

SUMMARY REPORT OF MINING INVESTIGATIONS IN THE BETHEL,
OTTER, INNOKO AND KENAI PRECINCTS AND ITINERARY OF
J. C. ROEHM, ASSOCIATE ENGINEER, TERRITORIAL DE-
PARTMENT OF MINES

August 19 to September 5, 1940

August 19-21. En route to Russian Mission.

At the request of Chris Betsch of Russian Mission the writer stopped there en route from Nome. Mr. Betsch has collected several hundred samples of rock, mainly from the Marshall district. Some are high grade quartz from small veins showing free gold. Among the samples were several large pieces of quartz and stibnite, which in particular, Mr. Betsch wanted me to see. Since the mineral stibnite is associated with the hydro-thermal gold deposits which formed the major portion of the Alaskan placers, the location from which this stibnite ore was obtained was of particular interest. Upon investigation these pieces of stibnite ore were found to have been taken from a stibnite vein on the south slopes of Oratia Mountain in the upper Togiak section. Mr. Betsch found this vein several years ago while prospecting in this region. In comparing notes, it was discovered the writer had examined this same vein while in the Togiak section in 1937. A short report with results of samples taken is given in a "Preliminary Report of Winchester Group of Claims, Goodnews Bay District, Lower Kuskokwim, Alaska" by J. C. Roehm. Mr. Betsch was interested in the gold content and the scattered placer gold in this section. Located 10 miles north of this stibnite vein and on the north slope of Mt. Oratia and at about the head of the Togiak River, Mr. Betsch found placer gold, which he traced several miles upstream to a green conglomerate, above which no further placer was noted. He is under the impression that this placer gold has been worn out of this conglomerate. Two pieces of this conglomerate were closely inspected, but no gold shows. One piece of approximately 5 pounds was given the writer and further inspection is to be made. Mr. Betsch will be glad to reveal this location and wanted the writer to fly in and inspect it. Due to the fact that no gold was found in the conglomerate, the offer was rejected.

Goodnews 101

August 22. Bethel to Flat.

The Cripple Creek Mining Company, formerly known as Peck and Rice, are operating on Cripple Creek in the lower Kuskokwim, tributary of Salmon River. This operation is under the management of A. Anderson with 10 men employed. The operation consists of bulldozing into boxes and the use of a Sauerman scraper for stacking tailings. Their production was reported as a few thousand dollars to date.

Peck & Rice

Kt 91-9

81
The Garrison Company on Granite Creek was reported operating and to have produced over \$20,000 thus far this season. The New York-Alaska Gold Dredging Company was reported operating two dredges and a dragline. The large dredge was reconstructed into a 6-cubic foot dredge with the addition of a new bucket line and ladder. Al Jones is mining this season on Rainey Creek. This season he is operating as the Eek River Mining Company, while last year the operation was the Rainey Creek Placers, Inc. The company has two International 40 H. P. diesels with bulldozers. The operation consists of bulldozing into steel boxes. A production of \$14,000 to date was reported.

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On Taylor Creek, held by Wiseman and associates of Bethel, twenty pits were sunk this spring by Nick Butler for the Congdon Estate of Duluth. Values from 80 cents per yard to as low as 20 cents per yard is the range of estimated values for the pits. There is considerable more lower ground on the creek, which has not been tested, as reported by Wiseman. The concentrates of several pits in possession of Mr. Wiseman at Bethel were examined. The presence of cassiterite was noted in these concentrates.

81
Charlie Awe on Marvel Creek has 19 men employed and has purchased a new D. 8 Caterpillar and bulldozer. He was reported as doing good this year. Last year's production was reported at \$120,000. Bragaw and associates of Anchorage have leased their ground on Fisher Creek to a group of young fellows working at Marvel Creek. They expect to drill this winter. Their ground on Salmon River is still open for lease. Gus Oien has just recently investigated this ground and that held by the Cripple Creek Mining Company on Cripple Creek. He is at the present time making an examination of the Anderson Bros. holdings on Canyon Creek. *Kx 91-1*

Goodnews
In the Goodnews Bay district, it was reported that Haroldson and Wickland have struck some very good pay, drilling on lower Keno Creek. As a result 90 additional claims have been staked, and the Goodnews Bay Mining Company has leased the ground from the original discoverers. The Kow Kow Mining Company was reported as having their usual machinery trouble. *Kx 101-23*

