on the jury for an upcoming trial. I was not a resident of Alaska and had no interest in sitting on the jury but the marshall prevailed upon me and I finally agreed to serve.

This was during the days of prohibition and involved a young man who had been arrested for making home brew beer. When accosted by the marshall, the young man dropped the beer hoping to destroy the evidence, but only

**STEAMER HITS ROCK**

**Steamer Klondike Sinks**

**Strikes Reef at Hootalinqua**

Whitehorse, June 19, 1936 - The White Pass Co. steamer Klondike struck a reef five miles below Hootalinqua about 8:30 a.m. last Friday and sank. The thirty-one passengers aboard were taken ashore in lifeboats where they were made as comfortable as possible until the arrival of the steamer Whitehorse at midnight the same day. The Klondike was laden with 250 tons of general cargo.

The Klondike was built by White Pass in its Whitehorse shipyards in 1929. Dimensions of the vessel were 210 feet in length with a beam of 42 feet.

Ten days earlier, the steamer Casca, crack passenger ship of the B Y N Co. fleet, struck in Rink Rapids about noon and sank very rapidly. The passengers and crew were quickly taken ashore in the lifeboats.

Late reports state that the vessel can be raised and salvaged as she is not broken up or twisted, a large hole in the hull being the only material damage known.

News item, Whitehorse, October 26, 1918.
about half the bottles broke. The prosecution offered in evidence the salvaged beer, and the attorneys for both the defense and prosecution argued the case at length. As the jurors left the court room to deliberate, a couple of them managed to appropriate the beer. We twelve sat around the jury room drinking the evidence. When it was gone we rendered a verdict of “not guilty.” The young man was elated and thanked the jurors individually. We in turn complimented him on his fine beer.
In 1920, I took a year's leave which I spent in South America for one of the oil companies but was back in the states by April in time for the 1921 field season.

We spent the summer in the Yukon-Tanana area. With me were Val (R. L. Phillips) my packer, a cook and seven horses. One of the necessities, when using horses, was horse shoes. Two extra were taken for each horse. Sometimes a loose shoe would be noticed or one found along the trail by the rear driver but more often they were lost. As the shoes wouldn't fit every horse, Val had to heat them in the camp stove and pound them into shape. They were a heavy item to pack and were usually put in the tool box which just about balanced the stove. The horse that carried the tool box and stove carried little else — perhaps a couple of duffle bags.

As horses must be left untethered at night to graze, a bell was tied to one or two of them to help locate them should they wander far off. Early in the season, while we were camped in the White Mountains all seven horses did run off. Val spent the next day looking for them to no avail. Early the following morning, he and I set out with backpacks to hunt for them. That evening, while resting, we heard a faint tinkle. I took out my field glasses and spotted them silhouetted against the sky on the top of the mountains several miles away. The mosquitoes had become too much for them. Val and I were able to catch two of them, for which we made bridles with rope and herded the others back to camp.

One of the dangers of working with pack horses in interior Alaska is the possible advent of a heavy snow storm in late August, concealing the last vestiges of grass. In such a case, the horses would soon starve to death and the men would be stranded. This had happened to a party under Stone in 1905, before I started working in Alaska. They had lost all their horses and barely made it to Fort Hamlin on the
Yukon River with whatever they could carry on their backs. It also had happened to Blackwelder, in 1915. His party lost the horses in the White Mountains north of Fairbanks and had to raft to the Yukon on Beaver Creek. The same thing happened to our party in 1921. We were caught in a severe storm miles from help and civilization and had to travel for five days in deep snow over high mountains to reach a place free of snow and with some grass left for the horses. We finally reached Chatanika at the end of the local narrow gauge railroad line from Fairbanks, with the loss of but two horses. During the five day trek in the snow one of the horses just simply came to a halt. It would not move, neither when pushed nor pulled. The men had to untie its pack, which was difficult as the ropes were frozen, and they had to use their bare hands which almost froze in the process. When they got the pack distributed on the other horses, I thought they should shoot the ailing animal, but Val, because he loved horses, hoped that without its pack it might follow us to our next camp. It didn’t. The next morning Val went to look for it. He followed its tracks down the valley where the tired and hungry animal had been prey to wolves. On the fifth and last day in the snow another horse was so badly off that it had to be shot. The men were fagged out too but, on the second day of the storm, I had the luck to kill a caribou from across a valley, a good 300 yards away. Val and I skinned and dressed it and arrived back in camp covered with frozen blood. It was a pity the horses couldn’t eat meat.

My field season of 1921 began and ended at Fairbanks. The trip from Fairbanks to Valdez where we could get the Seattle-bound steamship deserves telling but first I should explain the conditions of travel in Interior Alaska at the time, that is, before the railroad from Seward and Anchorage to Nenana and Fairbanks was completed. Transportation on the Yukon River was by Canadian steamboat from Whitehorse, Y.T. to Dawson, Y.T. and by American steamboat from Dawson northwest to Fort Yukon then southwest across the interior to the Bering Sea. Fairbanks was reached by means of a steamboat that plied the Tanana River from Tanana to Nenana and Fairbanks.

For several years, beginning about 1918, an automobile road was being developed from Fairbanks to Valdez over the old winter trail, but in 1921 this was still a very primitive road as gauged by the fact that a car required five days to
cover the 365 miles. In places a car would have to run in low gear for miles, nearly hub-deep in mud.

At the end of the season, Val and I had to decide on the best way to start for home. Late in the fall the schedule of the Tanana steamboat was uncertain and we had heard that the local marshall was about to lead a cavalcade of five cars over the new road to Valdez. So Val and I decided to join it. The reason for the cavalcade was two-fold. First, two Indians had been convicted of murder and, as there was no penitentiary in Alaska, they had to be taken to Seattle. Also, three insane men, each with a guard, were to be taken outside to the asylum for the insane at Morningside, Oregon which had a contract to take care of the insane of Alaska. Because so many prospectors, in the lonely Alaska interior, went “loco,” there arose an oft quoted adage among the men, “inside, outside, Morningside.”

One of the “Morningside” men from Fairbanks had been a very lucky prospector. He had made a fortune at Fairbanks, lost it, and had made another at Iditarod and lost that too. When gold was discovered at Livengood, the early arrivals
staked claims in the valley floor of Livengood Creek and on the first and second tiers of the right limit bench. The late comers had to stake the third tier claims and that was where the paystreak was later found. Among the late comers was the same man who thus made his third fortune, but as before, he squandered it mainly on liquor and gambling and soon after became unbalanced. He was married to a fine woman who stuck by him through thick and thin and was one of the cavalcade.

To continue about the trip — it included the three men on the way to Morningside and their three guards, the two Indian prisoners, five drivers, the portly Marshal Erwin, the miner’s wife, Val and myself. Val and I, with a driver, rode in the last car which was also loaded with spare automobile parts for emergencies. Our car was a Ford, the other four were Dodges.

And so we started out, five cars and seventeen people. We were but a short time on the way when the cars all came to a sudden stop. I looked out to see if there was any trouble ahead and saw Marshal Erwin waddling down the road. A second or two later he was followed by the two Indians, one carrying a shot gun! I grabbed my gun and yelled, “They’ve got the marshal!” As I sprang out the car the driver grabbed my arm. “It’s O.K.,” he said, “Marshal Erwin has spotted some grouse. Walking is hard enough for him so he is taking along a couple of gun-bearers.” Val and I could hardly believe our eyes. But shortly, back they came — the marshal followed by the gun-bearer and the second Indian carrying two grouse. The same thing happened twice again and each time Val and I sat in our car convulsed with laughter and incredulity. As it turned out the Indians gave no trouble at all on the trip.

Two of the “Morningside” men were violent at times and had to be handcuffed. The miner was one of these. Their rantings were full of obsenities and vulgarities but also, surprisingly, often profound comments on life. At the roadhouses they cursed and screamed all night so we got little sleep.

At one stop-over as we went single file into the roadhouse, one of the “Morningside” men spied a prospector’s hammer on a close-by sill. In one swift movement he picked up the hammer and had his arm raised above the head of the guard in front of him. He was seconds away
from spilling the guard's brains. Fortunately, another guard grabbed his arm in time thus narrowly averting a tragedy en route.

On the fourth day we broke an axle on our Ford and had to stop and carve one out of a tree we had felled and in that way made it, bumpy-bump into the next roadhouse where luckily a Ford axle was stored.

And so it went — one thing after another, often getting stuck in the mud or in crossing a stream but on the fifth day we arrived at Valdez. Val never forgot that trip and in later years we would laugh as we recalled the incongruous happenings of the journey.
When I landed at Seward in 1922 enroute to the field, I stopped off to visit my friend J. P. Hannon who at that time was a ham radio operator. He had his receiver tuned in and motioned me to be quiet. We could hear the radio operators of two ships at sea in the north Pacific. One was the Victoria, the other a Japanese vessel. The Japanese ship was behind the times, using an untuned arc transmitter which was interfering with the Victoria's effort to talk to Seattle and though requested would not turn it off. The radio operator on the Victoria was so angry he screamed over the wire, "You yellow bellied SOB, if I ever catch you in San Francisco I'll !*$+*#$+! you." That was my first contact with international diplomacy!

I had had a throat operation in the spring of the year and was still not feeling my best when I arrived in Alaska. That year we had an unusually small budget. I hired Ed Culver in Nenana as cook and packer and together we went down the Tanana River by riverboat to the landing at Manley Hot Springs where I bought three horses. Ed was a lucky choice for he was a good man. Just the two of us and three overladen horses out in the bush was hard enough but to me the constant up and down hill travel, so soon after my operation, was hardly bearable. I was, of course, in the field each day. One day I tripped and fell down a drop onto hard rock. I was badly shaken up but fortunately nothing more. However, my throat was getting continually worse and the fall had aggravated the situation. I finally went to a doctor in Fairbanks who gave me some medication and a very unfavorable prognosis. Because the doctor had had no experience in such a specialized field, I had no confidence in him. I threw away the medication and left Alaska for home. By the time I arrived back east the swelling and pain were gone and I never had any more trouble.
However, 1922 wasn’t all work and misery. At the mining camp near Hot Springs, the miners and their wives had put on a big Fourth of July party and dance with a super-supply of moonshine whiskey. I attended the party and danced all night wearing a pair of rubber shoe pacs. I skinned my toes so badly that I had to keep them bound for several days. Lots of liquor was drunk and some passed out but it was a cheerful, happy party with no disagreements or hard words. Every time the liquor was passed I took a glass to keep pace but after a few sips I managed to dump it unseen. What a night it was!

At that time the springs were owned by a widow, who had inherited them from her husband. At one place, where the boiling water was issuing from a three foot hole, she had dropped a $10 gold piece to the bottom of the hole. It belonged to anyone who would reach the 3 feet down into the boiling water with a bare arm and pick it up. Many tried but merely got scalded. It was still there when we left at the end of the season.

Leaving from Fairbanks in the fall of 1922 was far different from the previous year. The bridge over the Tanana River at Nenana had been completed and so too had the railroad. I boarded the train at Fairbanks and went directly to Seward. At that time, and for years afterward the trip took two days as the track was rough and the train could make no speed. Over-night the train stopped at a fine little hotel at Curry where the passengers and crew had good food and private rooms. It was considered too risky to run at night. This midway hotel was right in the Alaska Range, a beautiful setting. It burned a few years ago. The railroad was not a scientific wonder but for those in central Alaska it was a life line to the outside world.

The bridge over the Tanana River at Nenana was began in 1921 and completed in 1922. Much work was done from the frozen river during the winter. On the north side of the river was a hardrock bluff which presented no problem whatever except that it required the bridge to be up-graded on the south side. Much of Alaska north of the Alaska Range is permanently frozen soil or permafrost. However, along large streams, the ground is generally unfrozen for some distance from the bank. The soil along the Tanana River is of glacial origin and when wet becomes partially quick-sand. So the supports for the bridge had to start in the frozen ground, a
good way back from the river and the track had to be upgraded for about a mile to the south in order to reach the height of the north-side bluff. Colonel Mears was in charge of the construction. He drilled deep holes in the permafrost without disturbing the overburden, and drove steel piling into it knowing that if properly covered it would not thaw and the steel would be permanently frozen into the ground.
ELEVENTH SUMMER — 1923

The ten o'clock supper on the Alaska steamboats was a great social occasion with the very best of food (cold meats, bread, preserves, coffee, tea, etc.). In 1923 Jack Hillard, the customs officer in Eagle, boarded the first down-river boat at Dawson along with the rest of us and that night joined us at the late supper. We were but a short way out of Dawson when, out of a clear sky and while we were enjoying our meal, Jack said abruptly, “Now listen here you guys, and this means all of you, you Captain McCann, you Ralph (the pilot), you Ernie (the White Pass passenger agent), you J. B. (me), you Bishop Rowe,” and then he mentioned the names of the first mate, the engineers, and the two travelling salesmen who always went down on this first trip. “Whether you like it or not we have prohibition. It’s the law! Now there’s too damn much liquor going down on the river boats into Alaska and you’re going to have to quit it. I’m giving you warning now that I shall be making a thorough search.” We all had some, of course. I always took two bottles of Three Star Hennessy with me for emergency use in the field but that was insufficient reason to clear the American customs. Just before dinner I had seen even Bishop Rowe coming aboard with two bottles sticking out of his pockets.

Pressure had apparently been put on Jack to take precautions against the inflow of liquor into Alaska for he had never been so gruff and stern before. We were not sure to what lengths he might go — so we took no chances.

Earl Hunter, our cook, hid his two bottles each in a bag of oats and resewed the bags. Clark Abel, our packer, (Val was not with me that summer) hid his in a pile of manure on the lower deck where the horses were kept and where a man dare not go lest he be kicked. On the upper deck of the steamship were rows of water barrels, kept there in case of fire. I noticed that evening that all the water barrels con-
tained bottles of booze, and there was also a cache in the steamboat's headlight (not used until fall). The engineer hid his and that of the officers in the bilge under the engines. I quickly stuck mine under the pillow in my bunk and hoped for the best. The search was made. No booze was found! On this first trip, no tourists were aboard, just Jack's friends—all us old timers. Jack had given us fair warning and then done his duty!

I can not write of the Alaska I knew without mentioning Bishop Rowe of the Episcopal church. He was a hearty outgoing man, well liked throughout Alaska. This small story, often told about him, typifies his sly sense of humor.

It seems that on this particular occasion he was travelling up a winter trail by dog team from Tanana to Nenana in the late spring when the snow was getting soft and the going was difficult. Along the trail he met a miner coming in the opposite direction. They stopped to chat and Bishop Rowe asked how the road was up ahead. The miner, not recognizing the bishop, replied with a hearty output of expletives. He then asked the bishop about the conditions of the road he had just passed over, to which the bishop replied, "EXACTLY the same, EXACTLY the same!"

We began and ended the 1923 season in Beaver where I first met Frank Yasuda, a Japanese. Frank came to the Arctic on a Japanese whaler about 1891. He jumped his ship at Point Barrow on the Arctic coast, and lived with the Eskimos, later marrying an Eskimo woman, Eneveloe. Sometime after the turn of the century he entered into a prospecting agreement with Thomas G. Carter. The partners discovered the gold in the Chandalar district in the Brooks Range in 1906. They decided that the new district would have to be supplied from the Yukon River, so Frank and his wife and her relatives and other followers migrated south. They settled on the Yukon River where he found the town of Beaver and built and started a general store. Frank's trip was similar to our winter trip of 1924 from Tanana to Barrow but in reverse direction. Frank and his family probably made the trip with far less food and equipment than we did but they were hardy people, used to living off the land.

Frank was an unusual man for his greatest happiness seemed to come from helping others and he refused no one though he himself had but little. He lived behind his store with his wife and children. His eldest daughter helped him
in the store. Later she married and when the couple was in need of an income Frank turned the running of the store over to her.

When Frank’s partner, a well educated man, became ill with cancer, Frank sent him to the Mayo Clinic where he paid all his expenses until he died. Frank had no large income, as few people lived in or near Beaver, and Frank’s store yielded only a modest living. Yet, when I remarked on the heavy financial burden this illness had been, Frank merely replied, “Mr. Mertie, he was my partner.”

Though he appeared not to be religious, when a man was in need, Frank helped him. When a man died, Frank built the coffin for him and read the funeral service.
When Charley Shultz showed ineptitude as a fourth class postmaster, Frank took over the job for him. The job paid nothing more than cancellation, that is the total sum of the postage used out of that office, and, when a money order was requested Frank had to go next door to get Charley’s signature. He also acted as local banker in that he kept the savings of all who wished him to, in his large iron safe. Frank went so far as to help a man start another store in town because he was ailing and could not do hard work. As it turned out, the man died before his store was opened.

Val could not go into the field with me in 1923 and so I took with me another packer, Clark Abel, not nearly as capable as Val but an agreeable chap who meant well but lacked experience, and Earl Hunter, an excellent cook.

On one occasion, when all seven horses were lost (a not uncommon occurrence in the field) we went hunting for them and followed their tracks to a large tributary of the Chandalar River where they had swum to the other side. Abel could not swim so I had to undress and tow him across. He finally found the horses and, catching one, rode it back driving the others ahead of him. In Alaska, it was a great advantage to know how to swim.

