MR 192-2

REPORT ON
MINING CONDITIONS ON SEWARD
PENINSULA FOR 1929.

Fairbanks, Alaska
December 28, 1929

Mr. N. L. Wimmler,
420½ North Genesee St.,
Los Angeles, Calif.

Dear Wimmler:

I am mailing you herewith enclosed a report on placer mining conditions on Seward Peninsula. I have tried to follow in this report your report of 1926. Please alter it as you see fit in order to include it in your general report on Alaska for 1929.

Your letter of December 17, 1929, has just been received. 1st, as to the information regarding the P.E. dredges, I mailed you this information about 10 days ago. You should have it by this time. 2nd, in regard to my reports on the Chandalar, Ruby and Innoko Districts: I was in Ruby this summer when returning from Nome and while there gathered quite a lot of data on the Ruby and Innoko Districts. I wrote this up in report form as it was just as easy to write up in this way the information I obtained as to give it statistically, and easier reading. I intended the information for your use to do with as you saw fit. 3rd: Jake Howell quit his underground mining sometime in November. He said the ground went below 50 cents a foot so stopped and began drilling for better values. I told him I wanted to get some cost data but have not been able to find him since. There is a rumor around town that his men are still unpaid. As soon as Howell comes in town again and I can get some more information, I will write you all the details. My private opinion and from what I can gather about town is that the project is a failure. They were unable to use the clamshell as planned and had to rely on the 1 cu. yd. self dumping bucket (as I think I wrote you before). I really think, however, that the scheme has great possibilities and under proper management could be worked out.

Hoping you and yours had a very Merry Xmas and a happy New Year, I am,

Very truly yours,

1/4/30

Fairbanks, Alaska
Dec. 28, 1929

Mr. B. D. Stewart,
Supervising Mining Engineer,
Juneau, Alaska.

Dear Mr. Stewart:

I am mailing you herewith enclosed a report on the placer mining conditions on Seward Peninsula. I will submit a report to you also on the lode mining in the Chandalar and on Seward Peninsula.

Hoping you and your family had a very merry Xmas and a happy New Year, I am,

Very truly yours,

Irving Reed

1/4/30

REPORT ON MINING CONDITIONS ON SEWARD PENINSULA FOR 1929

The mining area herein described is embraced in all that part of Alaska lying west of the valleys and tributaries of the Buckland and Koyuk Rivers. For convenience, the placers of the Ungalik River, south of Norton Bay and outside of Seward Peninsula, are reported along with this area. The area altogether has had a recorded production of over $90,000,000.00 in about thirty-one years. In the last ten years there has been a continuous and marked decline inspite of the large scale operations of one company. The production in 1929 was $1,163,182.00. Tho this was in excess of the 1928 production by approximately one-half million dollars, still the general curve of production is markedly falling. The higher production in 1929 was due to a very favorable seasonal water supply and to the exceptional yardage dredged by a large mining company. The disuse and obliteration of trails and roads, the closing down of stores and roadhouses and the lack of conveyances of any kind, has so raised freight rates thruout the interior of the Peninsula that the miner has to have very good ground in order to make his mining activities pay.

Freight rates to Nome from Seattle and general prices there have remained the same in the last four or five years. They were covered fully in the 1926 report of Mr. N. L. Wimmler. Also the lengths of seasons and other general data such as means of transportation, fuel supply, labor, wages, etc. have been given so fully in the aforesaid report and the various reports of the U.S.G.S. that they will not be repeated here. However, since 1926, the extension of aeroplane travel to the Peninsula has covered it with a network of airlines. Where formerly it took days and even weeks

B.L.S. 1/4/30

to get from one part of the Peninsula to another, now almost every town in it could be visited in two days flying. This greatly facilitates business and the distribution of mail. However, it does not help general mining to any great extent as freight rates by aeroplane are still too high to ship staples by this means. Aeroplane landing fields have been built or laid out at Nome, Candle, Deering, Teller, Lost River, Cape Prince of Wales, Taylor Creek (Kougarok), Kruzgamepa Hot Springs, Solomon, Council, Bluff, Chinik and Dime Creek.

Radio communications are not in such a good condition. There is a U. S. Signal Corp. radio station at Nome and another at Teller. Candle has a privately owned radio station which is not now in use. Nome, Solomon, Bluff, Chinik and Council are connected by a rather precarious telephone line. This line also extended formerly to Candle, but this end of it is at present out of commission. Candle and Deering are also connected by telephone line, as are also Candle and Keewalik. These work intermittently when someone happens to walk along the line and is kind enough to temporarily brace the wire off the ground. There is also a telephone line between Nome, Shelton and Kuzgamepa Hot Springs. Seward Peninsula at one time was crossed by a network of telephone lines. These have been allowed to fall into disuse except the above mentioned. They will not pay for maintenance by private enterprise. Thru the public spiritness of the Lomen Reindeer and Trading Corporation and other owners of reindeer, the miners are allowed to kill their own meat from the numerous herds of reindeer which everywhere cover the Peninsula. The only stipulation is that they bring in the marked ears of the animals so taken in order that the original owners may be ascertained

and pay be made for the animals at the rate of $20.00 a head.

Mining on Seward Peninsula is confined to dredging, hydraulicking and shovelling in. Also a little drift mining is still going. On account of the high cost of fuel and the greater adaptability of the creeks to hydraulicking, the mechanical scaper plant, so common in parts of the Interior, is non-existant except in two or three instances. In 1929 there were 319 men engaged in or about the operations of 13 dredges, one of which was in the course of construction; 132 men in 31 hydraulic operations, 7 men in 4 drift mine operations, 6 men in one scraper plant operation and 69 men in 40 shovelling-in operations. There were 50 men engaged in 15 prospecting operations. Besides these there were 12 men prospecting on lode tin, 5 men prospecting on antimony and gold lodes, and 2 men on a cinnabar prospect.

N O M E D I S T R I C T

DREDGING

K+S2-42

THE HAMMON CONSOLIDATED GOLD FIELDS, a subsidiary of the U. S. Smelting, Refining and Mining Co., is operating 3 electrically driven dredges on the tundra (3rd beach line and Monroeville beach line) 3 miles north of Nome. A fourth dredge was formerly operated on Snake River about 1 mile west of Nome at the mouth of Center Creek but was dismantled in 1927. These dredges are known as No. 1, No. 2, No. 3 and No. 4 (on Snake River) respectively. These dredges were described in detail on page 94 in the 1926 report of Mr. N. L. Wimmler. An average of 200 men are employed altogether.

The same methods of spacing the points and sizes of points for cold water thawing were used in 1929 as described on page 13 of the aforesaid 1926 report. Every thirteenth 3/4 inch pipe in the center of 12 thawing pipes arranged in 2 concentric equilateral triangles, one containing 3 pipes and one 9 pipes, is sealed or plugged at the bottom.

It is used as a temperature test pipe for the block of ground contained in the larger equilateral triangle. The ground is tested by a resistance thermometer lowered down the test pipe by heavily insulated copper wires. These wires are attached to a battery and galvanometer recording degrees farenheit. Testing for frost is done every 5 ft. down from the surface. The average time allowed for thawing with 3/4 inch pipe points is about 70 days, and with the 1 1/2-inch pipe points about 135 days (or a full season). However, some points acquire water for more than one season. The efficiency of the water as a thawing agent increases very rapidly with a rising temperature. Thus water at 55° to 65° F. is more than twice as efficient as water at 45° to 55° F. Where there are much solids in the muck, short sweaters are somtimes put down to thaw it. Hwwever, the muck is generally so largely composed of ice that most of it runs off with the water. The 1 ft. to 2 ft. of moss at the surface is left intact and serves to keep the ground from freezing back in the winters after being thawed. Ten foot lengths of 3/4-inch pipe are used in driving and the pipe is XX in weight. The pipe points are attached to the hose by a short curved piece of pipe known as a "gooseneck." The pipes sink rapidly with little effort thru the muck but have to be driven thru the grave. The company has developed special clamps and sleeve-hammers for this purpose. The company has about 75 men working on the thawing. Water is furnished by the Miocene, Pioneer and Wild Goose ditches and pumps described on page 96 of the 1926 report. About 25 men are employed on the ditches.

Dredge No. 1 is working west in the "slough over" of the 3rd beach line about on the Martin Bench claim. No. 2 is working west in the Monroeville beach and 3rd beach "sloughover" about on the Mystery Bench Claim near Little Creek. No. 3 is working north above

above the 3rd beach at the head of Little Creek about on No. 2 Above Little Creek Claim. No. 2 will dredge from its present location back to the tramline track and will be finished in the summer of 1930. It will then be dismantled and hauled to near the mouth of Center Creek on Snake River ground just north of Snake River by old Dredge No. 4. The ground is now being thawed in this new area and a road build paralleling the tramline from Little Creek to Snake River. The dredge will start digging at the old Wild Goose Dam on Center Creek just above the tramline. No. 3 will continue to work north and east towards Cooper Gulch from its present location. The ground here is getting shallower and the dredge pond because of many gullies cut by previous hydraulic operations in the muck and top gravel, hard to hold except by extensive damming. There is about 3,000 horsepower available from the six 525-H.P. Pacific Diesel Werkspoor engines. The full capacity is required only when the thaw pumps are running. The aggregate requirement for the dredges is about 2000 H.P.