73
In the Iditarod district a few new operations have started this year and due to the shortage of water the average production of \$700,000 is expected to be maintained. Art Lappi has leased Prince Creek from the Egoff Bros. Next year he expects to work with machinery. The Egoff Bros. have been doing a little mining this season, but have been short of water most of the time. The Northland Development Company was operating the past season on Willow Creek. Their last work has been an experiment on the old tailing dumps to test the amount of gold left by the old Manley operations. This company has leased all the Donnelley and Shepard ground on Donlin Creek south of Flat and some ground recently staked by Robert Lyman of the University of Alaska. They expect to move their machinery this fall and operate there next season. Uotilla and Ogriz are operating on upper Slate Creek this season with 12 men employed. They have purchased a new D. 8 Caterpillar and bulldozer and an Isaacson roter. Last year this company had a production of over \$100,000. *Kx 73-15*
Kx 73-45

cooling crack in the shattered lavas and along which there has been a minor amount of hydrothermal action. The lava is black fine grained and was classified in the field as basalt. The vein is composed of a milky white slightly banded quartz of drusy character. Various quartz crystals show, and the seams along the bands contain a black earthy mineral and a creamy yellow powder. The quartz appears along the vein in small bunches, kidneys and minor lenses which vary in thickness up to a width of 14 inches. The length of the largest lenses is only a matter of a few feet and they are very irregularly scattered along the vein. While assays up to \$72 in gold per ton have been obtained by the owners, the ore occurs in too small amounts and it is too irregularly distributed to mine profitably. It is of special interest that a strong reaction for cobalt was noted by the Territorial assayer at Fairbanks from the slag in assaying for gold. The metallics noted in a hand specimen consisted of pyrite in very minute crystals and a black earthy mineral occurring along the seams. This is in evidence on the quartz seams and was not noted in the lavas which, other than on the vein walls, is comparatively fresh. Since this black mineral was not determined, and the only other metallic mineral noted besides the pyrite, the cobalt, is believed to be associated with it. Blow pipe tests show a cobalt bead reaction from the black mineral. Since there is no known black cobalt mineral, this black mineral is believed to be a compound mineral of cobalt and manganese. The gangue minerals noted in the quartz are calcite, limonite, magnetite, pieces of altered lava, and a creamy yellow amorphous powder with the black earthy mineral.

Editor 73
August 23. The Awe Mining Company has terminated operations on Flat Creek and has been engaged in mining all season on lower Chicken Creek. Due to lack of water, the bulldozer and high line scraper operation on upper Chicken has not operated. This spring the company built a road from the Willow Creek road to their camp on lower Chicken, a distance of 6 miles at a reported cost of \$1,000 per mile. This year the company started mining on May 15 with an average crew of 20 men. To date they have mined 200,000 bedrock feet and expect to mine at least another 100,000 before closing down. The present site of mining is 700 feet below the canyon on lower Chicken. The pay averages from 30 to 70 cents per bedrock foot with an average depth of 21 feet. The pay across the creek valley averages 225 feet in width. It is intermittently distributed in the gravels and interbedded monzonite sand layers. The gravels are loosely bedded, containing mixtures of slide rock, round weathered boulders, and angular rocks. The bedrock is uneven, hard and considerably shattered. In mining it is necessary to mine from 3 to 4 feet to obtain all the values. KT 73-6

The operation consists of stripping from 8 to 10 feet of the upper gravels and sand with the 3-yard dragline recently purchased from the Willow Creek Mining Company. The remaining gravels are bulldozed into boxes set in bedrock, and a small 1½-yard dragline dips and stacks tailings. The pay on lower Chicken Creek followed the creek for 1200 feet below the canyon, thence turns away from the creek on the left limit, which course is being followed with a drill at the present time.