One objective of our trip, in addition to mapping enroute, was to visit the Chandalar mining camp, centering at Little Squaw Creek. As already mentioned, this district had been discovered by Frank Yasuda and his partner. Very few people were then living in the Chandalar District, perhaps twenty-five or thirty. The only other white men, plus a few Indians, lived at the settlement of Caro about forty miles south on the trail. There were, in addition, a few small Indian settlements throughout the area.

Caro, which was founded to serve as the head of navigation on the Chandalar River, was connected with Beaver by a wagon road seventy-four miles long, though in the early part of the summer the road was too wet for wagons and more suited to the pack horses. The mining camp was connected with Caro by a forty-five mile trail. Supplies for the mining district were freighted from Beaver to Caro by wagon during the late summer and by dog sled in the winter. Freighting from Caro to the mining camp was done entirely by dog sled in winter.

It was on the way to the camp that I came upon a man working a small claim in Big Squaw Creek. He was a mulatto
named Creasy. With hard work Creasy got enough from his claim, plus a small government pension, to eke out a living. I visited his cabin once and, finding him out of tobacco, left some. Creasy was touched by this small gift and he and I became friends. I was curious about his pension as he seemed hale and hearty — so one day I asked about it. It seems that he had been in the Indian Wars and had had a bit of him shot off. He sat silent for a while and then said, “I would like to sell the rest to the government for the same price.”

I judged Creasy to be about sixty years old but he was well preserved and a hard worker. He lived by himself in the wilderness in a small log cabin which he kept neat and clean. A large burl had grown on the spruce tree that stood in front of his cabin. On this burl he had carved a likeness of himself. He was obviously talented and artistic. One can not help but wonder what there is in a man that would compel him to live out his life alone and apart from his fellow men as did Creasy and many other prospectors.

When we arrived at the camp, I was surprised to find that it was well above the timber line. All the essential firewood
and mining timber had to be transported a considerable dis-
tance making it very expensive, but moss and lichens ex-
tended 1000 feet or more above the timber line, and grass, 
though not plentiful, was sufficient to support the horses. 
There was also horsetail rush that grew in great profusion in 
many places and seemed to be relished by the horses. Dur-
ing the season blueberries and cranberries were plentiful 
and much of the ground was covered with small flowering 
plants.

On a tour of the mine area the next day, I found that a 
shaft had been sunk in the valley floor to get to bed rock 
where placer gold was believed to be present. The mine 
owner, Manuel Mello, a Portuguese, had sunk the shaft 90 
feet and come to hard granite, but no placers. Everyone told 
him he had reached rock but, though he had had no geologic 
training, he refused to believe it and to the amusement of the 
nearby miners he blasted a hole through the granite. Well, 
the granite proved to be a huge glacial erratic and, in time, 
he cut through it and underneath found unusually rich gold 
placers.

During the summer a man fell down one of the shafts, hit 
on a bucket and broke his back. The miners got him to the 
surface and were determined to save his life. Fortunately, 
they had morphine in the camp to relieve the pain. They 
built a litter and carried him southward to a site where the 
North Fork Chandalar becomes navigable, a matter of some 
three or more miles. Several others followed with the sup-
plies they would need, food, tents, tools, etc. Had they gone 
due west instead of south they would have had to go a far 
shorter distance but just below the lake were rapids they 
couldn’t chance.

When they reached the river they made camp and set to 
work immediately to build a boat in which to take their pa-
tient to the hospital at Fort Yukon. They chopped down a 
large number of trees and whip-sawed them lengthwise into 
boards. To do this they built a platform seven or eight feet 
above ground, across some sturdy tree branches. On it they 
layed the log to be sawed. One man stood above on the 
timber pulling the saw up; his partner on the ground did the 
work of cutting on the down stroke for which the teeth were 
raked. Sometimes, instead of building a platform above 
ground, a pit was dug in which the man below, or pitman as 
he was called, stood. In either case it was back-breaking
work that required stamina, patience and skill. The men worked in relays. Day after day they sawed, fitted, hammered, hunted and cared for their patient. Finally they had a boat strong enough to withstand the 170 mile trip down the Chandalar with its rapids. When they reached the Yukon they had only about twenty-five miles further to go but it was upstream and necessitated poling and so was slow going. Three weeks after the accident they delivered their man to the care of Dr. Burke. There he remained during the summer while Dr. Burke worked on him. In the fall he was shipped outside to the Mayo Clinic, and, as unbelievable as it may seem, the next spring he was back again walking with but a cane.

The Chandalar drainage, visited in 1923.
If I had to choose between a horse and a mule, I would take a mule every time. I believe they are smarter, less nervous and far more reliable than horses. A horse whose pack is caught in the brush will, invariable, try to force his way through, damaging or knocking off his pack. A mule, on the other hand, will look around to see what is wrong and then turn and sidle his way through. I would have much preferred using mules in the field but they cost at least three times as much, so we had to make do with horses.

The horses we started the season with were often only half broken in, though usually it took but a few days for them to get used to carrying their packs. This year we had a horse that we could not break. He bucked and reared until he rid himself of his pack, day after day. Abel finally devised a scheme for keeping his pack intact but he was still an ornery cuss. Barely turning his head, he would watch out of the corner of his eyes and as soon as anyone came within kicking range he would let go with a hoof. Everyone was wary of him. Unfortunately, we had to put up with him for we needed him but he gave us no end of trouble. He was a renegade horse.

Of the animals that live in a country only a few species are seen by those not purposely seeking them out, so I saw mostly those that we hunted for food and, of course, bears. Moose were plentiful but did not assemble in large herds as did the caribou. Sheep were found on the high mountains and were relatively scarce. Both the black bear and the brown grizzly are native to the interior. The grizzly lives mostly on the high mountains and is often met on the bare ridges above timber line. There is also the Kodiak bear in Southern Alaska and the polar bear in the northern regions.

Though from time to time we would have a bear scare, we seldom carried guns in the field as it would have added seven to nine pounds to that which we were already carrying. Each day I carried a compass, barometer, geologic pick, camera, note book and lunch. If alone and mapping, a plane table and tripod were added to the load and more often than not rocks were collected to take back for laboratory study. These things were toted while working and walking along, on an average fifteen to twenty miles a day.

My closest call came the summer of 1923 along the middle fork of the Chandalar River. On that particular day I had worked all morning up along the top of the ridge. Because
the day was windy and cool, I went down a little way on the lee side to have my lunch. It was a beautiful day and I felt relaxed and at peace with the world. After lunch I got up, stretched a couple of times, picked up my gear and walked lazily the short way back to the crest and there, not fifty yards away, were two huge grizzly bears coming up on the other side. Suddenly I was wide awake. I high tailed it out of there and for the next few days carried a rifle. Had I sat at lunch a minute longer those two would have been upon me.

In the spring of that year on my way up to Alaska I had made a one day tourist trip to Victoria where, among other things, I had bought a copy of Wells "Outline of History." In the field toward the end of the summer I met a lonely prospector who was desperate for something to read. He had a bible which he had read completely several times. He asked me to "swap" my history for his bible. I did. That bible still sits on our piano.

At the end of the season we sold all our horses to Charley Shultz in Beaver and at the same time bought an old, broken down boat from him in which we went from Beaver to Tanana, for at Tanana we could get the U.S. boat which would mean a much shorter wait for the start of our homeward trek.

Along the Yukon Flats between Beaver and Stevens Village was a camp owned by two brothers of Swiss extraction, William and Herman Yanert. They had a garden in the summer, trapped in the winter, chopped wood for the steamboats and, indeed, lived off the land. The brothers called their camp "Purgatory" and had built a dummy devil with strings attached to its head and arms. When they heard a boat's whistle they would hide behind some bushes and manipulate the ropes so the head and arms would move grotesquely about, to the delight of the tourists. It was just a small diversion for two lonely men.

We stopped off to visit the Yanerts on our way to Tanana. I found them well read men and with many books in their cabin. I recall that they had been having trouble because their kerosene froze in winter. When I got home, I wrote a letter to the Standard Oil Company of California, telling them of this and asking them to run a freezing test on the kerosene, sold in Alaska. They complied and found the freezing point to be between \(-40^\circ\) and \(-45^\circ\), which explained why the Yanert's kerosene froze.

We had but one day's wait in Tanana for the river boat.
Scotty’s wire read, “Am starting up river with thirty dogs and 5000 camels!”

It was 1924, the year of the winter trip. Oil seepages east of Barrow had been known for many years and our purpose that year was to explore the country lying between the Arctic (now Brooks) Range and the Arctic Ocean to learn as much as possible about the source of oil. Airplanes had not come into common use in Interior Alaska by 1924 and Northern Alaska was so far from established travel routes that it was necessary to enter the country in winter in order to be on the site by summer. Accordingly, we assembled at Tanana on the Yukon River, in February, and travelled northward during the winter so as to be north of the range when the spring break-up came.

Our party consisted of P. S. Smith and myself, geologists; G. FitzGerald and R. K. Lynt, topographers; H. A. Tait and F. B. Dodge, recorders; and George (Scotty) Clark and W. R. Blankenship, cook and dog musher. A wire was sent to Scotty who lived downstream at Whiskey Gulch, across from Ruby, telling him where and when to meet the party and to bring as many dogs as he could get which accounts, at least in part, for his reply. Smith would head the party until spring break-up at which time we would split into two groups of four, he and I each heading a group.

Smith and FitzGerald had left for Alaska three weeks ahead of the rest of us in order to complete the outfitting and get everything set up. Blankenship was hired at Tanana and Scotty joined them there. Lynt, Dodge, Tait and I travelled together from Washington to Nenana by ship and train. From Nenana to Tanana we went with the mail carrier.

Our outfit was loaded on his sled and another one hired for our use with a team of horses to each sled. Bayless, the
mail carrier, drove his team and the four of us took turns driving the second one.

I wore light weight woolen underwear, a wool shirt, heavy wool trousers, and a mackinaw. It was much too warm for a heavy, furred parka. I also wore two pair of wool socks, a pair of felt inner soles and ten-inch moccasins. It is tiresome walking in moccasins and I wanted to get broken-in to them before we reached Tanana.

The first night we stopped at Mrs. Lasky’s roadhouse which she and her son ran. The second night we stopped at Jack Campbell’s. We had a fine meal there; moose hamburger steak, bacon and beans, fried potatoes, bread and butter, jam, tea and pear pie. Jack lived there alone, with a cat

A map of the area traversed from Nenana to Barrow in 1924.
for a companion, and kept the roadhouse. It was a good clean place and a nice change from the poor meal and dirty bunk-house of the previous night.

The third day we reached Tolovana Telegraph Station. That was where I had spent a week in June 1916 — but what a difference. Then there were hot days, daylight all the time, mosquitoes by the billions and a very dirty bunk-house. This trip I was there in the winter with cold days, long nights, and, thanks to R. H. Martin who now ran it, a nice clean bunk-house.

The next day was cold, below zero, with a biting wind all the way. We were all glad to walk and the only time we rode was when we were driving.

At Manley Hot Springs we stayed, of course, at Dan Green's where everyone there was glad to see me. Our last stop-over was at the Harris's roadhouse at Woodchopper.

On the last day we had the only excitement of the trip. It is very hard for sleds to cross over ice when the wind is blowing, for the wind blows the sled sideways and may tip it over. This is overcome by putting iron skates under the runners. We did this crossing Fish Lake but on some lakes further on we didn't use skates because the wind wasn't blowing. The wind started up suddenly, however, as we were crossing Long Lake and our sled on which Dodge, Lynt, and I were riding got to swinging faster and faster and faster like snapping the whip and pretty soon we hit some snow sideways and spilled. Dodge, who was driving, went out head first on his face, Lynt turned a somersault and landed on the back of his neck and I hit on my hands and knees. None of us were hurt for we landed in a soft snow drift. The horses ran away but finally came to a stop in the woods on the side of the lake without smashing up anything, but it took all five of us to right the sled. We reached Tanana about 5 P.M. where we met the others and worked half the night getting ready to start the following morning.

We took with us four sleds, one of which carried the four nested Peterboro canoes to be used after the spring break-up, fifty-four dogs and two temporary freighters, Titus Nicolai and John Swenson. However, additional teams were used to help get the outfit to the south foot of the range. These teams consisted of six sleds, ninety dogs, five freighters, and carried four tons of food-stuffs and dried salmon for the dogs. Scotty was in charge of the additional teams and, with the five
Overturned horse sled on Long Lake, February 23, 1924.

Horse drawn sleds on a slough of the Tanana River, February 26, 1924.
freighters, set out ahead of the main party with all the freight they could carry. They left caches of dried salmon along the trail for our dogs. Fifty dogs can consume a huge amount of feed. All seven hands were to go only as far as the south foot and then return to Tanana.

We started out on February 27 at 10 A.M. All Tanana was out to see us off.

The first day out we soon learned the difference between working with horses and dogs. Horses plod along slowly and steadily. Dogs, to the contrary, run when they travel, then stop and rest. All day long, every day it was a constant trot, trot, trot after the dogs in the soft snow, then you had to stand in the icy wind and get a chill while the dogs rested.

We also learned very soon that a close eye had to be kept on the trail for when the dogs were running at full speed a sharp turn or a bump could easily overturn the sled. One day I was riding the rear runners and Swenson was riding in front as we were going down a hill at a good clip, when we hit a bump we hadn't noticed. The whole shebang overturned and the sled, dogs, Swenson and I rolled down hill for several yards before coming to a stop.

It might be worthwhile to explain a little about dogs and dog teams. Alaskan dogs were of two kinds, the native malamute and the outside dog. The native dogs were part wolf, grayish brown and had an immense bushy tail which they carried curled high over their backs when on the trail. They had great strength and endurance but were dangerous. Malamutes would attack anything that was down, including a man — even one of their own team. When not working they had to be kept beyond reach of each other. The outside dogs were more gentle and companionable toward their master. The Eskimo dog or husky was a mixed breed, often malamute and chow.

When using a team, a tow-line was attached to the sled with harness lines coming off at intervals and with a place for the lead dog on the front end of the line. There were no reins on a dog team. The lead dog understood "Gee, haw, whoa, and mush." The dogs were always eager to start out on a trip for when not working, they were kept on short chains; on the trail there was the joy of racing through the snow with the reward of a fine meal at the end of day. A good dog would work until he dropped from exhaustion.

When an outside dog went through an over-flow it would
Members of the Geological Survey Northern Alaska Expedition at Tanana. From left to right: Swenson, Blankenship, Dodge, Lynt, Goss (the Northern Commercial agent), P. S. Smith, J. B. Mertie, Jr., Gerald Fitzgerald, Tait, Nicolai, February 1924.
just stand and shiver and possibly freeze to death; whereas a native dog would pull to dry snow and immediately sit down and lick the snow and ice off his feet and legs and dry them with his tongue.

Travelling by dog team was a whole different way for me and some of the others and took some getting used to, especially with a heavily loaded sled, for when the dogs turn, the sled does not, and so must be turned. This can be done in three different ways. On the front of the sled, far to the right, is a geepole, a short, rigid, wooden pole that a man, running alongside, can grab on to when necessary and by pushing or pulling on it, turn the sled. If, on the other hand, he is riding on the front of the sled, then he has a ski on one foot; this ski slides along beside the sled ready to be used on the turns to push the sled in the proper direction. The sled can also be steered by the two handlebars on the rear. Whether running or riding the runners, the rear driver can turn the sled by pulling on the handlebars. Our sleds were so heavily laden that it took two drivers to each sled.

Swenson never used a ski but instead relied entirely on the gee-pole for steering. He and I had the front sled which is the hardest travelling for the front sled breaks trail. Swenson ran in front guiding with the gee-pole and I ran behind. If the going was good, which was not often, we got to ride. Going down hill Swensen jumped on and I guided from the rear while riding the runners.

Besides the dogs, the cold and the wind, another tribulation was not being able to wash. Because the snow was so dry, it took eighteen inches to yield one inch of water. On an overnight stop it was all we could do to melt enough water for cooking drinking, and the dishes. The second week out I wanted a wash so badly that I went out one morning at about \(-10^\circ\) and rubbed snow on my face and hands repeatedly and wiped the dirt off with a towel.

Both Smith and I wore glasses. I could manage without mine but Smith couldn’t and it was a great ordeal to him as they would steam up and then freeze and become opaque. He had constantly to defrost them with his hands.

An interesting thing that I might mention is why the hoods of so many parkas are edged with lynx. I had always thought it was because it made an interesting and attractive frame for the face. However, I have learned it is because the steam of one’s breath on lynx fur does not freeze.
The outfit at the third cabin from Tanana, Mile 34, February 20, 1924.

Camp scene at Camp 4, Tanana-Alatna trail, February 20, 1924.
From Tanana to Allakaket we slept in rude relief cabins, built for the winter mail carrier and spaced a day’s travel apart. The cabins had neither doors nor stoves.