The 3rd beach line has been dredged as far east as Holyoke Creek where the ground became too deep to handle, 85 ft. being the maximum for these dredges. Where the ground has been drifted, especially where it was low grade, it will not pay to dredge. Some distance above bedrock in the gravel on the 3rd beachline was an untouched paystream which served to enrich and make pay by dredging the parts of the 3rd beach that had been drifted out. If no cheaper methods are found to handle ground, the life of this operation at Little Creek is only a few years more. The life of the operations at Center Creek may last longer but it is doubtful whether it would pay to run one dredge after the other two are shut down. All three dredges, taking into account shut-downs and clean-ups, averaged in the season of 1929 better than

8000 cubic yards a day. This record is due to the careful preparation and thawing of the ground, for atleast 2 years ahead of the dredges. About 40 men altogether are employed on the dredges. This company has put dredging in the Nome District on a scientific and practical basis. Any company or person contemplating dredging in Alaska should study their methods. Especially interesting are the methods they have developed for handling thawing points and thawing the frozen ground; the Frsted drums on the Fordson tractors used in connection with small slip scrapers to build dams for dredge ponds, and the West Cable Grip (manufactured in Portland, Oregon) used for shifting the dredge lines.

In order to show possible length of dredging season in the Nome District, the following starting and shutting down dates for the season of 1929 are given:-

Dredge No. 1	Start	May 27	Shut down	October 25
Dredge No. 2	"	May 18	"	October 23
Dredge No. 3.	"	May 22	"	October 19

K-53-36 THE LOMEN REINDEER AND TRADING CORPORATION are operating a dredge on Osborn Creek on the upper end of Claim No. 15 above Discovery. This dredge was formerly operated by the same company on Solomon River. -K-53-120 It is described in detail on Page 101 of the 1926 report of Mr. N. L. Wimmler. The machinery, large timbers and power plant were moved from Solomon in the summer and winter of 1928. A new hull was built at the present location of the same dimensions as the old. All parts of the new hull and machinery and power plant are the same except a 4-ft. overhang of the housing on each side of the dredge has been eliminated. The shaking screen and no save-all features of the old dredge have been retained. The power plant set-up is much more roomy and better than that at Solomon. The ground formerly belonged to Lee and Swanberg, who

took out elevator pits both below and above where the dredge is now working. The bedrock is very uneven, depths of gravel ranging from 4 ft. to 12 ft. The ground is all thawed and there is practically no overburden. Where the dredge is at present a clay bedrock causes difficulties in saving the gold. On No. 16 Above Discovery schist bedrock occurs and no more trouble in saving the gold is anticipated. The right limit benches are expected to dredge very well. In two cuts into the bench by Lee and Swanberg above the dredge and in a cut into the bench below the dredge by a former operator, very good money is said to have been taken out tho bedrock was not reached. The bedrock in the upper cuts pitches downward into the benches from the rim of the present creek bed. A small crew of men is doing experimental hydraulicking to test out the benches. Water is furnished by an 8-mile ditch from upper Osborn Creek carrying about 500 miners inches at a head of about 165 ft. at No. 15 Above Discovery. The dredge started work on July 17, 1929 and was shut down for the season on 1929. The rated capacity is about 3500 cu. yards a day. The actual digging so far has averaged about 2000 cu. yds. a day./ About 17 men were employed. The company owns outright about 600 acres and has under option about 200 acres more. If the ground proves up as expected, the life of the operation is expected to be over 25 years.

K+52-127 THE BANGOR DREDGING CO. finished operating their 2 1/2 cu. ft. bucket dredge on August 16, 1929, on the upper end of No. 10 Above Discovery on Anvil Creek. The dredge started work for the season on July 1, 1929, and averaged about 2000 cu. yds. of digging a day. 9 men were employed including a cook and a manager. The details of the dredge itself are given on page 95 of the 1926 report. Anvil Creek has now been dredged from the lower end of Discovery to the upper end of No. 10 Above.

K+53-188 THE DRY CREEK DREDGING CO. is operating a dredge on No. 3 Below Discovery on Dry Creek. This dredge has 3 cu. ft., close connected buckets

dumping at the speed of 25 per minute. The hull is 66 ft. x 28 ft., and 5 1/2 ft. deep. The dredge is a straight flume type. The flume is 72 ft. long and 32 inches wide, set on a 10-inch to 12 ft. grade, and fitted with transverse manganese rail riffles. No undercurrent is used. Power is supplied by an 80-H.P. Venn-Severin Diesel Engine. The dredge averages 2200 cu. yds. digging a day. 2 cuts, each 180 ft. wide, are taken in the creek. The ground averages about 12 ft. deep to a false clay bedrock and is all thawed. The winter frost on the surface is thawed by the cold water thawing method for about 4 weeks when first starting in the spring. 8-ft. points driven at 6 ft. centers are used. The average season is about 100 days. 5 men are employed. This undoubtedly is the most cheaply operated dredge in Alaska. Ground averaging 6 cents a cu. yd. may be dredged at a slight margin of profit. The gold is worth $18.40 an ounce and is medium fine. The ground is leased from the Hammon Consolidated Gold Fields. There is about 5 years work left on the creek. In 1929 the dredge was forced to shut down on September 7 because of a litigation between the above company and E. E. Powell. More detailed description of this dredge is given on page 96 of the 1926 report of Mr. N. L. Wimmler.

F452-300 THE HASTINGS CREEK DREDGE CO. is remodelling the old Andrew Anderson dredge which was originally built on Moss Gulch and moved to Hastings Creek about 1915. It was formerly a stacker type run by distillate power. The hull is 66 ft. by 30 ft., and 5 1/2 ft. deep. The dredge is ~~him~~ being changed to a straight flume type and an 85 H.P. Venn-Severin Diesel Engine installed. The digging ladder will be lengthened and 3 cu. ft. buckets put on a close connected bucket line. The dredge is on No. 5 Below Discovery. It will dredge downstream making 3 cuts, each about 150 ft. wide. The ground is thawed. There is about 6 years

work ahead of this dredge. Construction will be finished in 1930. 4 men were employed in construction.

OPEN CUT MINING -- SLIPSCRAPERS

X+52-235 B. F. GILLETTE AND ED ANDERSON are operating a small 1/2 cu. yd. slip-scraper about 1/4 mile east of the city limits of Nome and about 200 ft. back from the beach. The ground is frozen and is about 18 ft. deep. The pay lies on a false bedrock which is about 18 inches in elevation above mean high tide. The overburden is ground sluiced off to within 2 or 3 ft. of bedrock, then scraped into the boxes. The pit has very poor drainage because of the slight elevation of bedrock above sea level. Much difficulty is experienced in saving the gold this year on account of clay in the sand. In the former 3 years of working the sand was much cleaner. It is hoped by this pit to test the ground for dredging. Besides the owners, from one to 5 men are employed.

HYDRAULICKING

X+52-109 A. C. STEWART AND R. S. STEWART are hydraulicking in the creek bed of Monument Creek. The ground is from 12 to 13 ft. deep. There is only about 1 ft. of muck over the gravel which is coarse and contains medium sized (up to 18 inches in dia.) boulders. The bedrock is schist, but lower down the creek, in the lower end of the 1928 pit, a lime reef 35 ft. wide crossed the creek. This reef was harder than the surrounding schist and caused a small canyon in the creek where it crosses. About 400 ft. from the creek on the left limit and about 75 ft. above it in elevation, a bench channel has been worked out by former operators. This channel ended about where it crosses the limestone reef. The channel evidently swung from here to the south and towards the creek and has been eroded away and slid into the present creek serving to doubly

enrich it. In 1928 a pit 342 ft. by 35 ft. and averaging 13 ft. deep was mined. In 1929 a pit 600 ft. by . 25 ft., averaging 12 ft. deep was mined. Water is brot to this operation from Sledge Creek about 5 miles thru a section of the old Snake River Ditch. This ditch averages about 6 ft. wide and 18 inches deep and is on a grade of about 3 1/2 ft. to the mile. The present pit has progressed so far upstream that there is only about 10 ft. fall from the ditch to the head of the boxes. Two 14x16-inch 12-ft. boxes are used. They are set on a 12 to 1 or 8 1/2 % grade. The tailings are stacked by a 1/4 cu. yd. Saurman bottomless scraper using for power an Ersted-Fordson Hoist. About 3 or 4 inches of the bedrock is also put thru the sluice boxes. The gold is fairly coarse (about "wheat" size) and contains small nuggets up to as large as $50.00. The gold is worth about $18.55 an ounce. The concentrates are composed of heavy, black, subangular sand mixed with a slight amount of scheelite pieces. The owners claim at least ten years work is left on the creek. Besides the owners, 9 men are employed.