The Manley Estate property on Willow Creek, which consists of 47 single claims and 1 association claim, has been leased to Walter Sakow and Tomoff. They started stripping virgin ground alongside the old workings in April. Sluicing began on August 22. They have 9 men employed and are operating two 10-hour shifts. They have purchased a new D. 7 Caterpillar with a LaPlant-Choate dozer and a Northwest dragline, 1 $\frac{1}{2}$ -yard bucket, the latter from Olson & Company. The method of mining is stripping frozen ground with bulldozer, with bulldozing and hydraulicking into boxes set in bedrock and using dragline to stack tailings. The deposit is covered with 12 feet of frozen muck, and consists of 5 feet of medium gravels cemented and interstratified with a blue clay. The bedrock is slate. Water is pumped for hydraulicking and ditch water for by-pass in boxes.

August 24. The Riley Investment Company dredge is digging on the southeast corner of the airfield on ground reported averaging 27 cents per yard. The dredge was inspected for safety and only one guard on a belt pulley in the engine, ^{in room} has been added during the last year. Further guards necessary are:

Upper deck: A railing is needed around a hole 4x6' in the floor at the end of the tramway screen.

Two belt pulleys and the shaft in rear, all unguarded.

A guard is needed around the bull drive wheel on the main drive shaft. All gears and clutches unguarded on this shaft.

A small stairway of five steps leads from upper deck to upper sub-deck and it is used while greasing the tumbler shaft. There are no guards on this stairway and should a person fall, while on these stairs, he would fall into the clutch gears below. The two large drive gear wheels on each side of the tumbler shaft are unguarded.

One 2-foot gear on the drum and 6-inch gear on the hand winch on rear of upper deck are unguarded. There is no brake on this winch drum, which is operated by hand, and used to hoist fuel oil drums on board. It is not only possible to catch hands and clothing in gears, but the handle is very apt to slip and cause a serious accident.

Lower deck: The winch drum gears are unguarded and also the large drive belt pulley which drives the winches.

The cable pulleys are unguarded and the cables are 6 to 8 inches above the floor.

The auxiliary pump engine, used during clean-ups, runs a small pump with belt drive and both pulley wheels are unprotected.

In the engine room there are four unprotected belt pulleys on an overhead shaft.

One metal guard has been put on a belt pulley near the work stand in the engine room.

The Matheson dredge has been rebuilt and all new with the exception of the bucket line, winches, and boiler engines. The total cost of rebuilding, according to Matheson, amounted to over \$100,000. The

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dredge started digging on June 14, and is located on the southwest corner of the aviation field.

The new steel hull is 40x30x6', and other new equipment consists of two new Byron-Jackson 10x12" pumps, one new 40 H. P. diesel International for pumps, new 40' spud, 52" trommel screen, new 55' stacker with 24" belt, 800 sq. feet of new aluminum rubber interchangeable capped riffles, smooth arc welder and new frames covered with sheet iron. A new 120 H. P. Washington Iron Works diesel and 10x12" DeLaval pump has been added to equipment for pumping water to 800 thawing points.

In the reconstruction of this dredge, very little thought was directed toward safety features. There are no guards on belts and belt pulleys and no railings on stairways. The gears and belt pulleys of the Atlas diesel on the main floor are exposed. The electric switch control board is not guarded. The cable pulleys are unguarded. One shield guard was made for gears on the tumbler shaft, but it did not fit and has been discarded. First aid equipment is also needed on the dredge.

August 25. This season there are fifteen active placer operations in the Innoko district, including those in the vicinity of the Cripple Mountains. There has been a shortage of water, which has been a severe handicap to both thawing and sluicing. Many operations have reverted to the repumping of water, which after a time becomes thickened and causes serious damage to pumps and affects the fine gold recovery.

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10/1/1917
Degnan & Rosander have purchased a new Northwest dragline with a 135 H. P. Murphy diesel and 1½-yard bucket for their operation at the mouth of Little Creek. They have a crew of 15 men and work two 10-hour shifts. To date they have mined nearly 300,000 bedrock feet and expect a total of 400,000 for the season. They have just completed a 2500-foot bedrock drain and expect to mine through the old drift workings in the present channel of Little Creek. This operation will consist of bulldozing into boxes set in bedrock and stacking tailings with dragline. Prior to use of dragline the bench deposits have been worked by bulldozing into boxes set in bedrock with tailing dump grade.

This year they acquired the Jackama ground of nine claims above on Little Creek, making a total holding of twenty claims.