We knew we would soon meet John Adams, the mailman, bound back to Tanana from his monthly trip to Allakaket, so one day I wrote a letter home. So, too, did Smith. The cabin was so crowded that we both sat outdoors in the sun to write. It was a good thing we did for the very next day we did meet Adams. I remember that night, after supper, Frank Dodge asking how much it cost to send a letter to the States. Adams said, “Two cents.” Dodge couldn’t believe it, “From such a place as this? Jesus Christ!”

On March 7 we reached Allakaket and rented a cabin from Ma Huntington, the store keeper. We soon had a fire going in the oil drum stove and got some hot water and had a wash and shave. I then went to visit Miss Thayer, the deaconess in charge of the mission at Alatna, across the river from Allakaket. She and Miss Hall, her young assistant, ran a school where the Indian children from Allakaket were taught sewing and cooking as well as the three R’s and religion. They also took care of the medical health of the natives in the surrounding area. In order to reach those in the outlying districts, they kept a dog team, which they handled themselves. They were capable women but also warm and gentle. They had made the mission pleasant with brightly colored curtains and pillows and as I entered there was a wood fire in the large stone fireplace. Coming into the room from the bleak, sunless out-of-doors is something I shall always remember. Allakaket was the furthest outpost. From there on we were on our own.

One of the greatest hazards of winter travel in Alaska is stepping into over-flows. When it gets very cold, the streams freeze to the bottom at places, thus damming up the under-ice water. The water backs up until it finds an outlet. It soon glazes over giving the appearance of firm ice. If one gets his feet wet, he must immediately change into dry socks or stop at once and build a fire in order to dry out, for if frost gets into the bones, suppuration sets in and one can quickly lose toes, feet and worse. Perspiration, in the Arctic, is equally dangerous and for the same reason.

The weather was not as cold as I had expected but the wind blew much of the time. We slept in unheated tents at night and at -25° I was always cold and slept poorly. Finally,
Dog teams enroute on the trail to Attna, March 5, 1924.

Swenson and our team, March 6, 1924.
one night, I decided to try sleeping with my clothes on and had my first good night's sleep.

The food enroute was miserable which was understandable as it was difficult, after a tiring day's run, to make camp and cook up a tasty meal. What did bother me, and probably others, was the unsanitary conditions and vulgarity in everything some of the men said and did. Things went from bad to worse when one night the Indian, Titus, admitted to having gonorrhea, yet there he sat dipping his spoon into the general pot whenever he wanted more. The very next night, someone started breaking wind in the cook tent. That was too much for me! I forewent supper and took a walk in the snow.

We put in two weeks of hard going. Even the dogs were weary. They worked as hard as the men. The second week one of them played out and had to be shot. That same day we found a dead dog from one of Scotty's team on the trail. Poor animals! At the end of the two weeks we caught up with Scotty. It was a sight when the two outfits were consolidated — 142 dogs, often all howling at once. The going up the Unakserak, the next day, through its narrow canyon, with its deep drifts, was slow and laborious but on the way we met a native from whom we bought a mountain sheep. This was the first real meat of the trip not counting rabbit and ptarmigan. It weighed ninety-two pounds dressed.

By the end of the third week we had reached the south foot of the range and the seven freighters, with six sleds and 112 dogs, started back to Tanana. We all wrote letters home which the freighters took back to mail. It was a joy to see them leave — also the departure of 112 dogs helped some to clear the atmosphere both of noise and stench. Scotty then came with us. He was a Scotsman and a fine fellow and became our cook. He made our first good supper that night. We had mutton chops, bread and butter, rabbit stew with macaroni, beans, tea and rice pudding. What a difference! He promised hot cakes for breakfast. Hurray for Scotty!

Now that we had begun to climb the mountains, the going was much slower and laborious and two drivers were no longer necessary for each sled.

Finally, on April 1, we went over Survey Pass. Earlier that morning, after we had our camp outfit packed, I had gone on ahead of the sleds. It was a fine, clear, cold day, and the trail was good. I had hardly gone three miles before I walked into a fresh over-flow covered by snow so that I did
Mission at Alatna, March 8, 1924.

Village of Alatna, March 8, 1924.
not see it. It was not deep but I got both feet wet. Being above timber line, I could not start a fire so I walked ahead slowly so that the sleds could catch up to me and I could get some dry socks. They saw where I had gone into the overflow and they were able to go around it. My feet were pretty cold but not frozen when they caught up to me. Scotty got out the dry socks and I changed and all was well. Further up, going over the pass, we encountered a stiff wind and I froze my cheeks and right ear. Scotty and I had stopped to rest and enjoy one of his Camels. As Scotty lit my cigarette he said, in his clipped Scottish accent, "Do you know your face is frozen?" I took off my gloves and rubbed up the circulation and soon had my color back. It was a clear day and the view from the crest was stark and barren but beautiful. The altitude of the pass is about 3400 feet. This is the pass between the Alatna and the Colville drainages. Our camp that night was two and a half miles north of the summit on the Killik River.

It took about a month to transport the outfit across the mountains and establish a winter camp which we set up on the Killik River about twenty miles north of the divide, in a patch of willows. The north is timberless, desolate country. Willows, where they exist, are usually mere patches of low bush. However, they still provide firewood, bough beds on which to set the tents and shelter from wind and storm. We had two large and two small tents but during the winter we used only the two larger as there were but two stoves. We made a good camp, shovelling out the snow before laying down willow branches on which to put the tents thus keeping off the frozen ground. Sanitation rules were set up. It made little difference while everything was frozen but by spring it would. Two months were spent at this camp awaiting the spring break-up.

As soon as we were settled in our winter camp, I had a hot bath and a change of underclothes, the first wash in seven weeks! Now that we had established our winter camp there was always a pail of melting snow on each stove so that we could have as much water as possible.

At camp, chores were divided. Fitz and Tait were kept busy on many side mapping trips. Smith and I made some trips, too, but little geologic work could be accomplished in the winter because the rocks were covered with snow. In addition to the trips, I made a geodetic station to determine our latitude, longitude and azimuth, using the transit. Lynt put
Eight teams on the trail, 1924.

The outfit is stopped on the trail during a rabbit drive to obtain food for men and dogs, March 15, 1924.
out trap lines to catch rabbits for dog food; Dodge kept the wood bin full; Blank looked after the dogs and Scotty did the cooking. Scotty also made a net and found a deep place in the river where it was not frozen to the bottom and where there were plenty of fish.

The weather was much colder on the north side of the mountains — as low at times as -60°F. If a man stepped outside the tent to get an armful of firewood he would have to make sure his ears were protected, for they could freeze before he could get back in. There was another right snappy chore to be done every morning. The fires in the stoves went out during the night and we took turns getting up in the cold to start them. The man whose turn it was would throw several handfuls of kindling on the stove, light a match to it and dive back into his sleeping bag until the fire got going.

Camp life was confining and soon became very boring. The long wait for spring became wearisome. There would be several days of encouraging weather only to be followed by another snow storm. The extreme changes in temperature and weather were tantalizing. How I longed for something green!

One morning as Fitz and Tait were starting out on a side mapping trip of several days, I decided to join them. I could do no geology but it would be a needed change for me and I could do their cooking. I recall, one day on that trip, that it was my turn to get up and make the fire. I hadn’t changed my watch and was still carrying Seattle time. That morning, in my sleepiness, I forgot that essential fact, and got up at 3:45 instead of 5:45. I thought, as I got breakfast, that it was rather dark but believed it to be a cloudy day. Tait looked at his watch just as he and Fitz were leaving and said, “Jesus Christ, what time did you get us up?” whereupon I discovered my error.

Dog feed was getting scarce and we wanted to keep one team going as long as possible in order that Fitz could keep on mapping. So we led out eighteen of the dogs one evening, just at sunset, and shot them. Poor devils! It seemed a shame after they had worked so hard for us. They were not like horses. After the first one was shot, they understood what was going to happen to them. I would rather kill a dozen horses than one dog!

Blank had lost a filling in the early part of the trip, and so one day I replaced it using the copper cement my dentist had
Mertie and Tait with dog team, April 21, 1924.

Lynt, after return from sheep hunt, with two sheep in the sled, March 28, 1924.
given to me. It was a side cavity and a large one, so that I had to build it up. I used a stick of wood, a jack knife and a piece of dental floss. It was a pretty good job. That same day I saw some swans flying north — a sure sign of spring.

Early in May we unloaded the canoes from the crates. There were four of them, each six inches shorter than the one before so that they could be nested. They were from seventeen and a half to nineteen feet in length. It was advantageous to have the two middle sized canoes so Smith and I played three games of cribbage to see who chose first. I was the lucky one. I saved some of the wrapping paper from the canoes for we were all out of writing paper of any kind.

When I got back to our tent I found Blank lying there in great pain. He had gone snow blind. It put him out of com-

Mertie with a brace of ptarmigan.
Approaching the Arctic Divide, note the aufeis, April 1, 1924.

Crossing the Divide. The man on the front of the sled is on short skiis and steers with the G-pole.

Starting down the Colville slope from the Arctic Divide.
mission for several days. We kept boric acid compresses on his eyes and a black rag over them and he was soon fine again. It was blinding outside now, with the sun shining on the snow. We all had to be careful from then on. The next day was cloudy, squally and cold again. The thermometer went down to five degrees below zero that night. It didn’t look much like spring was on the way. It seemed like it would be some time before the break-up. The Yukon River usually breaks up between May 12 and 20. But I could see plainly that it would be quite a while before the Killik would be ready to break up, though I had seen many signs of spring. The past week I had seen swans and several flocks of geese

Map of the area explored in the spring and summer of 1924.
flying north, and the pussy willows were starting to come out.

I see from my diary that on April 12 I gave Dodge a hair cut. I also played three games of cribbage with Scotty, washed, shaved and read a little astronomy. Otherwise I loafed. Dodge cut a large pile of wood and Lynt brought in several rabbits from his trap line.

Scotty was impressed with the hair cut I gave Dodge so the next day he decided to take a chance on one, too. Our dog feed was getting very low and so we had to kill seven more dogs. Fitz wouldn’t kill them and Blank didn’t want to, so I had to do it. What a dirty job! We picked out the thinnest
ones and I shot them. One of them, a black dog, knew exactly what was going to happen to him for he started to howl when I pointed the gun at him and jumped sidewise so that I did not kill him with the first shot. Those poor dogs had had a hard life and it was a mercy to kill them. That was the only consolation to the job.

As the days dragged on we all developed camp fever. It had been decided, at the outset, that each man could take but two books, most of which were soon read. In order for my reading matter to last as long as possible I had taken a mathematics book and Spencer's "Faerie Queene." I sometimes read aloud to Fitz who greatly appreciated poetry. We played cards, too, but that did little to dispel our boredom. It was very trying to be cooped up in a tent with other men all with nothing to do. Every little cough, sniffle or paper rattle got on one's nerves. We thought spring would never come. I kept pondering the beauty of solitude. One night, after supper, I suddenly got a bad stomach ache. That was always a worry for one fears appendicitis when out in the field and especially on such a trip as this — but it passed away by morning.

The last few days of May brought the break-up. The water came down the creek more and more each day, and on May 31 we were on our way at last — Fitz, Tait, Blank and I in one group. Before leaving camp, the supplies were divided and all the winter equipment abandoned. We discarded everything for which we would have no further need, but in spite of that our canoes were jam packed. Of the remaining dogs, Smith's group took four and Fitz and Blank each took one.

We started out in high spirits, little realizing the trials we were facing. Soon after leaving we knew that we had left too early. A mile or less downstream from our winter camp the entire valley was a sheet of aufeis, about five miles in length and covered with flood ice. Not until late in the summer would the stream revert to its original channel. This aufeis was generally flat but in places somewhat hummocky. We crossed it, not riding in our boats, but skidding with two men in the icy water holding on to the bow and stem of each boat, thus keeping them afloat in the shallow water. The result was disastrous for us. Holes were punched in all the boats by the sharp ice. At other places, bergs, ice that was frozen to the bottom of the river, would suddenly break loose and come
Camp 22, winter base camp on the Killik River, last available firewood. May 23, 1924.

Inside view of Lynt's tent, rocks used to store heat through the night. May 25, 1924.
roaring up to the surface. One as big as a house came up near Smith's boat and put enough fear into us that we stopped and made camp. We spent the next day repairing the boats.

A day or so later, we struck a sand bar and as I jumped out to lighten the boat, it somehow rode up on my foot. My foot swelled up and I could not walk on it. Blank and Tait thought a bone was broken for they said they could hear the ends grate when they moved my foot. We stayed in camp a week.

While there, Scotty's dog, called Eddie, came into our camp. Smith's party had taken four dogs, including Eddie, down river with them but Eddie had become separated. Scotty yelled to us, as they passed our camp a couple of days earlier, that they had lost Eddie and to kill him if he came into our camp for he could never catch up to them. So I knew
I should have to shoot Eddie before we left camp as we had two dogs already to feed. One of these was Prince, Fritz's lead dog the past winter. The other was Spot, a big, friendly fellow that had been in Blank's team.

Tait and Fitz went hunting one day and brought back a sheep that we were badly in need of and we had a good supper that night of liver and bacon. But the men were becoming restless and in any case I knew that eventually we had to move on. We had not really lost much time though, for the weather had been too rainy and foggy for Fitz to have done much work. Before we left I had to shoot Eddie. He had stolen all our sheep meat that night before so I didn’t feel quite so bad about it. However, I couldn’t catch him for he
was skulking in the bushes just beyond camp. He knew he had broken the law by stealing our meat. Blank took a shot at him but missed. Just before we pushed off I caught sight of him and put a shot from our big game gun into him, so that at least the poor beggar didn't have to starve to death.

I had bound my foot very tight and for the next few days just sat in the boat. However, we came to several rock formations back from the river that I felt I should look at. So, using a pair of paddles as crutches and with Tait's help, I managed to hobble painfully along. It was a good thing I made the trip for I found a new geological formation coming in and also made a fine collection of fossils.

The trip down the Killik was far more difficult than we anticipated. Many of the rapids were too fast to ride and so it became necessary for us to line the boats. To line a boat, ropes are attached to both ends and each held by a man on the bank, or if no bank, by men wading, sometimes waist-deep in the icy water, who guides the boat and keeps it from tipping or hitting a rock.

June 14 was not a Friday nor was it the thirteenth, but it certainly was our Jonah day. We came to a stretch of river which looked possible to run in the boats. Blank, Fitz and I all looked at it from the top of the bench along the river and all three thought we could make it. So we pulled into it, Fitz and Tait leading in their canoe. They got through but Blank and I, in our heavier canoe, floundered. We didn't hit any rocks but the big waves in the rapids just combed over us and filled the boat with water. We submarined the last rapid, holding onto the boat without it turning over, and managed to get ashore with the canoe and cargo, just above one of the worst rapids. It would have been all off if we had gotten into that one. All our cargo was sopping wet but we didn't lose anything out of the boat for everything was lashed tight. Our flour, beans, tea, most of the matches, salt and beds got wet. But we still had enough matches to last the summer with economy, and we were able to dry out most of the grub. We lost some food but all in all we were lucky to have gotten ashore. I decided then and there that we would run no more rapids that summer. Our boats were too heavy for that game.

After that, we lined our boats to a patch of willows and camped. We had to stay there a couple of days to work over our outfit. That night it started to rain and then snow and as I went to bed it was snowing heavily. I thought spring would
FitzGerald and Tait at a topographic station.
never come. The river rose during the night and we had to pull down the cook tent and move further back, in that cold driving snow. What a lot of grief and misery we had had since getting into the rapids and the end was not yet. We couldn’t afford to take any more chances for fear of ending up hungry before reaching Pt. Barrow.

Thus we continued on our way, mapping, studying the geology, exploring tributaries, lining rapids and, of course, hunting food for four people and two dogs. The dogs usually rode in the canoes, sitting atop the cargo. One day Spot, Blank’s dog, would not sit still and several times almost tipped the boat. Blank became so irked with him that he tossed him out. There were endless creeks and streams in that
region and the dog must have strayed down the wrong stream and become lost. Blank felt so bad and so guilty for having thrown him out that he spent all night searching and calling but was unable to find him. He must surely have starved to death. Now we had only Fitz's dog, Prince.

We continued down the river and on July 2 came into the Colville River, a fine large river, almost as big as the Tanana. We camped at the confluence of the two streams, at a very old Eskimo camp site, and found a note left by Smith dated June 18.

He said they had had a tough time coming through the flats we had traversed the day before. I guess it was a pretty mean stretch of river two weeks ago. We were in luck to have come through later. He said he would go up the Colville hoping to get to the Meade drainage and thence to Barrow. He advised me to go down the Ikpikpuk River, "If you can find it." He made no suggestion as to where the portage to the Ikpikpuk might be and I could tell from his note that he was worried. The drainage did not look at all like it was pictured to us. Theoretically, the Ikpikpuk portage was to be found some distance from where we were, down the Colville, but I had my doubts.

Soon after we arrived I noticed smoke issuing from a hill-top on the Killik just downstream from its confluence with the Colville. After making camp, on the opposite side of the river, I recrossed and ascended the hill. It was a coal seam but oddly in a vertical position. Hence, in burning, it had left about a two foot linear gap at the surface, to some unknown depth. To have slipped and fallen into this gap would have meant instant death, either from the fall, the fire or the fumes. The coal was near a very old, but abandoned, Eskimo camp and therefore might have been ignited initially by Eskimos, or it might have been struck by lightning. In any case it was a bizarre sight.