KA53-119 PHILIP DEFONVILLE is hydraulicking on Gold Bottom Creek at the mouth of Silver Creek on No. 7 Above Discovery. The ground is from 3 to 6 ft. deep, one foot of which is muck, the rest gravel. The bedrock is schist. The values are distributed all thru the gravel but are more concentrated just above bedrock. There are no values in the bedrock. The gold is fairly fine (about "mustard seed" size) and is worth $17.50 plus an ounce. Water is supplied by a two-mile ditch from Silver Creek. It is about 2 ft. by 5 ft. in cross-section and carries about 400 miners inches. One 2½-inch nozzle is used in the tailings and a 2½-inch nozzle to pipe into the boxes. The pressure is about 100 ft. Besides the owner, 3 men worked on shares. The 1929 operation was a preliminary test of the ground for a more exten-

sive operation in 1930.

LOUIS NASHENWING AND HENRY CAULKINS are hydraulicking on Anvil Creek and Nekula Gulch. Besides the two owners, 4 men are employed.

FRED BARNOFSKI is hydraulicking by himself on the 3rd beach about 1/2 mile east of Hastings Creek.

SHOVELLING-IN

S. SANSOUCI is ground sluicing and shovelling-in alone just north of the present beach about 1 mile east of Jess Creek.

CHARLES MILLER AND LORENS WENDELL are each shovelling in alone on the present beach west of Jess Creek.

JOSEPH NEUHAUSER is ground sluicing and shovelling in alone on Grass Gulch.

HENRY LIND is ground sluicing and shovelling in alone on Specimen Gulch.

DRIFT MINING

JAKE TOPOLSKY is drift mining alone in winter on the Right Fork of Dexter Creek. He also ground sluices and shovels in in the summer.

JOHN ABRAHAMSON is drift mining alone in winter on the 3rd beach about 1½ mile east of Hastings Creek.

PROSPECTING

A. E. BOYD is prospecting with a 6-ins. Keystone drill. About 1000 ft. east of the head of Little Little Creek. The line of drill holes runs from this point northwest about 2000 ft. to Little Creek. The surface of the ground here is practically level. The dpeths of the drill holes started at 34 ft., sank in the center of the line to 65 ft., then rose to 40 ft. The tailings from the drill holes contained much blue mud with the sand and resembled material from the bottom of an off-shore lagoon rather than from a true beach. In 1928 on this same prospecting

operation Otto Halla sank a 4x4 ft. shaft 35 ft. deep at the head of Little Little Creek. There is said to be 8 to 10 ft. of beach sand in this shaft which carries good values in the lower 3 to 4 ft. A drift 90 ft. long was run from the bottom of the ~~xxxx~~ shaft. It is said that this beach line has been outlined by drilling for a length (east and west) of 1600 ft. and a width of 145 ft. It appears that this beachline is a section of a bar or spit on the outer edge of a lagoon. A good road has been built to this prospect by the A.R.C.

Ex 53-244 THE S.L.B.(STEWARD, LOBE, BOYD) DEVELOPMENT CO. is drilling on the 3rd beach west of Snake River, and is repairing the old 4-mile Wild Goose Ditch from Sunset Creek. It has secured options on the Berger and Sullivan ground on Evening Gulch, the Marine No. 2 Association and other ground. In 1930 the intention is to cross-cut the 3rd beach with an open cut, using water under about 75 ft. fall from the aforesaid ditch. They will use a mechanical (Grant) tailing stacker to dispose of the tailings.

CHAS. KENNEDY AND FELIX BRUNER are putting in a drain on tundra about 1/2 mile east along beach from Gillette. They are cross-cutting the same streak Gillette is on and intend to test the ground for dredging by shovelling in.

H. L. BLAKE is prospecting by sinking shafts on the left limit of Cunningham Creek and on the divide between Cunningham Creek and Grass Gulch.

CHAS. NIEBUHRE is prospecting by sinking a shaft and drifting on the right limite of Dry Creek.

CHAS. BUTLER is prospecting by sinking shafts on Rock Creek.

CHAS. MADSEN is prospecting on Buster Creek.

CHAS. JENSEN is prospecting on Fred Gulch, a left limit tributary of

Stewart River opposite Gold Bottom Creek.

K452-204 JOHN "ARCTIC" SMITH shovelled in and prospected alone on Arctic Creek and Cripple River.

K452-81 JOHN MITCHELL prospected and shovelled in alone on Cripple River

S O L O M O N D I S T R I C T

Following the 1926 report, the Solomon District is reported separately from the Nome District. Freight for the Solomon District and the Casadepaga River is landed at the mouth of the Bonanza River. From this place a good road leads up Solomon River. The lighterage charges at Bonanza are $10.00 to $12.00 a ton for all classes of freight. The freight rate is $25.00 a ton from the beach at Bonanza to the head of Solomon River at the Goldsmith Dredge.

K453-130 THE GOLDSMITH DREDGING CO. was operating the only dredge on Solomon River in 1929. The company started dredging in the fall of 1926 at the mouth of Coal Creek and dug up to the fall of 1928 about 1 3/4 miles up Solomon River, which was as far as it was practical to dredge. This original dredge is described in detail on page 100 of the 1926 report by Mr. N. L. Wimmler. The hull, which was built of very light material, was stripped in the fall and winter of 1928 of machinery, buckets, digging ladder, spuds, etc. These were transported 4 miles down river to where a new hull was constructed in the early summer of 1929. The new hull is 70 ft. long, 30 ft. wide, and 6 ft. deep. The bucket line is close-connected and contains 48 2½ cu. ft. buckets. The dredge is a straight flume type with no undercurrent or save-all. The steel flume is 100 ft. long and 36 inches wide and fitted with rail riffles. The

The buckets dump directly into head of flume. Power is supplied by a 120 H.P. Fairbanks-Morse "Y" type semi-diesel engine. In 1928 the former dredge averaged between 1800 and 2000 cu. yds. a day, and it is presumed that the present one will average at least as much. At the present location the ground averages from 3 to 12 ft. in depth. It will average, when digging farther upstream, however, about 7 or 8 ft. There is no overburden on the gravel, which is thawed. The bedrock is schist with bands or reefs of harder limestone. The pay lies on the bedrock and goes into it a few inches. At least 6 inches of bedrock is dug by the dredge. The gold is medium fine (about "pinhead" size). The value is about $18.60 an ounce. The company owns at present 25 claims of which 7 have been dredged. 9 men, including a cook and manager, are employed. The season averages about 100 days.

HYDRAULICKING

K453-11

E. W. QUIGLEY is hydraulicking at the mouth of Big Hurrah Creek on the St. Michaels Bench and Discovery Claim. Up to the fall of 1928 a hydraulick elevator had been used. At present he is piping over the side of the boxes into the flume. Three 3-inch giants are used, one in the pit, one in the tailings and one opposite the pit near the head of the flume where it can be used in both the lower end of the flume and in the tailings. The flume is 4 boxes (48 ft.) long and 3 ft. wide. A pit 350 ft. x 200 ft. has been mined. Water is supplied by a 9-mile ditch with an 8-ft. bottom, from the East Fork of Solomon River. There is 210 ft. fall from the ditch to the pit. The ground is about 12 ft. deep, all thawed and with no overburden. There are many medium-sized boulders in the gravel. The bedrock is schist. The gold lies directly on and in the upper bedrock. 2 or 3 ft. of bedrock is put thru the flume. The gold is fairly coarse (about "rock salt" size) with many

$30 to $40 nuggets. One nugget worth $700 has been found. The gold is worth $17.70 an ounce. Freight from Seattle to the mine costs $52.00 a ton($20.00 a ton from Seattle to Bonanza, $12.00 a ton lighterage at Bonanza, $20.00 a ton from Bonanza to the mine). Besides himself, 6 men including a cook, are employed. After 1930 or 1931 Quigley intends hydraulicking below the mouth of Big Hurrah on the left limit benches of Solomon River. Details of his former operations are given on page 102 of the 1926 report of Mr. N. L. Wimmler.

KY53-135 JOHN DIECKMAN is hydraulicking by himself on Big Hurrah Creek about 2 miles above the mouth on a fraction between No. 6 and No. 7 Above Discovery. He is piping directly into a flume, working with a 2½-inch nozzle under a head of 20 ft. The ditch is about 1/2 mile long with a 3-ft. bottom. He had just started to mine in 1929. Previously to this he had been putting in a 1000-ft. drain. His pit in 1929 is about 100 ft. long and 60 ft. wide. The ground is all thawed and about 6 ft. deep. There is no overburden. There are many boulders in the gravel. The bedrock is schist with reefs of limestone in it. The gold is coarse and lies mostly directly on and in upper bedrock.