R. Jackama is prospecting on Helna Gulch on upper Little Creek this season.

The Puntilla dredge on upper Little Creek operated this season from June 6 to August 4. A total of 7 men were employed and two 12-hour shifts were worked. All the thawed ground was worked with a total production of 313 ounces.

Frank Speljack is operating on Coffee Bench, right limit of Ganes Creek, with a crew of 7 men and working two 10-hour shifts. To date he has mined 69,000 b.r.f. with a production of 808½ ounces. He expects to mine 200,000 b.r.f. this season, and has purchased a new R. D. & Caterpillar with Isaacson bulldozer.

10/1/1917

The Ganes Creek Dredging Company has transferred back to the old company name with Mr. A. A. Shonbeck of Anchorage having acquired the dredge and holdings from former partners. This company has had a poor season this year, due to the fact that they have mined a lot of poor pay ground, located above the Coffee Bench on Ganes Creek. The dredge started on May 20 with two 12-hour shifts and a crew of 15 men. A total of 780 thawing points are in use, and the dredge is operating at a capacity of 2,000 yards daily. An operating season of 160 days is expected.

April 64
Three safety provisions consisting of guards have been constructed since last year. These consist of a pipe rail guard around the belt and large drive winch pulley, a guard around the belt and large drive pulley which drives the tumbler shaft, and an iron pipe guard across above the long drive shaft below the tumbler shaft. Further mechanism which needs guarding consists of two 4-foot diameter belt wheel pulleys just opposite the door of the main entrance on the main or lower deck. The bearings on these shafts need guards. A railing guard is needed along the 12-foot drive shaft which operates the pumps. Leaky fuel tanks are suspended from the roof of the main floor, and these are a very dangerous fire hazard.

August 26. The Moss & Larsen dredge has been operating since June 25 with two 10-hour shifts and one 4-hour shift and a crew of 12 men. It is now digging on No. 11 claim above discovery. Last year's operation resulted in making expenses. This season they expect to do much better. The old semi-diesel engine is to be replaced this fall with two 40 H. P. International diesels for pumps, winches and bucket line. All belts, moving parts and other features are roughly guarded on this dredge. A new 40 H. P. International tractor with angle dozer has been purchased and is used to strip and thaw ground preparatory to dredging.

Schweasdall & Vibe are operating on Spaulding Creek at the mouth. This is the last season for this operation on this creek.

Cravey and Zaiser terminated operations with dragline on upper Spaulding last season. Last season was also their first season of mining. It was reported the ground was much lower in gold content than expected.

Nels Vibe's dredge on Yankee Creek has been operating since May 27, working two 12-hour shifts with a total crew of 9 men. The dredge is operating on the Mayflower claim redredging tailings for the third time. A new bucket line has been added to the dredge with a total of 28, 2 $\frac{1}{2}$ cu. ft. buckets. Belts, wheels and gears are crudely, but well guarded on this dredge.

Ophir 64

Beaton & MacDougall have started a new dragline operation on Yankee Creek, two miles below the Vibe dredge. This property consists of 8 claims held by J. Beaton and 7 claims bought from Spok, formerly of the Alaska Road Commission. At the present time they are mining on No. 6 below upper discovery. This operation began on July 20 and 150,000 b.r.f. is expected to be mined this season. Four miles of ditch was dug with bulldozer. Two 10-hour shifts are worked with a total crew of 13 men. The gravel deposits consist of bench gravel only a few feet above the present creek level. These medium to fine gravels average 5 feet in thickness and are covered with 6 feet of frozen muck. The bedrock is shale with uneven degrees of hardness. The method of mining consists of bulldozing off tundra and muck, and bulldozing gravels into steel boxes set in bedrock, using dragline to stack tailings. A bedrock drain 1500 feet in length has been dug with dragline. Considerable time is lost in digging this bedrock drain to set boxes in bedrock when hard shale or slate is encountered.

It has recently been discovered that pay gravel of considerable extent exists on the right limit of Yankee Creek. This bench pay gravel consists of old channel deposits a few feet above the present river channel. It is very probable that other channels on benches of a higher elevation may be found on this same limit. The pay channels have a width of 200 to 300 feet.