The next day I followed Smith's suggestion and we went thirty miles down the Colville and then stopped to explore the country to the north. Not one foot further would I go until we had explored the area thoroughly for a west flowing stream.

So we made camp and Fitz and I made a one day, thirty mile, trip north to some low mountains where we could see for twenty-five miles but could see no sign of any west flowing drainage. We were in a devil of a jack-pot. On the trip,
however, we had crossed a very small east flowing creek that emptied into the Colville further down stream. I decided to explore that creek further. Fitz and I started out the next day with our beds, a tarp to sleep under, a kettle and two day’s grub, to go west up the fork we saw yesterday. We made twenty miles up the valley all through swamp and over nigger-heads and camped at 6 P.M. We ate some cold lunch for supper then it began to rain. We were pretty discouraged. After a while it stopped raining and so about eight o’clock we started out again, Fitz going north and me west, to see what we could see yet that night, as we had grub enough for only two days. I travelled on to the head of the stream and five miles beyond where I could see a stream flowing west out of the mountain — a small tributary of the Ikpikpuk! What luck! The portage between the streams was only about eight miles. We both got back to our spike camp about 2 A.M. We were nearly all in but happy and relieved that a portage to the Ikpikpuk had been found.

It had rained most of the night and we were wet from head to foot when we finally got to bed. I lay on my back and chattered my teeth all night while the rain beat down on the tarp, gradually soaking through and wetting the bed. What a night! What a morning to crawl out and start back to camp. But we made it. We had travelled eighty-five miles in three days, two of them with packs on our backs. I hoped never to put in three such days again — at least not that summer. It was a tough trip and my foot was badly swollen. I could hardly walk on it. Fitz and I rested the next day.

The following day we went down the Colville for seventeen miles and camped at the mouth of the small fork up which we were to go to get to the Ikpikpuk. Supper being late, I went out with the 22 to hunt some geese. I wounded one but it got away and hid in the brush and I couldn’t find it. When I got back to camp I found that Blank had shot two earlier in the day so we were having goose for supper after all. The next day he killed a caribou. We were glad to have some meat again. Blank was a good hunter.

We started up the tributary. It was a small shallow creek and we had a day of mighty hard work dragging our two loaded boats up over the riffles. So shallow was this creek that it took four men to drag each of the boats into its entrance. Not a very happy prospect when we had thirty miles or more to go to the portage. The mosquitoes were terrific
and I was tired, but I was more worried than tired for I knew that this creek forked further up and we scarcely had enough water where we were, to get over the riffles. The next day was more of the same going and the same grief except that the riffles were a little harder to get over. This stream was very crooked and we travelled a long distance by creek to make a short air-line distance. I was beginning to worry because the gradient was steeper than I had expected and the head of the creek would be still higher. This offered the possibility that the stream heading against this one might go back to the Colville. But there was nothing to do but keep going. In two days we made ten miles up this torturous channel. I was tired at night and so was my poor old broken foot. There was no rest for the weary — it was a case of do or die.

The third day was even worse. The water was gradually falling in the creek due in part to the dry season and in part to going upstream. We came finally to the fork and started up the left branch. It was a dismal outlook. We had to clear out the boulders and shovel a channel through a riffle in order to get into the mouth and even then we could clear out a channel only about three or four inches deep. This fork had only about half the water, or even less, than the main creek had at its mouth, yet we managed to keep going and made about three miles air-line a day. Maybe we would make it to the Ikipikpuk drainage and maybe not, so we called it “Maybe Creek.”

The mosquitoes continued to be bad and gave poor Prince a hard time because of his short hair. They nearly ate him alive, especially about his eyes. He became so badly off that Fitz finally had to kill him. We buried him beside the stream which we named “Prince Creek” in his honor. Thus were the two streams named.

We continued upstream for the fourth day. The riffles were almost dry and we had to dig a channel at every riffle to get the boats through and even then it took four men to drag each boat. The riffles were close together, too, being from fifty to 200 yards apart. I pulled and dragged until I saw stars and so did Blank pushing on the stern, yet by ten hours of continuous labor and extreme drudgery, we made but four miles air-line. To make matters worse, the mosquitoes were now in full blast. We had to wear our veils all day and it was
Lining the canoes through rapids on the Colville River, June 11, 1924.

Camp 29, just below the rapids, June 12, 1924.
suffocating to work and sweat like that in hot veils. That was all the hell I needed and the end was not yet.

We continued on in spite of the devil and low water, but such toil and worry were enough to drive a man mad. Blank had been doubtful all the time whether we could make it and Tait too and I had to make light of the difficulties and do my worrying in private.

On July 19 we made it to the portage after seven grueling days. It scarcely looked possible that two boats like ours could have been brought upstream. The creek, at the portage, was no wider than our boats and pretty shallow and even that was half slough grass. I felt sure, with the water falling, that we could never have made it had we been three days later. As it was the bottoms of our boats were worn pretty thin from scraping over the gravel.

We now had a portage of eight miles to cross from this creek to the west flowing creek and this, too, would be more severe drudgery, but by taking our time we should eventually get there. We laid over one day so that Blank could make some bread. Fitz and Tait went over to the head waters of the creek we were to portage to, to see the condition of the water there. They went down the creek for ten miles beyond the portage and reported that the creek was almost dry and that the riffles were entirely dry. Talk about grief! We would be all summer getting down to flowing water if indeed the bottoms of the boats would stand the racket. Things looked pretty blue! If only by some miracle it would rain. Never had I look for rain as I did then. We laid over another day so that Fitz and Tait could rest after their thirty-six mile trip to the halfway point. We four men dragged one empty boat across, came back, dragged another and returned to camp, making twelve miles air-line or about fifteen miles as we travelled, of which half was dragging the heavy boats. We worked until we almost fell over from exhaustion. Fortunately, it was cloudy and cold and the mosquitoes were not so bad. This was the first day in several weeks that we had been able to lift our veils outdoors.

The next day we began portaging the rest of our loads across to the halfway point — seventy pounds to the load and two round trips a day. The going was difficult being swamp and tussocks under foot. It took eight or nine hours; we figured the entire portage would take eight days not to speak of what would be ahead of us when we had completed the por-
One of our Peterboro canoes on the Colville River, July 5, 1924.

View from FitzGerald's topographic station on a bluff 8 or 10 miles below Camp 37, looking down the Colville River July 5, 1924.
Pages from Mertie's journal.
out of meat for a couple of days. The game in that country had surely been our salvation.

On August 9, much to our surprise, we were joined by Smith’s group who had not reached the Meade River. Smith had kept wondering about us — where we were and how we were faring. One day as they paddled down the river, there on a bank he spied the paper jacket of the Faerie Queene and knew that we, too, were on the Ikpikpuk and ahead of them. They had gone up the Colville to the Awuna, up the Awuna to Birthday Creek and then had portaged about eight miles to the Kigalik which at that point was north flowing and which they believed to be the headwaters of the Meade River. Sometime later, the Kigalik suddenly swung sharply to the east much to their surprise and chagrin. It was too late to go back and look again for a portage to the Meade and so they continued on the Kigalik which took them to the Ikpikpuk.

On August 11 we came to a point where the river split into two distributaries. Smith and Dodge, in one canoe, continued down the Ikpikpuk to Smith Bay and thence to Barrow. The other six of us, in three canoes, went down the Chipp River. On August 15, we camped at the mouth of the Chipp River where, for the first time on the trip, there was absolutely no wood and we had to use two primus stoves utilizing gasoline we had carried from Tanana. We continued
on crossing Admiralty Bay and camped on McTavish Pt., then proceeded along the north coast of Dease Inlet to Christie Pt. From there we had all the fuel we needed, using driftwood from the McKenzie River and from wrecked ships off the Arctic coast. Christie Pt. to Barrow is but twenty-eight miles air-line but it took seven days due to bad weather and the sinuous coast line. We arrived at Pt. Barrow on August 25. Smith and Dodge arrived twelve hours later the same day.

At Barrow it was discovered that the *Arctic*, the ship of which we had planned on returning to Nome, had been crushed by ice and sunk. Another vessel, the *Lady Kindersley*, was caught in the ice and in danger. Subsequently it, too, was lost. The coast guard vessel *Bear* had been damaged and forced to return south. Fortunately, the *Boxer*, a Bureau of Education ship, had taken refuge in Elson Lagoon, behind the Plover Islands, to avoid being crushed by the sea-ice. We thought we might have to wait at Point Barrow until winter, and then make the long dog-team trip to Nome.

The jamming ice finally began to move and the *Boxer* put out. It picked up the crew from the *Lady Kindersley* who had walked five miles over ice from their ship. At Barrow it picked up the crew from the *Arctic* and our party.

On board ship some of the men played black jack and for high stakes. One of the most avid players was a colorful Portuguese sailor who spoke little or no English. He was overwhelmed with joy when he won but when he lost the whole ship resounded with his cries of, “Disastre, diastre!” Scotty, too, was an ardent player but luck ran against him and, in just a few days, he lost all his hard earned money.

We arrived at Nome September 5th.
I started the 1925 field season in Eagle and spent the summer transversing the Yukon River from Eagle to Circle. I had as an assistant a student from John Hopkins and another lad who served sufficiently well as cook but who was afraid to get out of sight of camp, even to pick a few blueberries for supper. We stopped here and there along the way to visit placer deposits. I wanted to visit the mines in the Seventymile River district. As it was to be a quick trip, I set out alone leaving the two boys in camp. I needed a horse. John Powers owned the only one available and to my astonishment it was the renegade horse we had sold in Beaver in 1923. I was afraid of him but I had no choice as I wanted to visit the mines. The Seventymile is a small stream but it heads in the mountains and becomes a raging river in times of flood. We were only a few miles out of Eagle when the wind caught the pages of my notebook as I opened it. The ruffling of the pages spooked the old renegade. He reared and bucked and how I managed to stay on I shall never know. Finally he took off hell bent for Sunday. I hung on for dear life and eventually, after a long and hair-raising ride was able to slow him down.

Shortly, it started to rain, soon becoming a downpour. By the time we reached the Seventymile the river was in flood. We had to cross it as I had neither food nor tent; moreover, the water would be even higher by morning. I decided to ride up river, well above the ford hoping that by the time we were carried downstream to the ford we would be across, and the horse would be able to get his footing in its up-slope. When we got enough up river the horse would not jump in. I got a good stout switch and that, together with several good swift boots with both heels, finally got him in. We were quickly carried downstream right past the ford. The water was so wild I could hear the boulders on the river bed rolling...
Horses crossing a river at flood stage, circa 1925.

Tanana Roadhouse, Circle, Alaska.
pell-mell downstream. I was certain the horse couldn’t get up the bank, and so I dove off him and lit out on my own. I was strong and a good swimmer, but besides contending with the raging water and swift current, I was swimming fully clothed and with boots on. However, I knew that not far below the ford the river entered a steep-sided, rocky gorge where I couldn’t survive. By straining to the utmost I managed to swim close enough to the bank to grab onto some sweepers. I turned just in time to see the renegade reach shore, dig hooves into the bank and, with a tremendous effort, heft himself out. I crawled up the sweepers, loosened the horse’s girth and the two of us wearily walked the mile to the cabin of a miner by the name of Olsen. He gave the animal some hay and I got out of my wet clothes and had a hot supper.

The next few days I visited the mines along the Seventymile and when it came time to return to Eagle, Olsen walked down to the river with me. When he saw where the horse and I had come out he could hardly believe it was possible and had the water not been bank high it would not have been. Halfway back to Eagle the horse became very skittish. I was a poor horseman and not wanting a second disquieting ride I chose to walk the rest of the way. On my return to Eagle I wasn’t sorry that the renegade and I had come to the parting of the ways. I am usually patient and temperate but at the time I was tired and annoyed and, in fact, sorry the SOB hadn’t drowned in the Seventymile.

The 1925 field season ended at Circle where I stayed at the Tanana Roadhouse which was a landmark for early in its history (built in 1890) it slumped and for years has sat atilt. The walls, floor and staircase to the second floor are well off plumb which gives a rather bizarre effect. I took a picture, but the angle at which I took the picture doesn’t show the tilt. However the wall braces can be seen.

Circle was so named because its founders believed it to be exactly on the Arctic Circle. Actually it is seventy-five miles south of the Circle.
FOURTEENTH SUMMER — 1926

In 1926 I started my field work from Fort Yukon where an army sergeant by the name of Curlee was a radio operator. I had built and was taking in the field with me a small radio transmitter so that in emergency I could contact Curlee. It turned out that the set was underpowered and Curlee heard me faintly only once or twice all summer.

During this summer I made a hard trip up the Sheenjek River, beginning and ending at Fort Yukon. The crew consisted of Kilmartin, topographer; Earl Hunter, cook; Ray Russell, boatsman, and myself, in two Peterborough canoes. Earl and I had the larger and more heavily-laden. Though one boat was only six inches longer than the other, it was proportionally wider and deeper which accounted for its greater carrying power.

This was a trip of much excitement and some peril. Leaving Fort Yukon, Earl almost foundered our canoe by turning the side-mounted outboard motor to full speed. The load was so heavy that the nose of the canoe started to go under the water. Fortunately we slowed in time and at the mouth of the Sheenjek River we stopped and unloaded some superfluous cargo. The Sheenjek was in flood, and this made it dangerous, as there were intermittent rapids as far upstream as we went. A whirlpool, just after leaving the Yukon, almost capsized us. Our first 100 miles or so was in the Yukon Flats, hard and dangerous going all the way, partly by motor and partly by lining. Finally we got out of the Flats to a point where the river was cutting bedrock. The rapids were almost continuous and the motors were of little use. Then, suddenly, Kilmartin quit. He simply and flatly refused to do his share of the work. From then on Earl or I had to return at each rapids and help Ray upstream with the other canoe. One day Ray fell trying to go it alone and struck his knee on a sharp stone. The result was synovitis and we were reduced to a force of
two men. After considering the matter for two days, I decided we would all return to Fort Yukon. Earl and I could have gone on alone, but if we sent Ray back down the river with Kilmartin, and they foundered, Ray could not have walked to the Yukon, and probably both would have been lost. So, against my will, we all returned. And so because of Kilmartin that season’s work was left less than half completed.

On our return to Fort Yukon I stopped off to talk to Curlee about my small transmitter and incidently mentioned that I wanted an Edison Battery. Curlee told me that Frank Yasuda had bought one for his outboard motor but couldn’t use it as he had no way to recharge it. An Edison is a fine battery. It is expensive but it will last a lifetime because there is no deterioration as in lead batteries. Hence, when going down the river, I stopped off to see Frank and offered to buy the battery, asking him to set a price on it. Frank would not sell it but insisted on giving it to, “My friend.” He said, “Alright, Mr. Mertie, you just take him.”

There were a number of church-endowed hospitals in Alaska and adjacent parts of Canada. The principal ones known to me were the Catholic Hospital at Dawson, the Presbyterian at Barrow and the Episcopal at Fort Yukon. These mission hospitals were created principally to serve the native population who were cared for in sickness and taught the rudiments of sanitation and hygiene along with the fundamentals of Christianity. Dr. Burke was in charge of the mission and hospital at Fort Yukon which was known as the Hudson Stuck Memorial Hospital. It was very well equipped and served the white residents as well as the natives. Most of the medical cases were either venereal disease or tuberculois. The natives were very susceptible to the white man’s diseases.

I first met Dr. Burke in 1921 and, because my work frequently took me to Ft. Yukon, soon became well acquainted with him and Mrs. Burke. Though the town was fairly large, there were only a few white people. Besides Dr. and Mrs. Burke, there were two store keepers, one of whom was married, and two nurses. There were also a number of trappers, many of whom were married to native women. It was a lonely life and visitors were always welcome. Whenever I was in town I was invited to be the guest of the Burkes. After Mrs. Burke retired, Dr. Burke and I would often sit up until the small hours of the morning talking. It was good, after four
months in the bush, to catch up on the news and exchange thoughts and ideas. He was a man I very much admired.

There are several places going up the Yukon River, such as Hell Gate and Five Fingers, where, at times, the current was so strong that the river boats lacked the power to navigate them. Along such places, huge hooks had been cemented into the bedrock along the bank. Attached to the hooks were strong steel cables, several hundred feet in length. As the boat reached the rapids the cable was picked up and attached to the boat’s winch. In this manner the ship was able to pull itself through the rapids. Going downstream was more difficult in a way because the boat had to go faster than the current in order to keep steerage way. This speed left little time for maneuvering in the hazardous water ways.

The Tanana River was a difficult stream to navigate for a different reason. Because of its winding nature many shoals were built up on the riffles where the water shifted from one bank to the opposite bank. The boat that plied this river, the *Tanana*, provided shuttle service between Tanana and Fairbanks. It was built to be of shallow draft but in spite of this it frequently got hung up. If the boat could not maneuver a sandbar, a steel cable was attached to a tree ahead and again the boat’s winch was used to pull the boat over the sandbar. It was slow going.