JOHN MELLON is hydraulicking about 1/4 mile up on Willow Gulch, a small left limit tributary of Solomon River nearly opposite the mouth of Shovel Creek. This is evidently part of an old Solomon River lying between the head of Willow Gulch and Moran Gulch. Mellon has hydraulicked out a drain 500 ft. long by 50 ft. wide down Willow Gulch. The muck in the channel is 12 ft. deep at the lower end of the drain and 29 ft. deep at the upper end in the channel. The gravel in the channel is 10 ft. deep. There are many boulders of lime, schist and greenstone in the gravel. The bedrock is schist. The gold is the same size and fineness as the Solomon River gold. Water is obtained

by a 5-mile ditch with a 5-ft. bottom, from Uncle Sam Creek. Tho working on property since 1926, no actual mining has yet been done as so much preliminary labor was required. The channel has been thoroly prospected by sinking shafts. About 1500 ft. of channel is available for hydraulicking.

SHOVELLING IN

K153-111 ANDY NEUBERG is ground sluicing and shovelling in at the mouth of Jerome Creek on Claim No. 1. He will clean a pit 300 ft. long by 12 ft. wide. The ground is all thawed and about 9 ft. deep. 7 ft. of muck and sand is ground-sluiced off and the lower 2 ft. of fine gravel shovelled in. The bedrock is schist. About 4 or 5 inches of bedrock is taken up with the gravel. The gold is like beach gold, very fine and flaky. It is worth about $18.50 an ounce. Water is obtained for mining and ground sluicing from the creek. Besdies himself, one man is employed. The average season is about 100 days.

K153-98 JOHN STARR is ground sluicing and shovelling in by himself on West Creek, a right limit tributary of Shovel Creek. He is working about 3/4 mile from the mouth on No. 3 Above Discovery.

K153-120 CHAS. ANDERSON is shovelling in by himself on No. 6 Below Bench on the left limit of Solomon River.

O. J. LAMOUNTAIN was shovelling in and prospecting by himself on No. 7 Below Bench on the left limit of Solomon River. He quit and went out in September.

K153-125 FRED COOK is shovelling in and prospecting by himself on Wm. Houg's ground on Penny Creek about 1/2 mile from the mouth of the creek.

PROSPECTING

J. U. KEENAN with 3 men was drilling in the summer of 1929 on lower Solomon River for the Solomon Valley Dredging Co. It is said this company will start operating its dredge which is now idle in the summer of 1930. A full description of this dredge is given on page 100 of the 1926 report of Mr. N. L. Wimmler. A-53-130

ALFRED HANSON is prospecting on Kasson Creek, a left limit tributary of Shovel Creek. He is working about 1/4 mile from mouth on No. 1 Above Discovery Claim. A-53-4

ANDY NYLAN AND A. MATTSON are prospecting with a hand drill on Shovel Creek for the Shovel Creek Dredge Co. This dredge worked upstream to the mouth of West Creek at the lower line of No. 4 Below Discovery where it finished in the fall of 1927. A-53-15

C A S A D E P A G A D I S T R I C T

Altho in the Council (now consolidated with Nome) Recording District, the Casadepaga District, following the report of 1926 by Mr. N. L. Wimmler, is reported separately. Transportation into the Casadepaga District is up the Solomon River from the mouth of Bonanza Creek. Above the mouth of East Fork, the road follows the road bed of the old Solomon River Railroad, ill-advisedly torn up in 1917. Freight into the Casadepaga River from Bonanza ranges from $40.00 to $50.00 a ton in summer.

DREDGING

THE CASADEPAGA MINING CO. INC. is operating a dredge on the Casadepaga River about 3/4 mile below the mouth of Ruby Creek. The dredge was originally near the mouth of Canyon Creek, and was moved thence about 3 1/2 miles to its present location. The dredge is a straight flume A-53-96

type. It has an open link bucket line with 2½ cu. ft. buckets dumping 17 to the minute. The hull is 65 ft. by 30 ft., 5 ft. deep. The flume is 30 inches wide and 72 ft. long. Power is furnished by a 65 H.P. Western distillate engine. The dredge averages about 900 cu. yds. a day The average width of ground dredged is about 100 ft. The gravel is all thawed and from 4 to 12 ft. deep. There is no overburden. The gravel is mostly fine with a few (mainly limestone) boulders. The bedrock is a schist with limestone reefs in it. The gold is fine (mustard seed" size), tho getting coarser as dredge progresses up the creek. No nuggets occur. The value of the gold averages $18.80 an ounce. 9 men are employed including the cook and manager. It is the intention to work up Ruby Creek. About 5 years work is left ahead of this dredge. The ground is leased from S. M. Gaylord, C. C. Kester, Nels Nelson and Wm. Allison. The average length of season is about 100 days.

HYDRAULICKING

S. M. GAYLORD is hydraulicking into a flume on a right limite bench of the Casadepaga River below Rover Creek. A Sauerman bottomless scraper is used to handle the tailings. A 2½-inch nozzle is used in the pit under about a 45 ft. head. Water is supplied by a 1½-mile ditch with a 3 ft. bottom. The ground is 12 to 14 ft. deep, with 2 ft. of gravel, the rest overburden. It is all frozen. The gravel is fine with no boulders. The bedrock is schist and is about 12 ft. in elevation above that in the Casadepaga River. The gold is distributed thruout the gravel and does not go down into the bedrock. The gold is worth about $18.50 an ounce. Gaylord just reached a production basis at the close of the 1929 season. Preparatory work was started in 1926 and continued to 1929. Much ground has been stripped. 7 men are employed.

besides himself. He owns about 4 claims at this place and has about 5 years work ahead. The average mining season is about 100 days.

B L U F F D I S T R I C T

Following the 1926 report of Mr. N. L. Wimmler, this district, which is part of the Nome Recording Precinct, is reported separately. Placer mining operations in this district except for some winter prospecting, is at present at a standstill. The cable excavator plant formerly operated by the Allen Mining Co. has been abandoned. The only activity carried on in the summer of 1929 was some cinnabar prospecting which will be reported under lode mining.

C O U N C I L D I S T R I C T

Transportation of freight to the Council District is by way of the Chinik on Golovin Bay then up the Fish and Niukluk Rivers. Mail and foot travellers generally go from Nome to Council by way of Solomon River, East Fork and Fox River. Aeroplane service may now be had from Nome to Council City. The aeroplanes generally land on a large bar just below the town. A good field has been laid out just above the town and considerable money has been spent on it. It is possible now to make an emergency landing on this field. However, with very little further expenditure, the rough spots could be smoothed out and the field put in excellent condition. Aeroplane fare from Nome to Council is about $60.00.

DREDGING

453-177
44-127
44-128

THE NORTH STAR DREDGING CO. is operating the flume dredge of the former Northern Light Mining Co. This dredge is of the straight flume type, distillate driven, and with 2⅛ cu. ft. buckets. It is described on page 112 of the 1926 report of Mr. N. L. Wimmler. The dredge is now

working at the mouth of Ophir Creek on the right limit bench opposite claim No. 3 Below Discovery. The company is composed of 3 partners, Mebes, Stine and Gumm. Including these ~~three~~ partners, 8 men and a cook are employed in this operation. About 5 years work is still left ahead of this dredge.

KX53-17 OPHIR GOLD DREDGING CO. was operating in 1929 their 3½ cu. ft. stacker dredge on No. 19 Above Discovery on Ophir Creek. This dredge is electrically driven by a hydro-electric plant on No. 15 Above Discovery. There is also an auxiliary 160 H.P. distillate engine for use in dry seasons. This last was not operated in 1929. 12 men are employed, including 3 men on the ditch (the old Wild Goose Mining and Trading Co. ditch) used for ~~hydraulick~~ hydro-electric power, one cook, one tractor drivers, one repair man and a superintendent. The company has between 6 and 10 years work left.

HYDRAULICKING

THOS. SHAW AND ALEX. GRACIE hydraulicked on No. 7 Above Discovery on Ophir Creek. Besides themselves, 2 men are employed. This operation will be finished in 1930.

KX44-130 THOS. PILETICH hydraulicked on a bench on Albion Creek. Besides himself, one man was employed.

SHOVELLING IN

M. PETERSON shovelled in by himself on No. 13 Bench on Ophir Creek.

HARRY MATSON shovelled in by himself on No. 10 Bench on Ophir Creek.

NATE DIMON shovelled in by himself on No. 3 and 3 1/2 Above Discovery on Ophir Creek.