Ophir 64

The Cravey Mining Company has started operations with dragline and bulldozer one and a half miles below Beaton and MacDougall on Yankee Creek on the same or right limit. The company has under lease 52 claims, extending from Beaton and MacDougall's ground to the mouth of Yankee Creek via the south old channel. This ground was formerly held by Nolet and Naudts, who have recently optioned the entire claim group to Walter Culver of Anchorage, subject to the Cravey Mining Company lease which, according to Culver, can be terminated at any time. Since Culver wishes to re-sell the ground to other interests for dredging, the above property was recommended for investigation, along with the Ophir Development holdings and the MacDonald property on the left limit of the Innoko River below Ganes Creek, to Clyde Conover of Anchorage.

The Cravey Mining Company is owned and operated by L. W. Hartley and Cravey, the latter formerly of Cravey and Zaiser. This company started mining on August 1 of this year and has mined three cuts to date. The operations consist of bulldozing off 10 feet of black muck and bulldozing 6 to 7 feet of medium to fine gravels into wooden boxes set partly in bedrock. A Northwest $1\frac{1}{2}$ -yard dragline is used to stack tailings. The gold is both rough and smooth and is found on top of a thin layer of blue gumbo clay which rests on bedrock. The muck and gravels are frozen and are thawed by repeated bulldozing and a hydraulic nozzle. They expect to mine 60,000 b.r.f. this season. They have rebuilt $1\frac{1}{2}$ miles of ditch and dug a 900-foot bedrock drain. The bedrock is slate and shale with an occasional green porphyry dike.

Victor Hill has been short of water all season and has not mined. He has optioned his ground to Awe Bros. at Flat. They expect to drill this winter.

August 27. At the request of Fritz Awe, the writer examined this property and Mrs. Anderson's property on Anvil Creek, accompanied by him, for the purpose of arranging a drilling program. Two conditions of importance were noted in regard to both properties which a drilling program will reveal as profitable or unprofitable:

First, a high bench exists beginning at the present flat level of the Innoko River for a distance of 1,000 feet in width, and four or five miles in length paralleling the Innoko River. Coarse Innoko wash gravel ranging from 5 to 6 feet in thickness and covered with 15 to 20 feet of frozen muck is found on this bench. These bench gravels are known to extend from Little Creek down to Ophir Creek, with the exception of the areas around the mouths of Little, Spruce and Ophir creeks. From shafts on the Victor Hill property on the bench a bright yellow, apparently even pay gold is found. In fact this bench level is believed to have derived at least a part of its pay from the Twin Sister monzonite mountains on the right limit of the Innoko across from the mouth of Ganes Creek.

Ophir 64
Second, the other portion of the gold was contributed by the tributary creeks. The small streams such as Anvil and Victor Gulch have two runs of gold below where this bench crosses. Above this bench crossing the gold is coarse, darker in color and is found in angular material. In other words, both Anvil and Victor Gulch had a source of gold which exists as nearly residual deposits formed by thermo-solutions in the vicinities of their heads. This gold has migrated along the course of the creek and is confined to a pay streak 30 feet wide. At their mouths the pay has fanned into a much greater width, and with the crossing of the bench gravels has caused an enrichment by the mixture of the two runs of gold, thus the section below the Innoko bench in the vicinities of the two mouths, contains a triple enrichment by the original creek gold, some of the bench gold, plus that deposited on the present Innoko flat.

Fritz Awe was advised of the above conditions. The sections of the creeks for a thousand feet upstream from the mouths contain a narrow width of good pay. There also exists exceptionally good pay at the mouths. It is therefore a matter of drilling this wide bench for sufficient pay to mine in order to make a mining operation of sufficient size to pay for the installation of dragline and pumping machinery. Water for mining will have to be pumped from the Innoko River for a distance of one-half mile and raised 50 to 70 feet. A total of 20 claims are under lease to the Awe Bros., which include the two properties.

Mrs. Anderson took out a small winter dump last winter, but has not mined due to lack of water this summer.

Ophir 64
Uotilla and Hard have been operating on Ophir Creek with a crew of 25 men. They have been repumping water for sluicing and thawing and it has slowed down their operation considerably. Thus their production to date was reported at \$80,000. *KX 64-15*

Ophir
The Hard operation on upper Ophir, which consists of a high line scraper, has been operating all season. They have also had to re-pump water to sluice.

Al Greenburg has been checking drill lines by pitting on the Ophir Development property.