The sandbars were unusually bad the fall of 1926, which resulted in several days delay and a scarcity of food in the dining room. A fat, valuable passenger spent his days drinking and complaining until he ran out of liquor. Then all he could do was complain. I thought he was more tolerable when he was drinking, and so I presented him with a fifth of Three Star Hennessy, left over from the first aid field kit, which soothed his ruffled spirits temporarily. Such were the trials and tribulations of river travel in Alaska.
FIFTEENTH SUMMER — 1927

We started out from Fort Yukon the next year, and knew it would be a long, hard season because I felt the need to do the work left undone in 1926 in addition to the 1927 field work. FitzGerald and Fred Clark, his recorder, went to Arctic Village early in the season while the snow was still on the ground and put out several caches of food in various areas where we would later be mapping. They could do this more easily at that time of year by dog team and sled. I came later by canoe from Fort Yukon with Mike Wheeler, a young student from the University of Alaska. I had hurt my foot along the way and dragging the boat upstream was difficult, so we cached it and went on into Arctic Village on foot — a matter of two days.

Arctic Village was a primitive Indian settlement in northern Alaska. At that time few of the natives had ever been in contact with white men. However, they were very friendly and also curious about us. My camera interested them and they were happy to pose for pictures. I took numerous photographs of family groups, copies of which I sent to them the following winter, later learning how pleased they were to receive them.

The Indians gave names to all of us. I was the moose because I went swimming — something they did not do; FitzGerald was the sheep because his surveying took him up and down mountains; Clark was caribou because he was so active. He romped with the children and taught them several games. Wheeler was the porcupine because he sometimes squinted his eyes.

On leaving Arctic Village we had to survey 1000 square miles. As no horses were available, we hired a number of dogs from the natives and used them as pack animals. A horse can carry 200-250 pounds, a good dog can carry but forty pounds. When on the move during the day, should the
dogs see any game before we did, they would take off and their packs would be scattered, helter-skelter, over a mile or more — pots, pans and anything not tightly packed. We had to keep a careful watch. Our six dogs carried a total of 150 pounds; we each back-packed about 65.

One day when Wheeler and I were out in the field, I saw a place across the river that I wanted to examine closer. The Sheenjek River was only about fifty yards wide at that point but Wheeler couldn’t swim so we built a small raft for him. I stripped, gave my clothes to Mike to hold and slid slowly into the water so as not to get cramps for we were high up near the head waters and the water was very close to freezing. I then swam across the river towing the raft. We spent

Map of the Sheenjek area visited in 1927.
the day on the north side, and at nightfall, as we were returning hot and sweaty from the day’s work, a cold wind coming down the river hit us like a blast of ice. I had to muster up all my courage to strip and get into the water again and getting out on the other side, in that gale, was something I shall never forget. I could not get warmed up and was sure I would get pneumonia. All the way back to camp I kept thinking of Sam McGee.*

At the end of the season, we went back to Arctic Village where we returned the dogs and borrowed a skin boat from the Indians in order to ride down to where I had cached the canoe.

Indian skin boats are made of moose hide stretched taut over a wooden frame. They are small and light. Eskimo skin boats, on the other hand, are made of walrus hide which is ¼ to ⅜ inches thick. They are twenty-five to thirty feet long and very strong. I have seen Eskimo skin boats carry as much as two tons of ore. Walrus skin is translucent so that one can see the water rushing under the boat.

*From the “Collected Poems of Robert Service.”
On arriving at the spot where our canoe was cached, we pulled the skin boat up on high ground where it would be safe until the owner came for it.

It had indeed been a long and hard summer but a good one in that we accomplished all that we set out to do.

My return to Fort Yukon was overwhelming and bewildering. The first thing I heard was, “My God, it’s J. B.” There were hand shakes and back slaps and such expressions as “You made it J. B.” and “Sure glad to see you, J. B.” I couldn’t get a word in so I just beamed along with the rest, though puzzled and mystified. Dr. Burke finally took me into his office and told me that one of the Indians had come to town a few days earlier and when asked if he had seen me he had said, “I see him. Him drown.”

Dr. Burke and I figured out what must have happened. Our party came from Arctic Village by river, stopping several times along the way. The Indian had left the village after we did and came cross-land, a much shorter way. Not finding us at Fort Yukon after all that time, he simply assumed we had drowned.
In 1928, Bob Ohrenschall, Val and I started out from Eagle on our season's work which was to study the Fortymile region in eastern Alaska. We had been out but one day when an outlaw horse kicked Val in the knee and hurt him seriously. I took him to Eagle on horseback. From there he was taken by boat to the hospital at Fort Yukon where he recovered over the summer. That left just two men to manage seven horses and conduct camp work and field surveys. This was more than we could handle.

Luckily I was able to hire Bob Steele who in his earlier days had been a packer but now ran a roadhouse in Eagle. The three of us went the ninety miles to Chicken in four days. That outlaw horse nearly got both Steele and me at different times. I would have shot him if I had not needed him and, indeed, intended to when we got to Chicken. At Chicken we found that one of the postmen had a gentle old nag that he used on his route between Eagle and Dawson and thought he could better use a stronger horse such as ours. I warned him to be careful, and we made an even exchange. Steele couldn’t go further for he had to return to his roadhouse, but I was able to hire Art Purdy, a young local boy whom Bob Steele taught to do the packing.

After getting off to a slow start I was able, in the next fifty days, to map 5,000 square miles of country. The postman’s old nag made the trip fine but another horse succumbed on the way back to Chicken from the season’s work.

As it turned out it was my need for a packer that led to my first acquaintance with the Purdy family. Frank Purdy had a large piece of ground close to his cabin which was a good gold placer and from working it with the help of his boys he made a nice living for his family. His wife was a full blooded Indian woman who had been raised in the family of a missionary couple. She was well educated, took much pleasure...
in reading and like her children was musically bent. The Purdys had four children, two boys and two girls. They were a fine family.

A primitive country becomes over-populated, at times, by one species or another. In the winter of 1913-14, a great population of rabbits, searching for food, completely girdled the bark on forests of spruce trees, in the Copper River valley, killing hundreds of trees. 1927 was another such year for rabbits but this time there was also a great influx of lynx. As a result the rabbits were rapidly decimated, the lynx thrived and the trappers had a banner year.

Among the successful trappers were the two young Purdy

Map of the Forty Mile District, visited in 1928 and 1936.
boys, Art and Fred. They were “back-woods” boys who had never travelled by anything but dogteam. But they were bright and eager and so, using part of the money they had earned, the boys, who had never seen a train or a steamship, wired for a plane to take them to Fairbanks where they spent two exciting days.

I always carried a first-aid kit into the field with me and this year, for the first time, I had included a catheter. My father’s illness the previous winter made me realize how necessary a catheter might be. As we were returning to Chicken, we came upon a cabin at Lost Chicken Creek, and stopped in to visit. Inside we found a prospector in terrible pain because he was unable to urinate. I had never used a catheter nor expected to, but I was able to relieve him. It was heart warming to see such pain turn to relief in a matter of minutes. He was then taken to the hospital in Fairbanks by plane. Inasmuch as there was no telegraph communication from Chicken, and a plane could not be sent for, it was just a further coincidence that that was the one day of the week when the plane from Fairbanks stopped at Chicken. If ever a man had cause to believe in miracles, surely that prospector did!

While at Chicken I stopped off to see my old friend, John Powers. He had a small claim on Dome Creek which he worked in his spare time. He was very glad to see us but we didn’t stay long for it was the end of the season and we were all anxious to start homeward.
SEVENTEENTH SUMMER — 1929

1929 was rather an uneventful summer. We were a party of three; Val, a cook and myself. Our cook was a young graduate student from John Hopkins by the name of Stone who wanted to see Alaska and offered to go as cook in order to visit the country. So I took him along. As it turned out he wasn’t much of a cook but he had a habit that kept Val
Mertie mapping with plane table.
amused all summer. He bathed every day! Once Val said to me, in all seriousness, "Stone must be real dirty to have to bathe so often!" It so happened that the time Stone chose for his scrub, down at the river, was just before supper. One day he left the stove burning full blast when he went so that hot coals fell out and burned a large part of the floor and one side of the tent. I had to do an extensive repair job with some spare cloth that I always carried. Stone was repentent and became more conscientious from then on. His cooking even improved.

Near the end of the season, it had rained for several days and we were forced to stay in camp. Because it was late in the season, I began to fear that the rain might turn to snow, so I was anxious to leave. We were down in a valley and had to cut a trail through the brush wide enough for the horses, with their packs, to get through. This took a day. We set out the next morning and, as I had feared, before long the rain turned to sleet. To make matters worse, we soon discovered that the trail was not wide enough in places. The packs kept getting caught in the brush. I had to get out an ax and cut a wider swath. It was a miserable task because the brush was now frozen and my hands were soon almost frozen. When we finally made camp that evening I was cold to the bone and dog tired. The next morning I was alarmed to find that the insides of my thighs were black. I lay in my bed for two days and rested, but the blackness persisted. By the third day I was rested enough to continue to Circle Hot Springs where we stayed for several days while I took the baths.

The water from the springs was scalding hot and had to be diluted before going into the several concrete pools that were kept at varying temperatures. One had to start with the least hot and work up to the hottest which was so enervating that one could stay in but a very few minutes. I over-stayed the first time and almost fainted. The water had other advantages. It was piped into the roadhouse giving hot water the year around and heat during the winter months. It also kept the ground around it from freezing so that the inn keeper was able to have a large garden in which he raised wonderful vegetables of all kinds. They were all two and three times larger than any I had ever seen because of the fertile soil and uninterrupted sunshine.

The blackness gradually left my legs and we were able to continue on to Fairbanks and home.
I recall 1930 as a very happy and successful summer. We were a four-man party with Arnold Waters as my assistant; Val, as usual, my packer; and a young lad from Seattle as cook. He was pretty good too, as his mother had taught him. We spent the season on the north side of the Yukon across from Eagle.

In the summer Alaska abounds with wild flowers. They are so brightly colored and grow in such profusion, especially the brilliant fireweed and the yellow Icelandic poppy, that they look like huge gay carpets covering the ground. This was one of the years I took with me into the field a home-made flower press which consisted of two covers of crossed wooden slats enclosing a stack of blotters to make a collection of wild flowering plants. I collected 164 species and believe a professional botanist could have found that many more. Some of the wild flowers in my collection were the violet, primrose, daisy, marigold, azalea and the bluebell. There were also the forget-me-not, the Alaska state flower, and the dainty little platinum flower, so called because many miners and prospectors thought it indicated the presence of platinum.

Our greatest excitement of the year was that Arnold Waters had to kill a grizzly. He was out alone in the field but luckily had a 30-30 rifle with him. He got him through the neck.

The danger with bears at close quarters is that if you don’t get them on the first shot they stand a good chance of getting you. Our big disadvantage with bears was that we were not on the lookout for them but were absorbed in our work and so met up with them unexpectedly. It is a frightening experience and Arnold was shaken up for a while.

A dredge was at one time operated on Nome Creek which, in spite of its name, is not near Nome, nor in fact
anywhere on the Seward Peninsula, but it is situated on the outskirts of the Fairbanks district. I visited it one fall sometime in the early thirties, though I can not remember the exact year. I believe it might have been in 1930. At the time of my visit the dredge had quit operating for the winter but being well insured had two watchmen living on it, one of whom was “Two Step Louie.” I do not know his last name. “Two Step” was beyond middle age at that time but had worked in the Klondike district in Y.T. sometime after its discovery in 1898. In those days he used to go into Dawson from the creeks periodically and head, of course, for the saloon and an evening of fun. On those occasions he would tip the pianist with gold nuggets from his “poke” to play two steps and all night he would whirl one of the girls-in-waiting after the other around the dance floor, changing partners as each one tired. Everyone there would cheer him on and “Two Step” had the time of his life.
In 1931, our field party started out from Rampart to map the surrounding area which Ed Culver and I had started in 1922. There were Arnold Waters, Val, and an old fellow living in Eagle who for several years had wanted to join a field party. No one had given him a chance so that year I hired him on as cook. However, the second day out I had to fire him. It was my custom to check the camp site before we started out on a moving day to make certain nothing had been left behind. As I did so this time, there in the bushes I found all the left over food that the cook had thrown away. We couldn’t afford such waste or we would run out of food. He asked for a second chance but the cook usually helps the packer herd the horses on the trail and this man was not even strong enough to keep up with the train. I was sorry for he was a pleasant sort and anxious to stay on but I took him back to Rampart and there gave him return fare to Eagle.

I then wrote out a wire to the College at Fairbanks requesting a student willing to go as cook for the summer. It was discouraging because, at the last minute, we couldn’t expect to get a capable cook. However, the telegraph agent, upon reading the wire, told me of a good man there in Rampart, Henry Pogolotti by name, whom I hired on the spot. What a lucky break that was. Henry was Italian and a fine man in every respect; pleasant, clean, strong and very capable at helping Val with the horses. Also, surprisingly, Henry was a baker by profession. The meals were incredibly good but what is more, Henry felt he was shirking his duty if he didn’t have a pie or cake for supper each night. Such luxury in the field had never before been imagined. This is the only field season I remember everyone coming into camp at the end of the day asking eagerly, “What’s for supper?” When summer came to an end I looked forward to having Henry with us the next season. But, alas, when the time came, I was
Henry Pogolotti, our cook, preparing a dessert in the cook tent, working on the mess boxes, August 11, 1931.

Cook stove, inside the tent, August 19, 1931.
indeed disappointed to find that Henry was no longer in Alaska, and all the good things to eat became but a memory.

Walking along one day, not far from Manley Hot Springs, I saw something white sticking out of the black mud. We dug it out and found it to be the head of a prehistoric horse, complete with lower jaw. This was unusual because, as in all mammals, the lower jaw is attached to the upper only by a piece of tissue. It is rarely then that a fossil head is found with both jaws intact. I knew this was a prize find and so I took some time to pack it carefully and sent it to the National Museum.

In the past many different animals roamed Alaska: mastodons, mammoths, prehistoric horses, camels etc. An abundance of their fossil bones and remains have been found in the muck and swampland, especially along the riverbanks. Some of these riverbank deposits contain such masses of decayed animals remains that they are known as “stink holes” for, when opened, they can be smelled for miles. It is not known why the remains of so many animals are found together in a common “graveyard.”

Such a large number of herbivorous animals would in-
deed indicate that the climate of Alaska had to have been very much warmer when these animals roamed the land in order to have supported the vast amount of vegetation needed to feed them.

Though we know that many of them were very large animals, it is almost impossible to visualize how large. For example, mastodon tusks have been found weighing as much as 250 pounds each and at least one molar was found that measured ten inches in diameter.

A large prehistoric flora has also been recognized, most of it foreign to present day Alaska and much of it tropical and subtropical.

I left the season early in order to give Arnold the opportunity to map and study the large granitic intrusion north of Manley Hot Springs for his graduate thesis. He sold the horses when he finished and he, Val and Pogolotti came out together going upstream by riverboat on the Tanana river to Nenana and thence to Seward and the Alaska railroad.
TWENTIETH SUMMER — 1932

I stayed in the office during the summer of 1932 in order to write the report on the Yukon-Tanana region. This was my geological opus magnum, covering ten years work of mine, four years work of Prindle before me and one summer's work each by Eakin and Overback. The Yukon-Tanana region is a triangular area, about the size of Ohio, bounded on the northeast by the Yukon River, on the southwest by the Tanana River and on the east by the International Boundary. This area contains many different kinds of igneous, sedimentary and metamorphic rocks of all ages from the oldest (Precambrian) to the youngest (Quaternary). Its geological mapping was an enormous job. I worked very hard during the summer and fall of 1932 and the ensuing months to complete this report for publication. It involved assembling a great deal of data, compiling charts and maps, and much writing and rewriting to put the facts into geological order. Its completion took a great load off my mind.

It came to me one day, as I was sitting in my office with my thoughts hovering in and about Alaska that Frank Yasuda for some time had wanted a thermometer. The temperature in interior Alaska varies greatly from summer to winter. The weather stations at Tanana and Eagle had recorded temperatures ranging from 105°F to -76°F. Frank had tried to get a thermometer but could not find one in Seattle with the necessary range.

I immediately got in touch with the Taylor Instrument Company and had one specially made and sent it to Frank. Nothing I could have done would have pleased him more. He hung it outside the store and everyone in Beaver enjoyed knowing the temperature and speculating about past extremes in weather when there was no thermometer.

It was a very great pleasure to be able to do something for Frank.
TWENTY-FIRST SUMMER — 1933

1933 was the hardest year I ever spent in Alaska. It was a bad year money-wise for almost everyone. I was given $500 for travel expenses and told to do what I could with it. I decided to back-pack from Ruby to Flat by way of Ophir and Takotna with the object of visiting the mining camps along the way.