KX53-25 M. OBRADOVITCH AND MARKO MARTIN shovelled in on a bench of Sweetcake Creek. No men besides themselves were employed.

KX53-25 WM. BROOKENS shovelled in by himself on Sweetcake Creek.

ROBT. LARCH shovelled in by himself on Rock Creek.

ANTON HAAKONSON shovelled in by himself on Tony's Gulch, a tributary of Melsing Creek.

FRED. DUROCHER shovelled in and did development work on No. 1 on Aggie Creek, a left limit tributary of Fish River about 14 miles east of Council City. One man, besides himself, was employed.

KX 53-190

K O Y U K D I S T R I C T

This is probably the most isolated district of Seward Peninsula. Freight is transported to the district by small gasoline-driven coastal vessels to the "Landing" on the Koyuk River. Thence it is hauled 7 miles to Dime Creek. An aeroplane field was finished near Haycock in the summer of 1929. Hereafter aeroplane travel will be available to this mining center.

DREDGING

KX 45-31

E. H. PFAFFLE AND HORACE PORTER operated on No. 4 Above Discovery, The dredge was bought from the former Dime Creek Dredging Co. who sold out in 1928. The machinery on this dredge was formerly on Elkhorn Creek in the Council District. This machinery was moved to Dime Creek in the winter of 1923-1924 and a new hull constructed in the summer of 1924. The dredge is of the straight flume type. The bucket line is open link. The buckets are 1.58 cu. ft. in size, 33 in number and dump driectly into head of the flume at a rate of 19 a minute. Power is supplied by a 25 H.P. gasoline or distillate engine. The dredge is capable of digging between 12 and 13 ft. in depth. The flume is 62 ft. long and 20 inches wide. Rail riffles are used. The ground is 17 to 18 ft. deep, 9 to 10 ft. of which is gravel, the rest muck. In the creek bed, it was originally only about 6 ft. to bedrock. Since then the creek has been filled with tailings practically to the

level of the muck banks. This creek bed was originally thawed but now, owing to the filling of tailings, is all frozen. All the rest of the ground is permanently frozen. The bedrock is a blocky andesite locally known as "diorite". About 3 ft. of this bedrock is dug. The muck is ground sluiced off by the water from the creek. The gravel is then thawed by 3/4 inch pipe points driven with wooden mauls, and spaced at the corners of 8-ft. squares. The points drive fairly easy as the gravel has much ice in it and is not "tight". It takes from 7 to 8 days to complete a thaw. Two ditches supply water. One, the highline ditch, is from Dime Creek. It is 2 1/2 miles long and supplies water at 50 ft. pressure. The other, the lowline ditch, is from Eldorado Creek and supplies water at 35 ft. pressure. The highline ditch can only be used when there is an excess of water from the hydraulicking on the creek above. The gold occurs in very flat, small grains (looks about like "Durham tobacco" in size and shape). No nuggets are found. The fineness is about 960. Platinum occurs with the gold in the ratio of 1/2 of 1 per cent of the weight of the gold recovered. 5 men are employed. These receive 75 cents an hour. Besides this amount $2.50 a day is allowed them for board. Distillate costs 60 cents a gallon at the dredge. The dredge uses about 70 gallons in 24 hours. The dredge ran two weeks in the season of 1928, during which time its digging capacity averaged 350 cu. yds. a day. It started work in 1929 on July 27, and quit
About 6 or 7 years work is left on this operation.

HYDRAULICKING

GEO. LEONARD AND A. W. JOHNSON are hydraulicking on the upper end of No. 5 Above Discovery and No. 5 Bench, Right Limit on Dime Creek. The ground is about 7 ft. deep, 2 ft. of which is gravel. The

piping is done direcly into a flume. Two No. 2 Giants are used alternately in the pit and 1 in the tailings. 1½-inch to 2½-inch nozzles are used on the giants. Water is supplied by a 2½-mile ditch from Dime Creek under about 50 ft. pressure. Only 1 shift a day is worked. Besides themselves, 1 man is employed.

WM. OLSON AND AUGUST OLSON are hydraulicking on No. 1 Above Bench, 1st Tier, Left Limit on Dime Creek. 3 small giants are used. 2 giants alternately pipe off the overburden and gravel down to within a few inches of bedrock. This remaining few inches of gravel and about 1/2 to 1 ft. of bedrock are then shovelled into the sluice boxes. The third giant is used in the tailings. Water is supplied by a 6 ft. x 1 1/2 ft. ditch, 3 1/2 miles long. The pressure at the giants is about 30 ft. Besides themselves, 3 men are employed steadily When the ground is ready to be shovelled in 2 or 3 extra men are temporarily employed.

ALBERT HOGBERG is hydraulicking on No. 2 Above Bench, 1st Tier Left Limit on Dime Creek. He pipes directly into the flume with 1 small giant. The ground averages about 6 ft. to bedrock and the gravel averages about 3 1/2 ft. in depth. He can only work when there is good water as he buys the excess water from the Olson ditch. This is delivered at about 50 ft. pressure. Besides himself, 1 man is employed when water is available.

SAM. B. SMITH is hydraulicking on a left limit bench, about 6 miles up from the mouth of Sweepstakes Creek, a tributary of Peace River. Water is supplied to one small giant under 15 ft. pressure from a 3/4 mile ditch. The overburden and gravel are piped off, then the remaining few inches of gravel and the top of bedrock is shovelled in. A small percentage of platinum occurs with the

K45.34

gold. Besides himself, 1 man is employed.

AX45-54 FRANK McCOY is hydraulicking on the Right Fork of Sweepstakes Creek, on Claim No. 8 about 4 miles above S. B. Smith and 5 miles from the head of the creek. He pipes directly into the head of a flume of two 12-ft. boxes. Two 3-inch giants are used, one in the pit and one in the tailings. The pit is drained by a 200-ft. bedrock drain. Water is supplied at about 150 ft. head by a 1 1/4 mile ditch. The creek itself is about 5 miles long and has an average grade in the central portion of about 2 1/2 per cent. The depth to bedrock averages 10 ft. The ground is all thawed. There is no overburden and very few boulders. There are several horizontal streaks of clay thru the gravel. The paystreak is said to be about 150 ft. wide. The pay lies in the lower 2 ft. of gravel and in the top of bedrock. The bedrock is a blocky, decomposed andesite. At least 3 ft. of this bedrock is taken up in mining. About 1/2 the gold is fine; the other half is composed of small nuggets. It is valued at about $16.40 an ounce. McCoy started work in 1911 on No. 9 and 10 Bench Left Limit, where he worked until 1927. He then started preparatory work in the creek at this place. He began actual mining one month before the close of the season in 1928. In 1929 he had to stop work in the middle of the season because of lack of water. Besides himself, 2 to 4 men are employed when water is available. The distance from Haycock is about 14 miles. Freight rates in summer are 6 cents a pound.

AX45-69 Horace Porter and Salem Abraham are hydraulicking on No. 5 Below Discovery on Bear Creek, a tributary of the West Fork of Buckland River. Four No. 1 and No. 2 giants with 3 or 3 1/2 inch nozzles are used. The pit is drained by a bedrock flume and a 1000-ft. bedrock

drain. 3 giants are used alternately in the pit and 1 in the bedrock drain below the end of the flume. The drain at this place makes 2 opposite right angle bends, between which the giant is set so as to stack the tailings over the side of the drain. The flume is composed of three 12-foot boxes. Water is supplied under a 160-foot head by a 3-mile ditch from Cub Creek. The depth to bedrock is from 5 to 6 ft. There is no overburden and the gravel is all thawed. The gravel is coarse with many boulders. However, it is said that the boulders are less numerous as the work progresses upstream. The bedrock is a partially decomposed andesite. The gold is fine with a few small nuggets. A very little platinum occurs with the gold. The gold is valued at about $18.05 an ounce. It lies on or near bedrock. The 1929 operation is in an old channel on the left limit of the present creek channel. The paystreak is said to be widening to 400 ft. Work was started on this operation in 1926. In 1929, 64,000 sq. ft. of bedrock, consisting of eight 80 by 100 ft. pits, was cleaned. 2 shifts are worked. 8 men, including a cook and manager, are employed. The average length of season is from 120 to 130 days. In 1928 the season was 125 days. The distance from Haycock is about 22 miles. Freight is hauled by dogteam in winter and by tractor in summer.

DRIFT MINING

CARL RYLANDER AND OLE JORGESON drift mined for 4 months in the winter of 1928-1929 on No. 1 Below Bench 3rd Tier, Left Limit on Dime Creek. The paystreak was about 3 ft. high. Besides themselves, 2 men were employed.