MacDonald is continuing his drilling on lower Innoko below Ophir Creek.

August 28. Via Folger.

Ophir 64
Hard, Uotilla and Hansen located on Bear Creek expect to have a good season this year, however, they have been handicapped due to lack of water. They have done extensive drilling and have traced the old channel of Cripple from Bear Creek back to Cripple Creek. They have bulldozed a new ditch 4 miles in length and will take water from Cripple below the Strandberg operation. This company has developed a system of thawing which is very unique. The surface of the old channel winds along a hillside and across the divide onto the Cripple Creek slope. This year they lacked water for thawing, but did considerable bulldozing. After bulldozing the moss off the surface, long and small parallel ditches 25 feet apart were dug extending down the slope. Thus the natural thawing water started flowing into these parallel ditches making small streamlets, and continued to thaw until it reached the pit where it was diverted into the bedrock drain. Thawing of the gravel is done with hydraulic and the water is pumped. As soon as the new ditch is completed, this will lead water to the highest point on the channel, and it will be diverted into these already made channels, and a cheap quick thawing job will be done. The pay ranges in width from 225 to 250 feet. The total depth ranges up to 60 feet with only 6 feet of gravel and the remainder frozen black muck. The company started mining in May this year and expect to mine 350,000 b.r.f. The ground was reported running from 20 to 30 cents per b.r.f. Mining is done with dragline into elevated boxes and some bulldozing of tailings. Three 8-hour shifts have been worked all season, but they expect to change to two 10-hour shifts. Considerable cinnabar and hematite is found in the concentrates. A few small pieces of platinum were also noted. *KX 64-15*

August 29. The Cripple Creek Mining Company started mining in May and has mined 2100 linear feet up the creek this season. They expect to mine 350,000 b.r.f. A total of 24 men are employed and three 8-hour shifts are worked. The pay on Cripple is getting better upstream and the paystreak is wider. The average depth is 13 feet. Five years ground has been developed ahead on Cripple and five years on Colorado above Paulson's operation.

Sid Paulson was reported operating two 10-hour shifts with a total crew of 14 men. Lack of water for thawing and mining has been a very serious handicap to this operation.

At McGrath a new gold lode discovery was reported. This strike was reported on Eagle Creek north of Medfra. The locators were Fred King, Arnold Aker and Jack Dunn. The vein was reported as being found along the bank of Eagle Creek in limestone near the head. Along the vein a band of red hematite occurs with the gold in the quartz and numerous particles of gold, some as large as match heads. The writer missed the locators by a few hours, as they had just left for up the river.

August 30. Anchorage.

August 31. En route to Seward.

A report over radio was heard regarding the Cliff mine. A new vein was discovered on the 500 level on which the company has drifted 40 feet. Assays on this vein were reported from \$200 per ton to very high values. This radio talk sounded very much like a prepared promotion talk.

September 2. En route to Hope.

September 3. E. Swetman is operating his property on Palmer Creek with a crew of 4 men. Last year he purchased the Hirshey mine from Mrs. Hirshey. He is now engaged in mining on a 4 to 6 inch quartz vein, and transporting the ore to the Hirshey mill. The latter is being prepared with new ore bins and repairs. A snow slide at the Hirshey took away part of the mill and one bunk house last spring. Another slide took all of Swetman's camp buildings which were located below the mine. A new 3200-foot gravity tram was erected from the Swetman mine to the road. This consists of a 5/8" cable and 1/4" haul-back cable. The grade of tram is 14° and does not work. Two ore bins, 80 and 15 ton capacity, at each end of tram have been constructed.

Development consists of three tunnels. The upper tunnel has a length of 26 feet and is on the vein and shows a small quartz lens 6 to 8 inches in width which was reported as good ore. The middle tunnel has a length of nearly 300 feet and is on the vein. The vein averages 4 to 6 inches in width, and two miners were engaged in drifting by hand on date of visit. The vein was never encountered in the lower tunnel, and a raise from the lower tunnel to the middle tunnel is in the footwall. The vein in the middle tunnel intersects with a very crooked tangent vein on the surface and apparently ends. The intersection goes down on a rake to the east and the lower tunnel has not been extended sufficiently to pick up this intersection.