Arriving by railroad in Fairbanks I wanted to go quickly to Ruby. I found that Noel Wien could take me. Noel had a passenger for the Upper Koyukuk River and he thought he would fly first to the Koyukuk location, then back to Ruby and finally back to Fairbanks. It was a beautiful day when we started and Noel decided to take his wife along for the trip. We landed on the Koyukuk River and had a pleasant luncheon at a roadhouse there. However, on starting for Ruby the weather changed and we were soon shrouded in fog. Noel dared not cut across country to Ruby as once above the fog we were done for. Instead he flew just over the tops of the trees all the way down the Koyukuk River to its junction with the Yukon River and similarly up the Yukon to Ruby. We were nearly out of gasoline when we got to Ruby and were able to make a landing in the field just barely under the fog. It was a close call for Wien, his wife and myself. It was, incidentally, a Ford single engine plane.

I set out early the next morning. From Ruby to Flat was a 250 mile trek and I had to walk in the swampy valley bottoms as there were fires in the brush all along the way and the ridges were thick with smoke. It was a miserable trip. I was walking in mud almost up to my knees; the mosquitoes were unbearable and I was black from head to foot with soot from the fires. These fires, covering large areas, started in various ways: some set to clear brush for mining, some by lightning, others by accident. The walking was so difficult that I couldn't make much more than ten miles a day. My back-
pack weighed 65-70 pounds. It contained a small tent, blanket, nested cooking pots and utensils, compass, barometer, pick, gun and ammunition, food and a Graflex camera. At each mine I replenished my food supply. It was a mighty hard trek but once at the mines it was pleasant. During the day there was much of interest; after dinner there was friendly comaraderie among the men and, as always, there was the unforeseen.

Such was the case when I visited Ophir, a small out-of-the-way mining town. There I met Axel Johannson, a Swedish miner. Axel was a pleasant, robust man of about forty-five who, in spite of his years in Alaska, still spoke with a strong accent. Axel invited me to stay overnight with him, and as we entered the cabin all I could see were books. The walls were lined solidly with them—books of every description; science, philosophy, and the classics of every country. My interest in his books pleased Axel immensely and he kept up a lively discussion about them all during supper and far into the night. As he talked it became obvious that he had a great respect for books and the knowledge they contained.
However, the truly amazing thing about Axel was that, completely on his own, he had made a thorough study of medicine and dentistry from the medical books that lined his walls. He was, in fact, a practicing doctor and surgeon, though one without a portfolio. Those who came to him in illness or because of an accident came not merely because he was their only choice but because they had utter confidence in him. He never charged for his services.

It happened that same year that the commissioner’s teeth were in bad condition. He was suffering from pyorrhea and abscesses. One day at the roadhouse Axel extracted all the commissioner’s teeth at one clip. At the outset the commissioner sat in a chair but toward the end he slipped gradually to the floor. However, Axel doggedly stuck to what had to be done though the last two teeth were pulled with the poor little commissioner flat on the floor and the Swede’s big foot on his chest holding him down. Blood was splattered all over the walls and floor and the commissioner was completely done in. When it was all over, Axel said in his heavy singsong accent, “Vell, I could have done a better yob but I vass too yentle.”

My next visit was at a gold lode mine about twenty miles out of Medfra on the Kuskokwim River. Though this was a back-packing trip, the only way I could get to Medfra was by plane from McGrath. The plane landed on a log-strewn sandbar across the river from the roadhouse. In the landlord’s absence his wife rowed across to get me.

When I arrived at the mine the next morning after the twenty mile walk, I found it was not being worked and the only men there were the two brothers who owned it. One of the brothers and I went down the 300 foot shaft in a bucket as was customary, but because the mine was inoperative there was no steam to lower the bucket under power. The other brother let us down by winch. The return trip was too much for the man at the winch. After several attempts he played out completely and there we dangled at the end of the rope in the dark shaft. The man with me reluctantly got out of the bucket and climbed the shaft ladder. He was reluctant because, for the last thirty feet or so near the surface, the ladder was coated with ice, as is generally the case in a permafrost area. It was an exceedingly dangerous thing to have to do but he made it and soon had me up. I was glad to be out as I never felt at ease in an underground mine.
I had to set out for Medfra the next morning, in spite of a heavy rain, because the plane was due to pick me up the following day. I arrived at the roadhouse drenched to the skin. The landlady lent me one of her husband's nightshirts to wear during supper while my clothes were drying near the oil drum stove. An oil drum stove is literally just that. A door and flue are simply added to an empty oil drum. All the winter residents had them and they served their purpose well. Early the next morning the plane came and we took off on the sandbar dodging the logs as we went.

From McGrath, I planned on walking to Flat because I had no money for extra fare. The plane was taking off full—that is with four passengers—but the pilot offered me a lift to Flat if I would sit on my duffle bag in the aisle. I was more than willing and luckily it was a calm day. At Flat I spent several weeks looking at the mines in that area. It was while there, by chance, that I met up with the Black Bear after eighteen years.

I had first met her in 1915. She was then a very attractive and colorful woman. She had been one of the few prostitutes who lived in Alaska the year around. Her name was Nellie Beatty. She had at one time been married to Billy Beatty, a bum who hardly ever worked. Now she was married to Bill Duffy. They lived some miles out of Flat where they worked a gold mine they had bought and which turned out to be far richer than anyone had surmised. They had a number of miners working for them and were making a good deal of money. They were both ambitious and hard working.

I arrived at this mine at dusk, tired and hungry and was glad when they invited me to dinner and to stay the night. She was still an attractive woman except that over the years she had developed a tic in her face. Some said it was due to the strain of the two trials. This is what happened as I recall.

In the early days in Alaska the mail team was accorded special privileges. On the road it had the right of way. At stops the lead dog was permitted to sleep under the driver's bunk along with the first class mail. The driver's wet clothes were always hung closest to the stove so that they would surely be dry by morning and the driver himself was seated at the head of the table. A team had a dog for every 100 pounds of load and travelled twenty-five to thirty miles a day. The mail team also carried passengers to and from various points along its route.
During the winter of 1919 the Black Bear had been a passenger on a trip made by the Fairbanks to Flat mail team. The driver of the team was a young Irishman by the name of Bill Duffy. On that same trip to Flat, Duffy had with him a locked waypouch inside of which was a registered package containing $40,000 to meet a mine payroll. When they stopped for the night at Bill Schermeyer's Roadhouse, Duffy took the way-pouch and the first class mail in with him. After dinner, the moonshine began to flow and all the guests got roaring drunk — all except Schermeyer and the Black Bear. The next morning when Duffy loaded the mail he discovered that the way-pouch was missing. A search was made but the pouch was not to be found.

Schermeyer and the Black Bear were taken to Fairbanks where they stood trial. It ended in a hung jury. They were tried a second time in Seattle but the case was finally dropped because of insufficient evidence though both defendants had spent more money on the trials than they could account for. All the old timers insisted that the Black Bear had engineered the job. They considered her quite a character. In any case the trials had been very hard on her.

While I was at their place, Duffy told me a funny story. What made it especially amusing was that Duffy greatly relished the telling of it. It seems that a while back the Duffys had gone to Seattle on a vacation trip. While there they stopped in at a Ford agency and were looking at the cars. The owner, seeing a seedy looking couple, palmed them off on a young salesman. After some time, the Duffys pointed to a Ford and said they would like a Lincoln that color. The salesman condescendingly explained to them the high price of a Lincoln and the large down payment they would have to make in order to buy one. Duffy listened attentively, asked the cost of a Lincoln and pulled the entire amount from a huge roll of $100 bills with the owner looking on in sheer disbelief and the young salesman grinning from ear to ear — he had just made a handsome commission.

My work finished in Flat, I took the plane to Holy Cross to get the river boat and to head for home. I had a five day wait at Holy Cross. There was no roadhouse in town but the storekeeper took me in. He was not married. A native girl from the mission did his cooking and house cleaning. The King Salmon Hotel at which I had stayed on an earlier visit was no longer there. News reached the mission that a travel-
ler from Baltimore was staying in town. It so happened that the two priests in charge of the mission were from Baltimore so they invited me to visit them. One evening, after dinner, I set out with a flashlight and walked two miles down river to the mission. When I arrived all was dark but I went in the direction of a faint noise and found everyone sitting in the dark listening to a radio. They had a small generator, but in order to get enough power to run the radio everything else had to be turned off. After everyone was shooed away to bed, the priests took me to their quarters. When all was quiet one of the priests whispered, “Everyone is asleep, let us have a drink to celebrate.” The three of us sat there drinking sacramental wine and reminiscing about our boyhood years in Baltimore. It was a pleasant evening.

The next day the river boat arrived and I started my homeward trek.
TWENTY-SECOND SUMMER — 1934

Our mission in 1934 was to make base and geologic maps of the Kaiyuh Hills, a range of low hills east of the lower Yukon River. We had a large pack train, a cook, Val, two assistant packers, Bob Ohrenschall (field assistant), his two helpers and myself. We never crossed running water that entire season. All of us, including the horses, subsisted on water from pools in the moss. Fortunately, it was a rainy season, so that the pools held water, and fortunately too, it was not a limestone country where little surface water is available.

After leaving the hills we had to cross a large expanse of flats to get to the Yukon River. These flats have many streams and it was a problem getting the horses and equipment across such steep-sided, deep water-ways. They varied from narrow creeks to wide rivers. Where narrow, a bridge could be built by cutting a number of spruce trees, denuding them of their branches and dropping them across the creek in a staggered fashion — root to top — then tying them with ropes. The “bridge” was then “paved” with small spruce boughs to give the animals footing and to prevent their hooves from going between the tree trunks. Since horses have a tendency to follow one another it was necessary to keep the rest tied up while one at a time was led across by rope. On one occasion a horse was sidling across a bridge when his hind feet went off and he fell backwards into the creek. He would have drowned if left to himself, but little by little, the men managed to get its pack off and a rope under its front legs and over its shoulders. With six men pulling and the horse clawing his way up the bank with his front feet he was saved.

Larger streams such as the Kaiyuk Slough present problems for they have the same silt banks, are too deep for poling and too wide for a bridge. The method for crossing them
was to get a rope across, tied to trees on both sides. This was usually done by a man swimming across with the rope. A raft was then built and moved from one side to the other by pulling on the rope, thus using the raft as a ferry. Crossing such country with a pack train was hard work and very slow going.

All the horses had to be killed at the Yukon River where we were picked up by the steamboat *Nenana*.

While in Nenana, I met Archbishop Bentley and he invited me to dinner at the mission. I still recall the story I told at the table that evening and wonder now if it was fitting.

According to the story, an old prospector died. When he got to the pearly gates he asked St. Peter to let him in. “I don’t know about that,” said St. Peter, “There are a number of prospectors up here already and they are tearing the place apart hunting for gold.” “Well,” said the prospector. “If you let me in I promise to get rid of them all for you.” “Fair enough,” said St. Peter and let him in. No sooner was he in heaven than he started a rumor about a platinum strike in hell. As the rumor spread, the men left one by one. A few days later St. Peter saw the old prospector getting ready to leave too, and asked where he was going. “Well,” said the old prospector, “I’ve been thinking it over and I decided there just might be something to that rumor after all!”

Leading a horse across a 25 foot long “bridge” built by the survey party.
TWENTY-THIRD SUMMER — 1935

The work of 1935 was the mapping of the Tikchik Lakes, another entirely unknown area, in southwestern Alaska. This work entailed many dangers and resulted in a great deal of significant information. It is one of the most beautiful areas of Alaska and at that time was totally inaccessible. I believe I am safe in saying that this is the only place in the world with inland, fresh water fiords.

In Anchorage I chartered two seaplanes which were to take our party and supplies, including a folding canvas canoe with a small outboard motor, to the Tikchik Lakes. They could take only half the equipment the first trip because, unknown to me, the pilots had already taken on a good-sized load for delivery elsewhere. The planes were so heavily loaded that they couldn't take off from Lake Spenard near Anchorage as it offered too short a run. They had to take off from Cook Inlet. We had to wade out waist-deep to board the plane. Even with the long run the plane had a difficult and dangerous time gaining altitude. This breach of flying regulations could have cost the pilot his license. That sort of thing happened frequently, but no one ever reported it, nor did I — although at the time I was mighty perturbed.

We were a party of four that season. There was a young geologist by the name of Ralph Roberts, Jim FitzGerald, Fitz's younger brother and our cook, the younger brother of the lad who did our cooking in 1930. It was a rough plane trip and the young fellow was sick as a dog. Our plane didn't smell too good. As a matter of fact, we were all pretty forlorn when we landed.

After arriving at the lakes, we immediately realized that our little canvas boat was inadequate for our needs because of the gales sweeping down the length of the narrow fiord-like lakes causing exceedingly rough waters. Therefore, when the plane brought in the second half of our supplies, I
returned with Jim and Ralph to Dillingham where we rented a heavy river boat with a high powered motor that was capable of navigating on the Tikchik Lakes. I sent the other two back with the boat and I returned with the pilot in the fog, just over the trees with a load of gasoline, one can leaking. I was mighty glad to be safely back and the young boy, alone at camp, was equally glad to have me back.

Lakes are an impermanent feature of our landscape because they are subjected, as soon as formed, to erosion and deposition that eventually destroys them. Rivers, on the other hand, are permanent, as channels are forever needed to carry rainfall to the oceans. Most of the deeper and more
Two Bellingham airplanes on arrival at Lake Chaukukktaki, Tikchik Lakes, June 14, 1935.

Our large boat on Lake Beverly, Tikchik Lakes district, July 21, 1935.

Jim FitzGerald, Ralph Roberts, Acheson and Mertie at Folley’s cabin on Lake Aleknagik, Tikchik Lakes district, August 15, 1935.
permanent types of lakes are those formed in one of two ways; by glaciation scouring out valley floors, which is the origin of the Tikchik Lakes and our five Great Lakes, and by the development of volcanic craters which later become filled with water such as Crater Lake in Oregon.

The summer was spent mapping the lakes and making soundings. Nuyakuk was found to have a depth of 930 feet. Toward the end of the summer the lakes became so rough that on some days we could not go out even in the big boat.

We ended the season at Dillingham where we left one man to accompany the equipment to Seattle by steamship, while the rest of us flew back to Anchorage, landing on a dark night on Lake Spenard, scraping tree tops as we dropped onto the lake. That was flying in its infancy. These pilots must have believed in another life to have taken so many chances.

I learned with sorrow, sometime later, that our young cook of that season was accidently killed in a cave-in of a bank where he was working in a placer mine in Yukon Territory.

In about 1930 J. P. Hannon had moved from Seward to Anchorage and there had built the first broadcasting station in Alaska with his own hands with no help whatever and operated it alone for several years. He had occasional volunteers talk over his station and some evenings a young lady in Anchorage played on an old piano he had gotten hold of. His newscasts were mainly about people in Alaska, what they were doing or where they were going. One night, after I had returned to Anchorage from Dillingham, he announced my arrival and later that night had me speak over the radio about my summer’s work. Hannon was an interesting fellow whose company I always enjoyed.
I was on my way to the field in 1936 on the steamboat Klondike, the newest and best boat then operating on the Yukon, when it struck a reef and was sunk in the upper Yukon River in Yukon Territory on Friday, June 12, at 8:00 A.M. It had just passed through a rough stretch of water and was downstream from there where the river was easy to navigate. Possibly that is why neither the captain nor the pilot was at the wheel, but instead the first mate who had not yet gotten his papers as a qualified pilot. The day was clear but a strong wind was blowing toward the right bank and the boat kept getting closer to the rocky shore. An experienced pilot would have reversed the engine, and pointing the ship toward shore, have quickly had it back into the center of the channel. This is an elementary maneuver in swift water. Instead the young mate elected to run full speed ahead, hoping to turn away from the bank. But his lack of steerage way, plus the wind, prevented it and he struck the rocks at full speed, wrecking the forward part of the boat. Thereafter it floated helplessly downstream, eventually grounding on a gravel bar in the middle of the river. The boiler didn’t burst but a number of steam pipes did, badly scalding the engineer. Fearing the boiler might burst, I herded my two men to the stern of the boat. Two life boats were launched and the passengers were taken ashore to the left bank which was suitable for landing. I saw the first boat launched and noticed that it leaked like a sieve and that everyone had to bail with whatever was available, including hats, in order to reach shore. So I knew what to expect. In the second boat, Jim FitzGerald and I manned the oars and everyone else bailed for God’s sake, for many could not swim. We were barely able to stay afloat until we reached the beach. A man in front jumped ashore and held the boat there until the rest of us climbed out, wet to our waists. Before leaving the boat, I had
carried my suitcase and camera up to the pilot house, in the hope that the boat would not be completely submerged and it wasn't, though water did get into the main deck staterooms. My suitcase and camera were saved but I lost the rest of my outfit. Most of the baggage and freight was swept into the river. At any rate no lives were lost.

The passengers, now ashore, built a fire and made a make-shift tent for the women with the few things they had with them. Some of the crew came ashore in the pilot's boat, bringing foodstuffs and cigarettes, most of which were wet but usable. So we cooked up a meal and made ourselves as comfortable as possible while two men went inland to reach the telegraph line, which they tapped to get the news of the wreck to Whitehorse. We were about five miles downstream from Hootalingua, Y.T. Sometime after midnight another riverboat arrived and took us to Dawson where the engineer was put in the hospital. All this took place in daylight as there is no darkness at that latitude in the summer.