K145-5

C A N D L E D I S T R I C T

Following the 1926 report of Mr. N. L. Wimmler, the Candle and Immachuk Districts are considered separately tho both are in the

Fairhaven Recording Precinct. Freight to Candle is brot directly by steamer from Seattle to Kotzebue Sound, where it is lightered off the boat at the town of Keewalik, situated on a sandspit in Spafarief Bay. Thence it is taken to the head of the bay and up the Keewalik River to Candle City at the mouth of Candle Creek. There is also a 10-day mail and passenger service around Cape Prince of Wales from Nome on a small gasoline-driven coastal vessel. There is a good landing field at Candle, and aeroplane service can be had from Nome. A fair gravel road leads out of Candle City up Candle Creek about 6 miles to Patterson Creek. This road has materially reduced haulage charges to the various operations along the creeks. The total cost of landing freight at Candle City is about $28.50 a ton. It is said that coal can be landed at Candle City at $31.00 a ton, including the original price of the coal.

DREDGING

AK45-15

THE KEEWALIK MINING CO. operated its dredge on No. 1 Below Discovery on Candle Creek at the mouth of Jump Creek. This dredge was originally built and operated on the Kugruk River. It is a straight flume type with 3 1/2 cu. ft. buckets and close connected bucket line. Power is supplied by ~~x~~ two 50 H.P. Western distillate engines. The dredge averages about 2000 cu. yds. a day digging. The dredge and previous operations are described on page 115 of the 1926 report of Mr. N. L. Wimmler. Single X 3/4 inch pipe points are used to thaw the ground. These are slightly upset at the driving point, the water discharging thru a 5/8 inch hole. The same kind of clamps and sleeve-hammers that were designed by the Hammon Consolidated Gold Fields, are used in driving the points. The points are set in the center of 16 or 18 ft. equilateral triangles. With a full head of water in the ditch,

there is about 45 pounds to the square inch pressure on the points. The greatest economy in water consumption for this type of ground is found to be about 30 pounds to the square inch pressure on the points. However the higher pressure thaws the ground much faster. The points are driven 6 to 8 ft. into bedrock because it was found that the thawed area in bedrock around each point, coned steeply from the end of the point to the gravel. In order to have these cones meet so that the upper bedrock could be dug, the points have to be driven to the above depth. The average length of thaw is about 12 days. Water is supplied from the 36-mile ditch of the former Candle Alaska Hydraulic Gold Mining Co. described and listed on page 257 of U.S.G.S. Water Supply Paper No. 314. The ground on Candle Creek is entirely frozen. The overburden,which contains much ice and is easily ground sluiced off with the creek water, ranges from 6 ft. thick near the creek to 40 ft. thick at the sides of the valley. The gravel is from 4 to 6 ft. thick. The bedrock is schist. 3 to 4 ft. of it is dug. The gold is distributed all thru the gravel but lies mostly on and in the upper bedrock. Much clay in the bedrock causes the loss of a great deal of gold. It is said as much as 30 per cent. The overburden is ground sluiced off with the creek water and giants so that, after it is all thawed, the dredge digs an average section of about 11 ft. The paystreak at the mouth of Jump Creek is about 700 ft. wide. Candle Creek can be dredged for about 12 miles, and possibly for 2 miles farther. The average width of the creek that can be dredged is about 300 ft. The dredge crew consists of 7 men, working in 2 shifts. About 40 men, a superintendent and general manager are employed altogether. Wages for common labor are 62½ cents an hour plus board. Distillate costs about 33 cents a gallon at the dredge.

The dredge and property had been formerly leased and optioned by the Golden Center Mins, Inc. This lease and option was given up in 1928. The old No. 2 dredge was operated intermittantly in 1926 to test ground on No. 16 Above Discovery. It had previously worked the creek bed about 60 ft. wide from No. 4 Below to No. 8 Above Discovery. It was too small for the work and is now laid up.

HYDRAULICKING

L. A. SUNDQUIST operated a small hydraulic elevatoron No. 19 Above Discovery just below the mouth of Paterson Creek. In 1929 he took out 2 pits--one 4200 sq. ft. in area and the other 4500 sq. ft. [redacted]. One 2 or 2 1/2 inch nozzle is used in the pit and one in the tailings. From the elevator three 14x18 inch 12 ft. boxes are used with iron riffles. Water is obtained under 90 ft. pressure by a ditch from Patterson Creek. There is about 7 ft. of old tailings on the ground, then about 13 ft. of gravel containing horizontal streaks of muck. The gravel is all frozen. The bedrock is schist. However, in the next cut to be made up Patterson Creek, the bedrock is a decomposed [redacted] porphyritic andesite. Besides himself, 2 men are employed.

O. A. LINDBERG is hydraulicking into a flume on the left limit bench channel of Patterson Creek about 1/4 mile above Sundquist. Two 2 1/2 inch nozzles are used under about a 50 ft. head of water from a ditch from Patterson Creek. The flume is laid in a bedrock drain cut thru the rim of the channel and dumping into Patterson Creek. The ground is about 15 ft. deep, of which 5 ft. is gravel, the rest muck. The bedrock is schist and porphyritic andesite. About 30,000 sq. ft. of bedrock was cleaned in 1928 and about 15,000 in 1929. Besides himself, 2 men are employed.

T. P. ROUS was operating a hydraulic elevator in the early part of the summer of 1929 on lower Jump Creek. The ground is leased from Wm. H. French. A 2-inch nozzle was used in the pit, a 3-inch nozzle in the elevator and a 2 1/2 inch nozzle in the tailings. Water is obtained from Jump Creek and is under a 90 ft. head at the nozzles. There is 16 ft. of muck and 10 ft. of gravel. The bedrock is schist. The gold is fairly coarse (about "wheat" size). No large nuggets occur. About 10,800 sq. ft. was mined in 1929. The ground then became so poor that Rous shut down in order to do some prospecting. When in operation, one or two men besides himself are employed.

A. NORDLIND AND OSCAR SWANSON are hydraulicking into a flume on No. 10 Above Discovery on Patterson Creek. Besides themselves, 2 men are employed.

EDWARD HANSON is hydraulicking by himself on No. 15 Above Discovery on Candle Creek.

J. LITTLE is hydraulicking by himself on Glacier Creek.

THE KEEWALIK MINING CO. will hydraulick No. 12 Above Bench and other benches on the left limit of Candle Creek. They have laid 2800 ft. of 30-inch pipe from their ditch on the right limit, across the creek to their benches on the left limit. The bedrock on this high bench channel is about 100 ft. above the creek level. There will be about 50 ft. pressure at the nozzles.

HENRY COFFIN AND JERRY COFFIN are operating a hydraulic elevator on Discovery Claim on Kugruk River, about 1/2 mile above the mouth of Chicago Creek. The elevator has a 2 1/4 inch nozzle and lifts 16 ft. Water is supplied to it by a 4-inch Delasalle centrifugal pump. The power for this pump is furnished by a 35 H.P. Continental engine. The giant in the pit has a 1 3/4 inch nozzle and is supplied with water thru a 3-inch Delasalle centrifugal pump by a Fordson tractor.

The flume is composed of three 14-inch by 18 inch,12-ft. boxes and dumps directly into the Kugruk River. Wooden riffles stripped with iron are used. The ground is about 12 ft. deep. 3 to 5 ft. is sand and silt, the rest gravel. The bedrock is a blocky yellow and blue limestone The gold is fairly fine with no nuggets. It is worth about $18.60 an ounce. One pit was lost in the spring of 1929 by the river overflowing it. The present pit is about 100x60 ft. Gasoline costs about 21 cents a gallon landed on the beach at the mouth of the Kugruk River. It costs about $7.00 to run both engines for 10 hours. No men are employed. Hauling is done by Fordson tractor.

DRIFT MINING

KX45-47 D. L. McDONALD is drift mining and prospecting by himself on No. 10 Above Bench, 2nd Tier, Left Limit on Candle Creek.

SHOVELLING IN

J. MURPHY is shovelling in by himself on a left limit bench opposite No. 7 Above on Candle Creek. KX45-42

J. REDDIN is shovelling in by himself on a left limit bench opposite No. 8 Above on Candle Creek.

PROSPECTING

KX45-53 R. LISSON drilled with a small crew in August on Quartz Creek, a right limit tributary of Keewalkk River.

C. R. PATTERSON prospected on Willow Creek, a small left limit tributary of Candle Creek above Patterson Creek.

KX45-40 Wm. LEAVITT prospected on Gold Run Creek, a left limit tributary of Keewalik River below Quartz Creek.

I N M A C H U K D I S T R I C T

Freight is landed directly from steamers during the open season at Deering at the mouth of the Inmachuck River. A fair gravel road leads 25 miles up this river to the main operations of the district. There is a landing field at Deering and aeroplane service may be had from Nome.

