THE CHENA DISTRICT

The Chena District was visited by the writer from September 14-18, 1938, for the purpose of obtaining information on mining and prospecting for the Territorial Department of Mines.

In this report the Chena District is arbitrarily defined as the area drained by the main Chena River from Mascot Creek to Munson Creek. Van Curler's Bar, on the Chena River, one-half mile above the mouth of Shamrock Creek, is about 68 miles east by north from Fairbanks by air, and about 80 miles by winter sled road.

Transportation and Costs

There are two landing fields in the district. One is located at Van Curler's Bar on a low bench on the right limit of the Chena River, and the other is on the tailings of Palmer Creek. The Van Curler's Bar field is 865 feet long by 200 feet wide, and was built mainly with funds supplied by the Alaska Road Commission. The Palmer Creek field is about 1,000 feet long by 175 feet wide, and was built by the miners on the creek. Plane freight rates from Fairbanks to either landing field are $5.00 a hundred pounds, and the passenger rate is $15.00 a person. The charter rate for a four place Stinson plane is $40.00. The winter trail is suitable for dog sled travel after snowfall, and can be traversed by small tractors. There are no regular freight rates for winter hauling by trail. Formerly, when there was an RD 6 Caterpillar tractor in the camp, it could be hired for $50.00 a day, driver and fuel included. Timber is plentiful in most parts of the region. There are no regular prices for wood, but it should cost about $10.00 to $15.00 per cord, depending on hauling conditions.

Population

The summer population usually is between 15 and 20, and consists entirely of miners and prospectors. The winter population is from 7 to 10, and ordinarily includes one or two full time trappers. Some of the prospectors devote part of

their time to trapping, and all of them hunt their own meat. Moose, caribou, bear, wolf and fox usually are moderately plentiful. Grouse and rabbits are scarce at present.

Geography and Geology

The region is one of moderate relief, with ridges and hills that generally are rounded, but are narrow rather than broad or flat topped. The elevation of the Chena River at Van Curler's Bar is about 1,500 feet, and that of the highest nearby hill is slightly over 4,000 feet, according to the U.S.G.S. map of the district. To the east and south, on the divide between the Chena and Salcha Rivers, the country is somewhat more rugged. The smaller creeks have fairly narrow asymmetric valleys and moderately steep sides, while broader valleys and well defined benches at several levels are characteristic of the Chena River and the larger creeks. There is no topographic evidence of glaciation.

Little time was available for geologic observations. The drainage pattern of the country is fairly simple. The Chena River follows the regional strike while the tributary streams generally cut squarely across it. There are no drainage reversals evident, although the several bench levels and the heavier overburden in the lower parts of some of the creeks may be due in part to changes in base level. The Chena River flows nearly on bedrock in several places. The overburden is in general shallow, averaging about 5 to 15 feet in the open cuts, but reaches a depth on lower Hell for Sure Creek stated to be about 60 feet. The muck overburden is not thick. The shallow deposits are mostly thawed, and the deeper ones frozen.

The bedrock on the south side of the Chena consists of soft graphitic schists and dark slates and phyllites, with numerous quartz stringers and veinlets generally following cleavage planes. Its age is given on the U.S.G.S. map as pre-Middle Ordovician. One exposure of siliceous schist was seen on the north bank of the Chena near Van Curler's Bar, which belongs in the pre-Cambrian Birch Creek Schist

according to the map. The writer found it impossible to substantiate this on lithologic grounds alone, as the lithology of the Birch Creek Schist varies rather widely. Greenstone and serpentine (?) is said to outcrop at the head of Teuchet Creek. No greenstone creek wash was seen on the creeks east of Teuchet, where the gravel is mainly quartzite, quartzite schist, and vein quartz, indicating that the basic rocks are local in extent. The Chena River gravels contain quartzite, quartzite schist, greenstone, augen gneiss, and quartz. The bedrock source of some of the rocks may be quite distant.

All of the creeks on the south side of the Chena from Salmonfoot to Teuchet head in the same general area, which apparently is a localized area of mineralization, as all of these creeks carry gold. The creeks on the opposite side of the river for a distance of several miles apparently carry practically no values, indicating that they drain a non-mineralized area. There are other mineralized areas nearby as evidenced by prospects that have been found on Ottertail Creek and on the creeks forming the head of Clums Fork. The large amount of honeycombed, ironstained vein quartz found on Shamrock and Palmer Creeks is worthy of note, as is the occurrence of barite in the gravel of Teuchet Creek but not in adjoining creeks. No known granitic rocks are exposed in this region.

Of the high benches, the highest observed was along the Chena River, where there exist remnants of a bench 125 feet above the river bed. This bench is best seen at the mouth of Quartz Creek, where miners have opened up two small cuts. There is topographic evidence of a bench at the same elevation at several nearby places along the Chena, and possibly on the left limit of Quartz Creek. Where exposed in the cuts, the bedrock is irregular and slopes sharply toward the Chena River. It is overlain by medium coarse, water-worn gravel, and worn shotty gold occurs near and on bedrock. One of the cuts, mined out several years ago, was said to be rich, but the pay extended over only a small area.

The lower benches are generally well defined and exist on the larger creeks and on the Chena River. There is no indication that old channels, not in harmony with the present drainage, exist. The benches, of which the older ones are difficult to recognize, should be taken into account in prospecting this region, as they are in part the immediate source of the gold in the younger creek gravels, and in some cases, notably on Teuchet Creek, may contain richer, better defined placer gold deposits.