We had a considerable wait in Dawson but during that time I was able to get good jobs for my men in a mining camp that was about to start work. I visited them later in the summer and found them well contented.

Having lost all my equipment, I borrowed a compass, barometer and geological pick from the University of Alaska and flew to Eagle where I set out on foot with a pack on my back to visit all the placer camps in the Fortymile mining area. I stopped off at Dome Creek to see Powers, this time staying a couple of days with him while he showed me around. I ended up at Chicken where I stopped for a week or more with the Purdys who gave me a small cabin in which to sleep and a bed therein. Since my visit in 1928, Mrs. Purdy had died and Frank was more or less alone. His two girls were being educated at Franklin and the boys were not always both home at the same time. During my visit I spent a number of evenings with Frank and on one occasion he mentioned the sadness he suffered because of the discrimination shown his children, especially the girls, through high school and later when they attended college at Fairbanks.

Earlier, while stopping overnight at the old roadhouse at Franklin, which was along the ninety mile stretch between Eagle and Chicken, I had met a young woman named Anne Hobbs, who had been teaching during the preceding winter in Chicken. She was north-bound for Eagle while I was
The steamer “Yukon,” sister ship to the “Klondike.”

The “Klondike” on the bottom of the river, Yukon Territory, Canada, June 10, 1936.
south-bound for Chicken. This young girl later taught at the Federal School for Natives at Eagle and married Barney Hansen. They were subsequently divorced. Barney later married another school teacher in Eagle who taught at the Territorial School for white children and his former wife married Fred Purdy. Fred and Anne lived in Chicken for many years and raised several children. Anne still lives there alone, Fred having died a few years ago. Anne has written an interesting account of her years in the country.

Returning from Chicken to Eagle in mid-summer I was able to get a ride, but the airplane was in bad condition, with the engine missing on one cylinder, so that the ninety-mile trip took an hour and the plane clipped the tree tops landing at Eagle. Two weeks later the same pilot was killed landing at Chicken.

Back at Eagle I bought a row boat and set out again, this time drifting down the river as far as Circle, stopping at the mines I wished to visit. At each mine I was made welcome and given a bed and meals. No miner would have accepted payment.

As it turned out, that summer's work resulted in a very worthwhile report on placer mining in that area.

That same summer, as I was setting out from Eagle on the first of the two trips, I met a new-comer by the name of Yost who claimed to be a nephew of Charlie Yost, a miner working on a tributary of the Seventymile River. This young man had a most peculiar mien, and talked and acted in a wild and excited manner. He wished to visit Charlie and asked to accompany me as I was headed in that direction. The two of us set out together, and stopped for the night at a relief cabin halfway to the Seventymile. After our evening meal, Yost unrolled his bed on one of the two cots in the cabin and placed beside him a wicked looking dirk knife. As there was no need for a ready knife in a closed cabin I was disturbed and passed an almost sleepless night. The next evening, after our arrival at the Seventymile I gave Yost his needed directions, and never saw him again. I heard later that he was disclaimed by his uncle and after a short visit returned to Eagle, and soon left Alaska.

A sequel to this story is one recalled by Barney Hansen of Eagle, and sent to me in a recent letter. He begins, "I remember one winter, Bob Steele was commissioner then. Old Charlie Yost up on Nugget Creek had frozen his feet the
A tent was constructed of blankets, for the two women passengers aboard.

Shipwrecked passengers and crew camping ashore at the site of the wreck, June 12, 1936. Jim FitzGerald second from left, travelling salesman fifth from left.
winter before and had to go to Fairbanks with the mail team via Circle and over the old winter trail with Willard Hansen from Circle to Chatanika and then with Billie Root's bus to Fairbanks. He came back on the steamboat the summer and packed his dogs back out to Nugget. The next winter Yost didn't come into Eagle so Bob wanted Ed Brathod and me to go out and see what the trouble was. The snow was awful deep that year and it took us six days of hard going to get to Alder. We got to Yost's cabin about noon and all he had left was four little pieces of shrivelled up pears. His dogs were so far gone they couldn't stand up. The poor things tried to welcome us but would fall over. A pitiful sight. Well, we gave Yost what food we had but I had to hunt for the dogs. Brathod had a swollen jaw, "ulcerated tooth," and couldn't stand the cold on it, so I had to go. When I left Alder Creek cabin that morning about 6:30 A.M., it was -66°F. I killed a little old cow caribou. I gutted it and kept on to Alder. Of course, it gets dark there early. Even so it was close to six o'clock when I got back to Alder cabin. It was a strong -68°F. I hadn't been in a shelter of any kind all day, and I

Hull of the wrecked steamboat "Klondike" five years later, August 30, 1941.
wasn't off my snow shoes either. When I got back I found that Brathood had pulled his own tooth that day with a pair of pliers. Next morning, I hooked up the dogs and went after the meat. By that time the fish we had left for Yost had given his dogs a little life. As soon as we could we left for Eagle and took old Yost with us. With the trail we had already made, we made it back to Eagle in a short two days.”
TWENTY-FIFTH SUMMER — 1937

My project for the summer of 1937 was to map the Goodnews Bay District, on the Bering Sea south of the Kuskokwim River. I flew from Anchorage to Platinum with Jim Fitzgerald in a small plane which also carried in our equipment. Some of the men from Goodnews Bay Mining Company, using a caterpillar tractor, moved our gear out to our camp site in the Salmon River valley. We had a 10' x 10' cook tent where Jim slept as well as cooked and I had an 8' x 8' sleeping tent for myself. Here I became acquainted with the platinum placer mining which had begun in 1934. This was the beginning of a long association with the mining camp and its owners. The district is a desolate, treeless area north of the Aleutian Islands on the east coast of the Bering Sea. The platinum mine is of interest because it is the only property in the United States or its possessions where platinum metals are a major product of mining.

The village of Platinum, on the shore of the Kuskokwim Bay, is an Eskimo settlement which serves as an adit to the mining camp. Here is located the company store and a small airfield. The Eskimos in the area made many beautiful things; beaded and fur lined moccasins, baskets of all sorts, articles carved from both wood and walrus ivory and perfectly dressed Eskimo dolls. I was able to order several pairs of moccasins from an elderly Eskimo woman who lived on the north side of Bristol Bay. Everything she made was truly a work of art. She would never set a definite price but would mention a sum and then, somewhat embarrassed, ask if it was too much. It never was.

The only kind of transportation I could have used in that area was horseback but since no feed was available that would not have been practical, and so I had to reach all parts of the quadrangle on foot from our camp, which meant long and exhausting trips over rough ground. When the weather
Jim FitzGerald, second from left, and J. B. Mertie, at right, with Mr. & Mrs. Cornelius Osgood; Mendenhall Glacier, Juneau, Alaska enroute to Anchorage.

Camp of the Goodnews Bay Mining Co., nine miles from Platinum, Alaska.
was too foggy, as it frequently was in that area, I lay abed in
my tent and worked mathematical problems. It might have
been a boring summer for Jim but he was a cheerful, inven-
tive fellow and I guess he made out alright.

At the end of the summer’s work I turned Jim over to his
brother who had a nearby camp and was making a topo-
graphic map of the area.

Most airplanes, those days, were on pontoons as airfields
were few and it was necessary to land on lakes or rivers.
When I went to leave Platinum, the tide was out and the
seaplane was beached above the water line so that we had to
wait for the incoming tide to float the pontoons. It was foggy
and dark when we finally got started (September) and we had
to fly 500 feet above the beach to get to Bethel. Once in the
fog you had had it, since there was no way of knowing where
you were or how to descend safely. Bethel is on the Kuskok-
wim River within the timberless area. On our arrival at the
mouth of the Kuskokwim we had to fly upstream, just above
the water, until we saw the lights of Bethel. Thereafter, the
pilot flew further upstream, turned, and came downstream
feeling for the water. Finally we struck the water with a
crash, fortunately not damaging the pontoons, and we taxied
into Bethel. The pilot’s words at striking the water are un-
printable. At Bethel a fog rolled in which persisted for three
days. It was a rather pleasant stop-over, however, for there
were several people at the roadhouse and a Northern Com-
mmercial store in town where I always enjoyed nosing about.
On the fourth day the fog lifted locally and we took off, with
two other passengers, for Takotna. Soon we were out of the
timberless country but had to fly just above the trees in order
to keep below the fog. Crossing a divide, just before we got
to Takotna, we encountered a stiff wind blowing up the val-
ley and, in order not to be blown into the fog, the pilot actu-
ally pointed the plane into the trees, depending upon the
wind to keep us above them. Talk about hazardous flying!
But we got to Takotna, landing on a short, quiet stretch on
the Takotna River. After an overnight stay, we continued on
to McGrath. More fog. We waited in McGrath two days,
which I spent reading some old magazines I found there.
The plane finally took off for Anchorage. We had to go
through Rainy Pass in the Alaska Range, but on arriving there
we found it fog-bound and returned to McGrath. The next
day we tried again, and just skimmed through the pass at the
Bucket dredge operating on the Solomon River, Goodnews Bay Mining Co.

Large dragline working at Goodnews Bay, Alaska.
base of the fog. Thereafter the weather cleared and we had a magnificent view of the high mountains of the Alaska Range, including Foraker, Russell and Dall. By the time we got to Anchorage, it was dark and we had a hair-raising landing on Lake Spenard — a last parting gift. It was with great relief that I ate my dinner that night. I had had enough of planes for some time to come.
TWENTY-SIXTH SUMMER — 1938

In 1938 I started out on the trip that had been planned for 1936 but had never materialized due to the wreck of the Klondike. With me were a cook and two lads from the University of Alaska, all good men. We drifted in an old poling boat down the Yukon, from Eagle to Circle, while I mapped and studied the Tertiary deposits of the area south of the river. I have always thought this area had possibilities as another Witwatersrand, the world’s greatest goldbearing area.

A poling boat is of rather indefinite length, possibly eighteen to twenty-five feet, and is characterized by a flat bottom and no keel. It is designed for use close to shore in slack water and is propelled upstream by a man, possibly two, pushing the boat along by means of a pole that reaches bottom. It is a slow but reasonably sure method for a prospector to move his outfit up a swift stream. Downstream, of course, it would be propelled by oars as any other boat. Upstream poling is an acquired art and not easy for a beginner.

Our boat, however, was equipped with a small outboard motor, mostly used for crossing from one side of the river to the other where there might be a fine camping site or a clear stream that would afford good water.

It was a quiet, uneventful summer.

Polk, one of the students, later became a war correspondent and was killed in Greece. It saddened me very much to hear that a second young life had come to such an untimely end.
Haircut in camp, complete with mosquito control, Robert F. Lyman and barber Cecil E. Rhode (cook), July 14, 1938.
TWENTY-SEVENTH SUMMER — 1939

In the spring of 1939, I took my wife, Mary, west with me. We spent two or three days at the San Francisco Fair. From there we went on to Seattle where I spent several days outfitting. This was relatively simple as I had no horses that year and bought my foodstuffs later at Nome. From Seattle we went to Juneau by way of the Inside Passage which is a natural protected waterway about 950 miles long off the coast.

of British Columbia and southeast Alaska. It winds through the Alexander Archipelago, using channels and straits between the islands and the mainland which afford protection from storms and the open ocean. The snow capped mountains, forests, waterfalls and glaciers make it one of the most beautiful waterways in the world. Mary was overwhelmed.

From Juneau we went through Icy Strait and Cross Sound into the Gulf of Alaska to Seward and by rail to Fairbanks.

There I left her at the Nordale Hotel to await the mail carrier who would take her with him to Circle. The Nordale was a small but nice hotel often frequented by miners and prospectors when they came to town. The lavatory at the Nordale was not as clean as Mary felt it should have been and she felt compelled to complain. It did her no good though for the owner said, “There is nothing we can do Ma’am, these old timers aren’t house-broken.”

Robert Service’s cabin preserved at Dawson, Yukon Territory, Canada.
When she and the mail carrier were but a short way out of town, Mary found that her silk hose offered no protection against the onslaught of mosquitoes and was almost beside herself with misery, until he gave her a roll of toilet paper with which to wrap her legs. She accepted the offer hesitantly and bound her legs. Much to her relief, it worked and she settled back to enjoy the trip to the great and famous Yukon.

From Circle she went on up the Yukon to Dawson, where she had a week’s wait for the upstream riverboat to Whitehorse. From Whitehorse she went by rail to Skagway and by steamship back to Seattle, stopping on the way at Sitka, the old Russian capital of Alaska.

It was not only an interesting trip but she could see, at last, the land where I had spent a good half of my life since our marriage.

There was one thing that amused me and showed clearly that a man is often without honor in his own home. One of the places Mary visited was the home of Robert Service and there, on a desk next to his “Collected Poems,” was a copy of

Map of the west end of the Seward Peninsula, visited in 1939 and 1940.
my book on the Yukon-Tanana Region. It impressed her greatly that my book had been put in such a place of honor.

From Fairbanks I flew to Nome, taking with me both the cook and one of the students from the University of Alaska who had been with me in 1938. From Nome we flew in a small plane to the beach just south of Cape Prince of Wales where cassiterite (tin-oxide) was being mined at Cape Creek. With considerable difficulty we erected a cook tent and a sleeping tent on the beach. The difficulty was because we had trouble finding driftwood large enough to make tent poles and stakes. In addition, a strong wind blew continuously all the time we were there. This is a barren country, treeless and windswept but at least we didn’t have to cut trails.

One of my jobs, besides mapping, was to sample the old cassiterite mines. This wasn’t too bad for at least we could get underground for awhile, out of the wind.

About forty years earlier a geologist by the name of Collier had examined these mines and later when asked what he thought of the prospects of tin-lode mining at Cape Mountain said, “Well, tin was mined in Cornwall by the Romans before the first coming of Christ and the tin of Cape Prince of Wales will be mined after his second coming.” I, too, found the prospects poor and repeated Collier’s story at a director’s meeting as a poignant way of dispelling all doubts. Among the laughs were a few scowls.

There was another old abandoned placer tin area at Buck Creek, some thirty miles from Cape Creek. The mapping job at Cape Creek was a long one, and after teaching my assistant how to do the work, I decided to visit Buck Creek. It had at one time been a good and regular producer of cassiterite. So in a few weeks I took off alone, with a heavy pack on my back. I made the trip in one day and found an old but well preserved cabin where I could live during the span of my visit.

There were two old dredges on the creek several miles apart and the first thing I did was to visit these dredges and to write descriptions of them for future reference. Then I spent several days sampling the granite and metamorphic rocks around the head of the creek to be crushed and panned later. I then panned several forks of Buck Creek and finally did considerable panning of the gravels to learn how completely the dredges had recovered the cassiterite. In about
ten days I returned to Cape Creek with about a hundred pounds on my back.

The work completed on the south side of the mountain we were ready to move on to the north side. So, carrying everything on our backs, we three started out across the mountain. From its top was a wonderful view! We could see across the straits, over the tops of both Little and Big Diomede Islands and far into Siberia. It was a clear, cold, sunny day so that our view was unimpeded.

On the north side of the mountain, we camped again on the beach — this time on the Arctic beach. Here was a Methodist (or Baptist) mission where a man and his wife were teaching the Eskimos the three R's and Christianity. They were nice people, both from Mississippi, and so we had company during our stay. Both the camp at Cape Creek and the mission had short-wave phone transmitters, so that they could call for help from Nome, if needed. We continued our work and when it came time to leave I got the folks at the mission to call for a plane from Nome. There is a tricky take-
off on this beach. If the wind is blowing toward Cape Mountain, the plane can make an easy takeoff from the beach, but if the wind is blowing toward the ocean, the plane has to get up the beach as far as possible, and fly directly toward the mountain. This was the condition when we left, and I assure you, it was hair-raising. Unable to summount the mountain, the plane turned on its right side and we flew sideways around the base of the mountain, just above the water level of the ocean. A sudden drop in the wind would have finished us and I swear we nearly scraped the mountain side as we rounded it.

In the fall, as I was enroute out of Alaska, I had to wait nearly a week at Skagway for my ship. So, one clear day, not too common in Skagway, I decided to climb part way up Mt. Dewey which adjoins the town. I was carrying a fairly heavy camera and ascended rather rapidly, as was my habit, and after reaching snow-line continued laboriously up the mountain to a height of about 5,000 feet above sea level. I took pictures on the way at my uppermost altitude but the climb in the soft snow was more than I should have undertaken. I was worn out when I returned to Skagway! That night I had a severe heart attack, consisting of strong and continuous fibrillations. I was not in pain but I knew I was in fearful danger. When it did not let up I was sure I was a goner, so I quickly arose and signed all my vouchers and other field papers in order that my accounts could be cleared. By morning I felt better, though from that day to this I have had a noticeable heart fibrillation over which the doctors have all made a fuss. I was told to take it easy and not over do or I would not have long to live. So for the next twenty years I worked as hard as ever or nearly so and I was 92 on my last birthday. Doctors don’t know everything.
In 1940, we again were to use horses, so I immediately contacted Val, one of a very few good packers in the country. Most packers have trouble with heavy loads but Val didn’t for he was a master at tying a double diamond. A double diamond is a hitch that is used on both sides of a heavy load which could slide eventually if tied with a single diamond.