The 11 claims of the Gold Mint Mining Company owned by Iver Nearhouse has been optioned to Dwight Whiting and Carl H. Beal of Los Angeles for the sum of \$35,000. A payment of \$2,500 has been paid. Nearhouse is engaged in preparing a storage building on the road and fixing up quarters for winter work. Six hundred feet of drifting has been recommended by H. H. Townsend, the examining engineer. This recommendation was 300 feet of drift east and the same amount west from the present drift faces. On this option Nearhouse is to retain the present mill, which he intends to move to other known discoveries.

SEPTEMBER 4. The Oracle mine ceased operations last year and during the winter a snow slide came down over the portal of the lower tunnel and destroyed power house, machinery and bunk house. The mill and combined cook house and office were left intact. Geo. Lindsley, who owns several claims on the Oracle vein above the Oracle claim, purchased the mill and the remaining machinery. Last year Lindsley was mining and operating an arrastre, and this was demolished by a snow slide. In March of this year he started a new lower tunnel, 65 feet below his No. 4 tunnel, and encountered ore at 45 feet from the portal. Thence a drift was driven on the vein for 100 feet, and three raises with small stopes. The vein averages from 8 to 10 inches in width and was reported milling better than \$50 per ton. The ore from these stopes has kept the mill running one shift at a capacity of 120 to 150 tons per month. This lower tunnel is above the upper tunnel of the Oracle and has a total length of 225 feet, of which a 75-foot crosscut was driven into the footwall.

The No. 4 tunnel is 65 feet vertically and up the slope from No. 5 and has a length of 400 feet. This drift tunnel was driven on the vein, with three raises and small stopes above. No. 1 raise is 100 feet from the portal and up to the surface. A few small bunches of ore were mined. No. 2 raise is 200 feet from the portal and shows some ore. No. 3 raise is located 300 feet from the portal and the vein has pinched to a few inches.

No. 3 tunnel has a length of 100 feet and is 75 feet vertically above No. 4 and on the vein. Some ore shows in the face. No. 2 tunnel has a length of 100 feet and is only 20 feet above No. 3 tunnel. Above this tunnel level a small lenticular orebody 40 feet long, 30 feet deep and 4 feet wide has been mined which netted \$10,000 returns from milling in an arrastre. No. 1 tunnel is 40 feet above No. 2 and was reported to have had a length of 120 feet and contained 2 feet of ore. This tunnel was caved.

The portals of all tunnels are well timbered and necessary timbers have been used in the drifts and stopes. No. 1 or upper tunnel is only caved one set due to lagging breaking under the old stope. To the Oracle mill Lindsley has added a flotation cell and a water wheel for additional power and reported a good recovery. Four men are employed.

Frank Case and Maurice Jolff discovered a small lens of ore on their property near the divide between Slate and Summer creeks on Gilpatrick Mountain. This shoot of ore was reported to be 30 feet long, 25 feet deep and averaged $2\frac{1}{2}$ feet in width. From the lens 35 tons of ore was sorted and packed down by horse to an arrastre on Summer Creek. A recovery of over \$300 per ton was made from the 35 tons. The property consisted of one claim, which has recently been sold to J. J. Unah, who expects to mine next year.

Harry Johnson has two claims, the Nightingale and Apex, located on the Gilpatrick dike, above the Oracle mine. He has several opencuts on the dike. Certain sections of this dike are more fractured than others and the more fractured sections are recemented with hydrothermal quartz impregnated with minor amounts of galena, pyrite and specks of free gold. The larger quartz filled fractures are across the dike and range from seams to veinlets 4 to 6 inches in width. One out is through the dike which varies from 6 to 8 feet in width. By picking the quartz pieces from the dike, a high grade free milling ore is obtained. The dike has a fine grained texture, green in color and shows a fine grained pyrite impregnated through it. Various degrees of alteration show which are the result of chemical action of the hot solutions and later weathering near the surface. Several samples for slides were taken, but to obtain samples for assay requires additional work.

The United Mining & Development Company, known as the Hatcher property on Slate Creek over the Gilpatrick Mountain from the Oracle mine, has installed a new milling unit. The new equipment consists of a new jaw crusher, 25-ton Denver ball mill, a Denver jig, assay equipment and a new portable compressor. Most of the season was spent in installing the new milling machinery under the direction of Mr. McAllen. At the present time they have resumed milling from ore taken out of the intermediate tunnel. The company expects to mill several tons yet this fall. An average of 12 men are employed.