HYDRAULICKING

K-44-32 A. V. CORDOVADO operated on No. 6 Fraction and No. 5 1/2 Below, the largest hydraulic mine in Northern Alaska. There are four No. 2 giants in the pit and two No. 1 giants on the tailings. The gravel is elevated about 40 ft. The elevator has a 4-inch nozzle, a 9-inch throat and a 14x18 inch door. Ten 30x48 inch, 12-ft. boxes are used in the flume. Water is furnished by the 40-mile ditch of the former Fairhaven Water Co. from Imuruk Lake. A full description of this ditch is given on page 257 of U.S.G.S. Water Supply Paper No. 314. The head on the giants is 360 ft. The actual head from the ditch is 560 ft., but as the pipes are too weak to stand this amount, it is cut down 200 ft. The depth to bedrock is from 20 to 25 ft. The ground is thawed and all gravel. The bedrock is schist. The gold lies in the lower 1 ft. of gravel and in the upper 3 ft. of bedrock. The gold is fine in the present pit. In 1928, about 110,000 sq. ft. of bedrock was cleaned and in 1929 about 140,000 sq. ft. Besides himself, 22 men are employed, distributed as follows:- 10 men, including foreman, in pit; 7 men on ditch, 2 men on penstock, one cook and helper and one tractor driver.

K-44-41 D. H. HOOGENDORN is hydraulicking into flume on left limit bench opposite No. 5 Below Hannum. Three 3-inch nozzles are used alternately in the pit and one 3-inch nozzle in the tailings. Seven 14x15 inch - 12 ft.

boxes are used in the flume. The ground is a high channel paralleling the Inmachuck River. Thex average depth is 15 ft. It is all thawed. Many boulders occur and the gravel is fairly coarse. The bedrock is schist. Water is obtained from Adams Lake thru a 2-mile ditch and a 1/2 mile pipe line. The pressure head is about 150 ft. Besides himself, 3 men are employed.

SHOVELLING IN

KX44-147

L. E. BENSON AND JOHN DeBUHR put in a dam and shovelled in on No. 5 Above Discovery on Cunningham Creek during 3 months of the summer. Benson will prospect here in winter of 1929-1930. It is said that the gold recovered was in the form of a new black alloy of gold and iron. CHAS. NICHOL is ground sluicing and shovelling in by himself on Cunningham Creek.

PROSPECTING

KX44-149

THE INMACHUK SUBLAVA MINING CO. (H. L. Stull, president and general manager) is prospecting the old high channel under the lava on the Lucky Dutchman Bench opposite No. 3 Below Pinnell and on the left limit of the Inmachuck River. Most of the work is done in the winter. Besides himself 4 men are employed. An Ingersoll-Rand S. 49 Jackhamer is used in sinking thru the lava. Air is supplied by an Ingersoll-Rand compresser and 10 H.P. Economy distillate engine. The gravel under the lava is from 6 to 16 ft. thick. It is all frozen. The bedrock is schist. 5 shafts, ranging from 203 to 132 ft. deep, and one incline 380 ft. long, have been sunk. It cost about $30.00 a foot to sink shafts and $15.00 a foot to sink inclines. Freight costs $15.00 a ton from Deering.

KX44-149

JOHN De BUHR will prospect under the lava in the winter of 1929-1930 on a right limit bench opposite the Globe Association (Fries' old

camp). He has worked here for the last 4 years.

K O U G A R O K D I S T R I C T

Freight rates, transportation facilities, description of the Kougarok River valley, etc. have been fully given on pages 117 to 120 of the 1926 report of Mr. N. L. Wimmler and will not be gone into here. The freight rate, due to tractor haulage, is now in summer $150.00 a ton from Nome to Taylor P.O. From Nome to Shelton, the rate is $30.00 a ton. From Shelton to Dahl Creek the rate is $30.00 a ton. Aeroplane conveyance may now be had from Nome to the mouth of Henry Creek about 2 miles below Taylor P.O.

HYDRAULICKING

K44-125

H. L. WELLS, R. P. WELLS, CHAS. J. NELSON AND ISADORE FIX are hydraulicking into a flume on Merrit Gulch, a small left limit tributary of Henry Creek near its mouth. Two No. 2 giants with 3-inch nozzles are used in the pit, and one No. 1 giant with a 3-inch nozzle is used in the tailings. The flume is made up of four 14x24-inch 12 ft. boxes with iron stripped wooden riffles. Water is obtained by a 3 1/2 mile section from Lillian Creek, of the ditch of the former Taylor Creek Ditch Co. This ditch is listed and described on page 257 of the U.S.G.S. Water Supply Paper No. 314. From the present end of the ditch a 1500 ft. pipe line, graduated from 20 inches down to 12 inches, leads to the giants. The ground averages about 12 ft. to bedrock. The gravel is 5 ft. thick and is frozen. The 7 ft. above is vegetable muck and ice. The gravel has many inclusions and layers of muck and willow in it. There are many well-water-worn boulders, weighing 50 to 100 pounds, mostly of quartz, in the gravel. The rest of the gravel is mainly composed of well water-worn, rather small pebbles of

schist with occasional angular blocks of the underlying bedrock. The bedrock is a partially decomposed andesitic rock, which weathers at the top of bedrock into small, sharp-angled cubes. 2 or 3 ft. of this bedrock is mined. The gold is found in the lower 3 ft. of gravel and in the upper bedrock. The gold varies from fairly coarse ("pumpkin seed" size) to very fine. Few nuggets are found. The gold is valued at $17.95 an ounce. This deposit is undoubtedly formed by a small stream (larger, however, than the present trickle in Merrit Gulch) cutting a high channel of the Kougarok River. The gold content comes from a reconcentration of this channel. The inclusions of willows and muck in the gravel may represent slides from the channel. A very singular occurence in these gravels, among musk-ox, horse, bison and mammoth bones, some in an almost perfect state of preservation---are stones worked by man. These consist of flat schist boulders about 18x12x6 inches with holes bored in one end; also schist stones about 12x6x5 inches with single or double grooves cut around them. These stones were evidently anchor stones and weights for skin tents. They occur from bedrock to the top of gravel. Tho very ancient, I do not consider them contemporaneous with the bones, but to have been mixed with them by slides. Work was started here in 1927 and 1250 sq. ft. of bedrock cleaned. In 1928, 8000 sq. ft. of bedrock was cleaned and in 1929, 9600 sq. ft. Besides 2 of the owners, 2 other men are employed in this operation.

EMIL LAURIN AND HECTOR LAURIN hydraulicked into a flume on Macklin Creek about 2 miles above the mouth on No. 8 Above Discovery. 2 nozzles are used in the pit and one in the tailings. Water is obtained by a 3 1/2 mile ditch under about a 150 ft. head. The gold is fairly coarse. Besides themselves, 2 men are employed.

K44-74

NICK NICON AND GEORGE BODIS are hydraulicking into a flume on Dick Creek at its confluence with Bryan Creek. There is one nozzle in the pit. Water is obtained by a ~~1x~~ 1 1/2 mile ditch and is delivered under a 35 ft. head. The tailings are stacked by a ~~giant~~ Grant mechanical stacker powered by a small gasoline engine. There is 8 ft. of muck and 3 1/2 ft. of gravel in the creek. The ground is leased from the Inspiration Gold Mining Co. of Pittsburg. Besides themselves, one man is employed.

KX44-78

SHOVELLING IN

HARRY GAVIN is ground sluicing and shovelling in by himself on Harris Creek about 1 mile from the mouth.

KX44-101

H. R. AHRENS is ground sluicing and shovelling in by himself on on Harris Creek about 3/4 mile from its mouth.

JOHN DONOVAN ground sluiced and shovelled in by himself on Willow (or Mascot) Gulch.

KX44-65

GEORGE THOMAS was rocking on the left limit of the Kougarok River about 1/2 mile below Taylor Creek.

KX44-162

JUD. CHIDESTER built a ditch and ground sluiced and rocked by himself on a right limit bench of the Kougarok River opposite Taylor Creek.

ALFRED CARRY AND JOHN KANARI shovelled in on No. 5 Above Discovery on Dahl Creek. Theoverburden is first ground sluiced and piped off, then the gravel and upper bedrock is shovelled into boxes. For ground sluicing and piping a 2 1/2 inch nozzle is used, attached to a canvas hose which is itself attached to a short pipeline. Water is obtained from Dahl Creek by a 1x4 ft., 1 1/2 mile ditch under 20 ft. head. There is 20 to 40 ft. of overburden consisting of muck and ice, and 5 ft. of very fine gravel. There is a clay bedrock. The deposit is all frozen. The gold lies on the bedrock and for about 2 ft. in it. The gold is fairly coarse. It is worth $19.15 an ounce. Besides

KX44-9

themselves, one man is employed.