Along about 1927 or 1928 there was an article in the Saturday Evening Post, written by an amateur sportsman, in which, with much authority, he dismissed the possibility of a double diamond and called it the figment of someone’s imagination. Val and I got a big laugh out of that for I had helped him tie double diamonds on our packs hundreds of times.

Val watched the horses carefully because a heavy load, on a pack saddle, even with a blanket underneath, will often cause a sore. Whenever one appeared he gave it good care so that it would heal quickly.

That year our assignment was to study the tin lodes and placers of the Cassiterite Creek area on the Seward Peninsula. It was an ambitious task and I took with me an assistant, two packers, a cook, a topographer, and a recorder. I bought ten horses in Seattle and sent them to Teller by steamship with Val and the second packer. The rest of us went by plane. The horses were in individual stalls below deck, especially built and narrow to help keep them standing. However, it was an unusually rough trip. The rolling and pitching of the ship exhausted the horses and they would have died, before landing, unless something were done. During the Spanish-American War when the army had attempted to transport horses to the Philippines, the same problem resulted in the loss of every horse. Val knew this and was concerned. Day after day the horses grew a little weaker. Finally came the day when they would no longer eat or drink. Some-
Transporting horses to be used during the summer field season in Alaska.

The double diamond hitch.
thing had to be done. Val thought it over carefully. The only solution was that they be taken off their feet so that they could rest. He went to the captain, explained the situation and insisted that the horses be taken up on deck for several hours each day and with a rig and harness under their bellies so they could be lifted off their legs. The captain agreed and almost immediately the horses began to revive. As a result all ten horses arrived in Nome in good shape.

When our plane arrived in Nome, the ship was still in port so I went over to see how Val was getting on. He told me of the trouble he had with the horses and begged to be allowed to take them off and walk them to Teller. As sympathetic as I was, I couldn’t agree because the country was extremely swampy. I doubted the horses could make it, or if they were able to get through, the time taken to drag each horse out when he got stuck in the swamp would have unduly delayed the start of the field season. However, I did send the cook along with Val to help with the horses.

At Teller, the three men herded the horses out to Cassiterite Creek, a matter of thirty to forty miles. Even that distance was enough to prove to Val the wisdom of my decision. I had hired a barge at Nome to bring our provisions and horse feed as there was no grass that far north. It arrived about the same time as the horses did.

We inspected all the tin lodes and placers of Cassiterite Creek and made a detailed map of the area. It was a hard but successful season. In the fall we shot the horses and all of us flew back to Nome, this time with Sig Wien and in a freighting plane. It was still a single engine Ford but large enough for all of us plus our gear.
I flew from Fairbanks to Fort Yukon with two students from the University of Alaska in the spring of 1941.

I had a river boat, a heavy poling boat, stored at Fort Yukon, that I had used in 1938. So we started from Fort Yukon in this boat to make a survey of the Porcupine River valley.

The trip was fairly uneventful up the Porcupine, except for once when my assistant steered directly into a revolving eddy and we almost drowned. He was in the stern, operating the boat while I was at the bow picking the channel. Something went wrong, and he didn’t follow the channel I picked for him.

When we got to the Canadian boundary line, a boat came along manned by two men with a heavy load, bound for Old Crow. I left my companions camped there, and went upstream with the two prospectors. Their boat was so heavily loaded that there were stretches where the motor alone could make no headway, and we often had to line the boat as the engine did its share. We made it to Old Crow in two days. Both men were jolly and easy going and I thoroughly enjoyed my trip with them.

There was no roadhouse in Old Crow but a Northwest Mounted Policeman stationed there took me in and I stayed several days with him while I scoured the hills.

I went back down the river with the mountie and when we reached camp I took my two men on board. I then formally declared my boat abandoned and the mountie immediately made claim on it. I was relieved not to have to make the trip downstream in my boat, as I would have been stranded on bars half the time. As it was, I had a pleasant trip, and was able to take many pictures of the valley with my Graflex, which I was unable to do going upstream.

Medical and dental care in interior Alaska were practi-
cally non-existent in those early days because the distance to any kind of medical aid was usually too great to be reached in time to be of help. There was no medical service in the small towns and dental service consisted of a travelling dentist who came down the Yukon River once a year and who reached only a small part of the population.

Toothache was a problem not easily dealt with, and was a common cause of suffering in the mining camps and remote parts of the country, due mainly to the starchy diet. One story that merits telling, simply because it is typical, happened at Old Crow, Y.T. where a blacksmith tried to extract an abscessed tooth for a young mountie and broke it off. When this happened the mountie had to get to Dawson where there was a dentist. It took him two days rowing down the Porcupine River to reach Fort Yukon where he had to wait a week for the river boat. The trip upstream to Dawson took two more days. Such were the hardships of those early days.
THIRTIETH SUMMER — 1942

1942 was my last season in Alaska. I felt I was becoming too old for that strenuous life. It was a dull summer except for one adventure which didn’t take on excitement until several months later and which should have meant our lives.

My purpose that year was to search for mineral ores, tungsten, antimony and others that would be useful in our war effort. The roads around Fairbanks at the time were all dirt and the army, with a newly established airport, wanted to surface some of the roads with crushed rock. So, while searching for minerals we were asked to keep sharp lookout for hard rock outcrops which were rare in that area since Fairbanks is built upon an alluvial plain.

W. C. Overstreet was with me that season. We lived in a nice, but small, third-rate hotel in Fairbanks run by my friend, Bob Steele and his wife, and had a hired automobile which we drove to the creeks each day. We had heard of a new slate quarry and so one Sunday morning, after breakfast, we decided to have a look at it. Finishing this we saw a dirt road leading eastward and decided to follow it to see where it led. We soon discovered that it led into the new large army airfield. It was not supposed to be visited by civilians but as there was no gateway and no one to challenge us, we went in and wandered all about the field. We noticed that the army had installed a large number of huge gasoline storage tanks in the hills behind the airfield. After awhile we turned leisurely around and left by the same road and neither in entering nor leaving did we see a soul.

The next winter, at a meeting in Washington, it happened, accidentally, that I sat next to an army major whom, I soon learned, had been stationed in Alaska. Upon further inquiry I found that he had been stationed at the new army airfield — so I told him of my surreptitious visit there. He looked aghast, and shaking a finger at me said, “My good
man, don’t you know that you should never enter a defense area, especially during a war? There were, at all times, two men stationed on the hills above the gas tanks, armed with machine guns and with orders to shoot trespassers on sight!”

He was right, of course, but his gruff and arrogant manner irked me and I was about to ask him where he thought the guards had been early that Sunday morning, and to remind him that it was also early on another Sunday morning that similar neglect had caused havoc at Pearl Harbor — but I didn’t.

As I mention Pearl Harbor it brings to mind a sad memory. Soon after the Second World War broke out, my friend Frank Yasuda was interned in Nevada. The lack of trust and indignity he suffered hurt him immeasurably. It is my belief that Frank would have given his life for his adopted country. Frank returned to his beloved Beaver after the war and finished his years poor but with the respect of all who knew him.

The trip back to Seattle in the fall of 1942 was full of nostalgia. I was now a man too old for the job, yet it seemed such a short time ago that I was but a lad starting out on my first trip to Alaska. I remembered Prindle, Scotty Clark, Val Phil-
lips, Dr. Burke, Captain McCann, the old prospector who had traded me his Bible. I remembered all the people I had come to know during those thirty summers and a winter and I silently said good-bye to them and to the land I knew so well.
AN APPRECIATION

The solitary man on the bank of the Yukon was patiently waiting while Horace Biederman brought the boat against the low bluff. Chained sled dogs on the downriver side were in an uproar over the arrival; otherwise Eagle was bright and quiet on that afternoon in early July 1942. The man on the bank was quite a figure: well over six feet in height, certainly no less than 250 pounds in weight, grey haired, and possessed of a face as smooth and fresh as a child. We were under his close observation as Biederman’s open boat was made fast and the kicker was killed. In the silence of the motor and over the howling of the dogs, the man on the bank said: “I’m Mertie. Toss the outfit up.”

Dr. John B. Mertie, Jr., then a senior member of the Alaskan Branch, U.S. Geological Survey (USGS), with thirty years of experience in the Territory, had contracted with Horace Biederman in Eagle to go upriver to Dawson, Yukon Territory, collect us from the steamboat on which we had had passage from Whitehorse, and bring us down to commence our first field season. We were six new Junior Geologists, Calder T. Bressler, Robert M. Chapman, Jacob Freedman, Pemberton L. Killeen, William C. Overstreet and Thomas G. Payne in the USGS whose apprenticeships had begun ten days before in the basement of the Federal Courthouse, Seattle, where USGS equipment was stored. We knew we were in the right place, because the rooms were permeated with the smell of wood smoke, leather and horse sweat. From the storage rooms in Seattle to Eagle the trip consisted of a succession of legs by ocean freighter, narrow-gauge railroad, paddlewheel riverboat and outboard motorboat. At Eagle we learned that Dr. Mertie was known to everyone as Mr. Mertie, and that he preferred to be so addressed. A few long time friends, such as Bob Steele, former Postmaster at Eagle, Jack Hillard, former Customs Officer at Eagle, and others called him John, or J.B., but through
the rest of his life those of us who met him that day at Eagle continued to call him Mr. Mertie. With the exception of a few of his contemporaries on the Survey, most of the people there also spoke to him or of him as Mr. Mertie. Later, in the 1960s, when he suggested that I call him John or J.B., I found the old habit too deeply ingrained and could not change. The form was seen by me as a mark of courtesy and esteem in a bond of personal and professional friendship. Mr. Mertie accepted this, but I realize now that the expression, from me as well as from others, must have contributed to his feeling some element of separation.

Well-cemented friendships with Mr. Mertie lasted a lifetime. Such friendships were maintained by an extensive correspondence. In order to insure that he would not forget to write, he kept to a routine of four scheduled letters a year to each regular correspondent. Intermittently within the schedule some event or thought would trigger the extra letter or two, often based on his re-reading received correspondence. And what letters his were! Essays. Always written by hand in an even and precise script that scarcely changed over the years. He was fond of writing, and he enjoyed reading — after all, in 1924 on the Arctic trip it was the discovery by P. S. Smith of the discarded cover of Mr. Mertie's copy of Spenser's "Faerie Queene" on a sandbar in the Ikpikpuk River that informed Dr. Smith the other USGS party was ahead of him. Letters to me generally consisted of three parts. A geologic problem of mutual interest was discussed, which discussion commonly led to a reminiscence of former activities and associates in Alaska. Paragraphs about people were typically perceptive and sympathetic. The writing displayed extraordinary recall and clarity where details of personal life, geographic setting and accomplishments were concerned. An example would be a description of the use of the double diamond hitch and how his packer R. Levalle Phillips was a master of the craft. The third, usually the last, part of one of his long letters would contain comments on the state of government and the frailities of elected officials. There, with knowledge and insight, he would give rein to his conservative political philosophy. Stronger expression couldn't be found on the editorial pages of the old Washington Star.

But I should return briefly to Eagle and to 1942. Mr. Mertie assigned us to our various duties in different parts of the Yukon-Tanana country. Killeen and I worked with him in the
Fairbanks region, where I drove a sedan we had rented for close-in field work. Mr. Mertie had not then learned to drive an automobile, although he had known how to operate a steam locomotive since 1904 when he commenced summer work at age 16 as a machinist’s helper in the railroad shops at Raton, New Mexico, to pay undergraduate tuition at The Johns Hopkins University, Baltimore. During the summer of 1942 he reached a decision to discontinue field work in Alaska. From 1943 onward, with the exception of a return to the Goodnews Bay platinum placers in the summers of 1966, 1968 and 1969, his geologic investigations were in the lower 48 states, mainly from Virginia southward into Florida. Those late trips to Goodnews Bay were more than a return for geologic investigations; they afforded the welcome opportunity to visit, or to be visited by, many Alaskan friends from the years before World War II.

Mr. Mertie’s modest manner and his many thoughtful kindnesses developed a rapport with prospectors, miners and other Alaskans that made him welcome in the villages and camps he liked so well. Robert Chapman, USGS, observed that he gained a lasting impression of Mr. Mertie’s reputation by an incident taking place before Chapman met him at Eagle in 1942. The incident was on the trip up from Seattle when we six Junior Geologists had to pass through U.S. Customs on disembarking from the Canadian steamship at Skagway. We all had suitcases, duffle bags and ponderous tarp bundles of tent, fly, stove ring, sleeping bag and goodness knows what else. The prospect of opening all this for inspection was staggering. Early on, the Custom’s Officer discovered we were all to report to Mr. Mertie in Eagle, and, being and old and good friend of Mr. Mertie, the Custom’s Officer called off any further baggage inspection. Later on in mining areas in Alaska, Chapman stated, the mention of Mr. Mertie’s name gave Chapman instant acceptance. Mr. Mertie was often supplied with information and assistance that contributed to the success of his Alaskan investigations. When he back-packed alone through the summer of 1933 in the Ruby-Iditarod region, for example, such assistance was most welcome. In recognition, he was characteristically meticulous in his published acknowledgments.

The modesty and resourcefulness displayed in Alaska were evident also in his work in the Southeastern States. Here again his rapport with rural folk was exceptional. His concerns for people are clearly illustrated by his actions during 1943 in his search for quartz of oscillator grade. He would stop at a farm-
house, explain he was with the USGS and was looking for a mineral needed in the war effort. Together he and the farmer would search the ploughed ground. If suitable quartz was found, Mr. Mertie would bring it to the house, sit on the porch to write a letter to the U.S. Bureau of Standards for the farmer to sign, and package up the quartz with the letter. The package was sent to the Bureau at Mr. Mertie's own expense. If the Bureau accepted the quartz, it informed the farmer and had the Metals Reserve Board send proper payment.

Mr. Mertie would lend his support strongly to other geologists' proposals for research when his opinion was sought and he believed in the proposal. He freely gave his time to help others on problems in petrography, mineralogy or mathematics. One of the lesser recognized contributions made by Mr. Mertie to geology, but one of the most important in any appreciation of the man, is that he was the mentor during their early years of many junior geologists who followed this apprenticeship into distinguished careers in universities, industry or the USGS.

William C. Overstreet
Santa Fe, New Mexico
November 2, 1981
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<th>Year</th>
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Winter 1924; enroute to the North Slope: Travelling by dog team took getting used to. . . . Swenson ran in front guiding with the gee-pole and I ran behind. If the going was good, which was not often, we got to ride. . . . Besides the dogs, the cold and the wind another tribulation was not being able to wash. . . . On an overnight stop it took all we could do to melt enough water for drinking, and the dishes. . . . I went out one morning at about -10° and rubbed snow on my face and hands repeatedly, and wiped the dirt off with a towel.

Summer, 1924: We started up the tributary. . . . So shallow was this creek that it took four men to drag each of the boats into its entrance. . . . We had thirty miles or more to go to the portage. . . . The water was gradually falling. . . . I was tired at night and so was my broken foot. . . . Maybe we would make it to the Ikqipikpuk drainage and maybe not, so we called it "Maybe Creek." . . . We had to dig a channel at every riffle to get the boats through. . . . I pulled and dragged until I saw stars. . . . To make matters worse, the mosquitoes were now in full blast . . . it was suffocating to work and sweat all day in hot veils. . . . We made it to the portage after seven grueling days. . . . The next day we began portaging. . . . our loads across to the halfway point — seventy pounds to the load and two round trips a day. The going was difficult being swamp and tussock under foot. . . . I was too tired at night to sleep. . . . and woke up as tired as when I went to bed. One who has never experienced this primitive means of transportation, i.e., backpacking can never understand what it means. . . .

Summer 1925: By the time we reached the Seventymile, the river was in flood. We had to cross it as I had neither food nor tent. . . . When we got up river. . . . well above the ford . . . the horse would not jump in. . . . Finally, in he went, we were quickly carried downstream right past the ford. The water was so wild I could hear the boulders on the river bed rolling pell mell downstream. I dove off (the horse) and lit out on my own. . . .

Summer 1927: Arctic Village was a primitive Indian settlement in Northern Alaska. . . . The Indians gave names to all of us. I was the Moose because I went swimming — something they did not do; Fitzgerald was the Sheep because his surveying took him up and down mountains; Clark was the Caribou because he was so active. He romped with the children and taught them several games. Wheeler was the Porcupine because he sometimes squinted his eyes.

Mrs. Evelyn Mertie has had an active career as a mathematician and nuclear physicist, and has also managed to raise two children while pursuing it. Evelyn worked for both government and private research and development laboratories including such well-known and prestigious ones as Brookhaven and Lear.

Evelyn and John B. Mertie met while working on a U.S Geological Survey uranium project in the late forties. Evelyn was in charge of the laboratory adjacent to J.B.'s office. Both left the project in the early fifties.

J.B. kept in touch via Christmas cards and a summer note from Alaska. After the death of John's first wife, Mary, in 1964 he wrote frequently. They were eventually married in 1966 in a little Episcopal Mission Church in Gaithersburg, Maryland.

Evelyn now lives in Tucson, Arizona, where she is "in love with the deserts and open expanses of the American southwest."