The Estes Bros. are operating a hydraulic on Lynx at the site of the operations of the former Eureka Placers, Inc. operated by H. C. Cooper. They started mining June 6 and have 4 men hired.

Frank Powell was reported to have operated a suction pump on Canyon Creek at the canyon between Miles 52 and 53, Seward-Hope Highway. The result of this operation was not learned.

P. Sorenson and partner are placer mining on Resurrection Creek, 4 miles out of Hope. They were reported hydraulicking using three nozzles and worked three months with a crew of 6 men and recovered a total of \$6,000.

The Palmer Creek Mining Company operated two 10-hour shifts with a crew of 12 men on the St. Louis ground. This is a hydraulic operation under the direction of Earl Clark. A production of \$11,000 was reported. 12 1/2 - 113
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Ed. Hahn operated a hydraulic with one man hired on Palmer Creek this season.

Jim Bagard and Carl Dreier have relocated an old lode prospect, located $4\frac{1}{2}$ miles southeast of Hope and $1/2$ mile south of the Seward-Hope Highway along Dry Creek. The old name of this prospect was not learned. The present location consists of four lode claims and four mill sites named the Masters, Mates & Pilots group. A 26-foot tunnel was reported on the property, driven on a 12-foot shear zone in folded slate and gray-wacke. The strike of this shear was reported nearly east-west with a slightly off vertical dip to the south. At a point 15 feet from the portal a dike 4 feet in width shows on the hangwall which strikes nearly north and south and the northern extension has not been found. This dike was reported of a yellow to cream color and mineralized with pyrite. The shear consists of sheared wall rock with some quartz. Assays from the sheared material in the tunnel were reported ranging from \$6 to \$33 in gold per ton. The gangue minerals were reported as pyrite, arsenopyrite, siderite, marcasite, mica, calcite and ankerite.

A new truck line operates from Seward to Hope with rates of 75¢ per 100 pounds. The rate on ton lots from Seward to Palmer Creek is \$19 per ton. A full load rate of 3 tons for \$20 between Seward and Hope is in effect.

John Nelson and C. P. Tolson are engaged in placer mining in a small creek below the Grant Lake property. They are also prospecting in the vicinity tracing colors up the mountain in an effort to locate ore shoots.

Louis Tulare is operating the Grant Lake property. He has three men hired and is operating an arrastre and a Straub ball mill. The ore is first ground in an arrastre then reground in the ball mill and the free gold is caught by amalgamation. At the present time he is engaged in erecting an 800-foot gravity tram and expects to build a new mill on Grant Lake and tram the ore from the mine above. He has 700 feet of tunnel work and has located four parallel veins. These veins average from 8 inches to 2½ feet in width and small high grade shoots occur along the veins.

Ed. Tulare is operating the Crown Point property. He has four men hired and was reported milling most of the season.

Wyman Anderson has optioned his property to Spokane capital. He started work with six men on June 10. A short section of road has been built. A small portable compressor was taken to the property and he is now engaged in driving a crosscut tunnel from his property, the Greek Boy, under the Falls Creek property. This Spokane capital has both properties under option and reports were to the effect that they intended building a 100-ton mill.

September 5. Return to Seward.

W. V. Conley, manager for the Nukalaska Mining Company, reports that they have been engaged in driving a lower tunnel 1,000 feet lower than the upper lower tunnel. They started development on June 1 and have completed 1250 feet. The vein is expected to be cut at 1450 feet. He has 6 men employed. It will be of considerable interest to compare the size and value of the vein at this depth with those on the same vein above. Should the vein become larger and contain good values, it will be a great incentive to develop the other small veins in the district. Mr. Conley has promised to report the conditions encountered to this office.

Babcock and Downey have been developing and milling a small amount of ore with no men hired. They are operating as the Sonny Fox Mining Company.

Charlie Goyme is working alone developing on his property at Surprise Bay, one mile from the Sonny Fox Mining Company property.

The Crow Creek Mining Company has been engaged in intermittent milling and developing this season with 4 men hired. The development work has been confined to the north vein on the Monarch.