PAUL RASMUS did a little shovelling in for assessment work on lower Dahl Creek. KX44-16

DR. K. L. GRAVEN ground sluiced and shovelled in by himself on Wonder Gulch. There is about 14 ft. of muck and ice and 3 to 4 ft. of fine gravel. The bedrock is schist. The paystreak is about 60 ft. wide. The gold occurs all thru the gravel but mostly on bedrock. About 1/2 the gold is small nuggets, the rest very coarse (about "rock salt" size). 2400 ft. of bedrock was cleaned in 1929. KX44-83

JERRY SULLIVAN shovelled in by himself on No. 3 Above Discovery on Humbolt Creek, a large left limit tributary of Goodhope River. Claim No. 3 Above is about 3 1/2 miles above the mouth of Ferndale Creek. The ground is about 9 ft. deep and is said to carry very good values. KX44-97

PROSPECTING

THE HENRY CREEK GOLD DREDGING CO. prospected with 5 men and a 4-inch hand drill on lower Henry Creek. If the ground proves up, it is the intention of the company to move dredge of the Behring Dredging Corp. from the mouth of Arizona Creek and dredge Henry Creek.5 men were employed. KX44-165

W. H. SUKSDORF drilled for gold and tin on Humbolt Creek with 6 men and a light 5-inch gasoline drill. Drilling was from about 5 miles below to 5 miles above Ferndale Creek. The ground is thawed and about 18 ft. deep. There is only about 2 ft. of muck, the rest gravel. The pay seems to be in the lower 4 or 5 ft. of gravel. The bedrock is schist. The creek valley averages about 400 ft. wide. If this prospecting is satisfactory, a dredge will be installed on this creek. It is claimed that the ground carries about 3 pounds of cassiterite to the cubic yard. Besides himself, 8 men were employed. KX44-97

HARVEY GRANT AND ISADORE FIX bought out Ed. and Rasmus Jensen on Eagle Draw, a small right limit tributary of Coffee Creek, and prospected by shovelling in. There is about 12 ft. of muck and 4 ft. of gravel. Water is obtained by a 3/4 mile "pick up" ditch from Coffee Dome. The partners intend starting on a production basis in 1930.

CHAS.ROOSEVELT (OLSON) dug a ditch and prospected by himself at the mouth of Eagle Draw on No. 4 Above Bassett's. The claim is optioned from Paul Rasmus.

Wm. SINHOLD prospected in the winter of 1928-1929 on lower Homestake Creek (Jumper Bench). Sinhold, F. Miller and Jerry Sullivan intend opening up a hydraulic operation here in the summer of 1930. They started the dam and ditch in the fall of 1929. They own 7 creek claims and 8 bench claims on this creek.

J. R. SLOAN prospected in the winter of 1928-1929 on Moberg Gulch, a small left limit tributary of Kougarok River opposite Henry Creek.

I R O N C R E E K - A M E R I C A N C R E E K D I S T R I C T

HYDRAULICKING

THE AMERICAN CREEK MINING CO. (Barney Rolando, general manager) is hydraulicking into a flume about 12 miles up from the mouth of American Creek, a right limit tributary of the Niukluk River above Casadepaga River. One 3-inch nozzle is used in the pit and one 2 1/2 inch nozzle in the tailings. Water is obtained by a 5-mile ditch and under a 115 ft. head. 1929 was the first season's work. The ditch and preparatory work was begun in 1926. Freight is hauled from Iron Creek 8 miles by tractor. Besides the manager, 3 men are employed.

ROBT. B. BENSON is hydraulicking by himself into a flume on Benson Creek, a small right limit tributary of Iron Creek.

SHOVELLING IN

GRANT LAIBLIN, GEORGE LAIBLIN AND A. V. CORDOVADO are ground sluicing and shovelling in on Dome Creek (head of Iron Creek) on No. 3 Above Discovery and about 3/4 mile above the canyon. Water is furnished by a 1/2 mile ditch. The ground is 6 to 7 ft. deep in the creek and 12 ft. deep on the benches. It is thawed and all gravel. The gravel is fairly fine, with boulders not over 18 inches in diameter. The bedrock is schist, 6 to 8 inches of which are mined. The gold occurs in the lower 2 or 3 ft. of the gravel and in the top part of the bedrock. The gold is fairly coarse and is worth about $18.60 an ounce. Work was started on July 24, 1929 and stopped on September 8, 1929. Besides one of the partners, one man was employed.

STANLEY HORTON shovelled in by himself on No. 4 Above Discovery on Iron Creek. The ground is about 10 ft. deep and thawed. The pay is in the lower 2 or 3 ft. of gravel.

PROSPECTING

COLMAN GRIFFIN prospected on Sherrette Creek and around Mt. Bendeleben.

P O R T C L A R E N C E D I S T R I C T

The placers of the Port Clarence District fall naturally intwo two divisions---those in which the primary object is the recovery of gold and those in which the primary object is the recovery of tin. There is also some lode mining which will be described separately. Wages in the district are $6.50 a day and board

DIVISION 1 - GOLD PLACERS

DREDGING

N. B. TWEET is moving the old Sunset Creek Dredge from Sunset Creek to Dese Creek. The dredge has been dismantled and partially moved part way. He expects to finish moving it in the winter of 1929-1930.

HYDRAULICKING

N. B. TWEET hydraulicked on Coyote Creek. Water was obtained by a 1/2 mile ditch from the creek. Besides himself, 3 men are employed.

SHOVELLING IN

HANS THORSON shovelled in on Gold Run Creek. Besides himself 3 men are employed.

OLE MARTINSON shovelled in by himself on Gold Run Creek.

HENNING JOHNSON shovelled in by himself on Gold Run Creek.

FISHER BALDRIDGE shovelled in on Windy Creek. Besides himself, one man was employed.

PROSPECTING

B. K. POSTLETHWAITE AND HARRY DOBSON prospected and shovelled in on Budd and Burke Creeks.

DIVISION 2 - TIN PLACERS

SHOVELLING IN

GEORGE WALDHELM shovelled into cars which were then run to the sluice boxes and dumped. The operation is situated on Goodwin Gulch, a tributary of Goodwin Creek which runs in to Lopp Lagoon just east of Lagoon Creek. The ground is leased from H. J. Christensen and Thos. Christensen. Five - 16 inch boxes are used. Water is pumped from a sump by a 25 H.P. Fairbanks-Morse diesel engine. There is also a 1 mile ditch delivering water at a 50 ft. head which is used for ground sluicing when water is available from rains. The depth to bedrock is 4 to 5 ft. The gravel contains many boulders up to 18 inches in diameter and is all thawed. The bedrock is a blocky limestone. The cassiterite generally occurs as a coarse sand, tho pieces up to 6 and 8 inches in diameter are frequently found, especially towards the head of the gulch.

Work was started here in 1926. That production to the season of 1929 was about 71 tons of concentrates. The production in 1928 was 34 tons and in 1929 about 33 tons. The cleaned concentrates assay about 72 percent tin. Besides himself, 13 men are employed. This operation probably will not last over another season. A more detailed description of the creek is given on page 126 of the 1926 report of Mr. N. J. Wimmler.

H. J. CHRISTENSEN AND THOS. CHRISTENSEN shovelled in on Goodwin Gulch above Waldhelm. The ground is about 5 ft. deep and all thawed. There is no overburden. Water is obtained from a sump. The ground is said to run about 45 pounds of cassiterite to the cubic yard. About 2 more seasons work is left on this ground. No men are employed.

K48-4

DUNCAN McLEAN shovelled in on Cape Creek. This is a small gulch running down from Bartell's North Star Lode east of Tin City. Six 12 inch boxes are used. Water is picked up from the creek. The ground is 3 to 4 ft. deep and all thawed. There is no overburden. The bedrock is limestone, in some places schistose. There are few boulders in the gravel. The cassiterite occurs as a coarse sand. 4 1/2 tons were mined in 1928 and about 6 1/2 tons in 1929. About 2250 sq. ft. of bedrock was cleaned. About 5 seasons work is left for this operation. Besides himself, one man is employed.

K43-30

PROSPECTING

J. H. HILL AND R. H. HILL have been prospecting and testing ground by shovelling in on First Chance Gulch, a tributary of Cape Creek, and on Josephine Gulch. In the season of 1930, they expect to build a 1 mile ditch from First Chance Gulch and hydraulic on Josephine Gulch.

K43-30

M. A. DOMINGOS prospected and did assessment work on Iron Creek, a tributary of Sutter Creek, and on Sutter Creek.

K43-17

LY 43-30

T. A. PETERSON had 2 men prospecting and doing assessment work on Tin Creek and Cape Creek.

UNGALIK RIVER - NULATO DISTRICT

There has been no mining done in this district for several years. The proven dredging ground on Bonanza Creek, and, at the mouth of the creek, on the Ungalik River, has been patented and let lie without any more work done on it. This region has great potentialities for dredging and should be thoroly prospected. A more detailed description is given on page 128-129 of the 1926 report of Mr. N. L. Wimmler.