Prospecting and Mining

Historical

At present there is less prospecting and mining in the Chena District than in the early days. About 1908 Aaron Van Curler found prospects on what is now known as Van Curler's Bar, or Bedrock Bar. Reports which exaggerated the richness of the strike caused a mild stampede, and it is stated that all the creeks in the vicinity were staked and prospected to some extent. Most of the creeks are said to have yielded prospects, but were not as rich as expected, so the stampede soon dwindled away. Some prospecting and several small mining operations have been carried on since the stampede.

Van Curler mined alone on Van Curler's Bar by shoveling in for about 25 years, Estimates of his production vary from $20,000 to $40,000, but it is probable that the smaller figure is more nearly correct. He diverted the Chena River through an old channel by means of a large wing dam, much of which still stands, and shoveled in from the bed of the river. He also sniped along a low bench on the south bank of the river for a distance of over a quarter mile.

Another mining venture worth mentioning because it was such a complete and costly fiasco was that of Dr. O. M. Owensby of Milford, Kansas. In 1935 he brought in a large amount of equipment, including 18,000 feet of large hydraulic pipe. The intention was to mine on Van Curler's Bar, but operations were switched to Quartz Creek. Neither place had been prospected to any extent, although both had been worked in a small way. The venture failed after an expenditure of at least $50,000

because of a lack of even a rudimentary knowledge of conditions and mining methods. For example, the sluice box riffles were so set in the boxes that no gravel or concentrates, and therefore no gold, could stay under them. Van Curler's Bar probably is too low grade to be workable at present. Quartz Creek would need considerable additional prospecting before its suitability for large scale operations could be determined.

K+50-15 In 1937 C. F. Shield operated a hydraulic plant on Palmer Creek, using a slackline scraper, bulldozer and pump. (Cf. Pyne Creek Min. Co. Placer Card for 1937). The operation was unsuccessful because the ground is unsuited for the equipment used, and because with the wide cuts made, the average tenor of the gravel was very low. The cost of freighting gasoline in by airplane for the Ford V8 driven pump was a not inconsiderable item.

Present Mining and Prospecting

K+50-15 At present there are two small hydraulic operations, one on Palmer Creek and the other on Shamrock K+50-55 Creek, and one small drifting operation on Hell for Sure Creek that appear to be on a relatively permanent basis. The remaining operations are sniping and prospecting and give little promise of leading to anything productive, partly because of the ineffective and desultory manner in which they are prosecuted. They have been reported on individually in the Placer Forms and in the List of Mining Operations in the Chena District for 1938.

No machinery is used in the district, excepting an early model 22 HP Caterpillar gas tractor on Palmer Creek. There are also two drills on this creek, one Kirk-Hillman airplane drill, and one 6" Star drill, neither of which is in use. The operator contemplates bringing in a medium sized diesel bulldozer, for stripping and stacking tailings. Because of the relatively narrow valleys of Shamrock and Palmer Creeks, together with fairly good gradients and at least average water supplies, it is doubtful if larger scale machine operations would pay. The owners make a

moderate living with small investments, and are satisfied. However, another method of stacking tailings than by hydraulic giants could be introduced to advantage, as the tailings must be stacked very high, necessitating the use of an excessive amount of water. On Hell for Sure Creek the spotted nature of the ground apparently prohibits larger scale drifting operations.

The following list summarizes the work done in the Chena District. The data was obtained from the miners in the district, and is not complete.

Creek	Location	Remarks
Mosquito	L. Lim. Chena, above Mascot	Prospects found.
Mascot	L.Lim.Chena R.	Prospects found.
Salmonfoot	" " "	" " , prosp. winter '38-39
Quartz	" " "	Sm. operations 20 yrs. ago, from benches. Now sniping. Never well prospected.
Ohio	" " "	Prospects found
Beal Gulch	" " "	" "
Van Curler's Bar	Chena River	Low grade over wide area. Prod.$20-40,000 by shovel-in. Now sniping on.
Shamrock	L.Lim.Chena R.	Hydraulicking, good small proposition.
Palmer	" " "	" " " "
Hell for Sure	" " "	Drifting, small scale, spotted, deeper than aver
Teuchet	" " "	Prospected approx.10 yrs., low grade in creek, benches little prospected. Prosp.winter '38-3
Blackshell	" " "	Prospects found
Munson K159-25	" " "	Good prospects found, also quartz veins (?)
Montana	R.Lim.Chena R.	No prospects; same for all R.Lim.crks.in vicin
Ottertail	" " "	Prospects & small open cut several yrs. ago
Wolverine	" " ", 20 mi.below Shamrock Cr.	Prospects found, formerly worked
Lawson	Trib. Clums Fork	Prospects found summer '38, and previously
Volcano	" " "	Formerly hydraulicked
Munson	" " "	Prospects found, reported 80¢ pans

Conclusions

The Chena District cannot be regarded as one of the more promising areas for prospecting, as considerable past prospecting has uncovered no very rich deposits. Most of this prospecting, however, was done in the gold rush days when ground which could now be profitably worked was rejected. There has been little prospecting in the last 10 years or more, and the benches have been neglected probably to a greater extent than in other camps. While there is little likelihood of rich strikes being made, there are some indications that moderately large, low grade deposits that are workable, may exist. Teuchet Creek is taken as an example because it is better known to the writer. A magnetometer survey made by the writer in the winter of 1954, and checked by 8 shafts, indicates that there is no definite paystreak in the wide creek valley, but that low grade gravel extends over a large area in the valley. Magnetometer surveys on the left limit bench indicate that there is a concentration more on the order of a paystreak, but no check-shafts were sunk.*

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*Incidentally, I don't own any claims on Teuchet Creek. - H.R.J.

Little geologic work has been done in this region. A survey for the purpose of determining more about its mineral resources should be worthwhile. Such a survey would also serve the purpose of drawing attention to an easily accessible region.

The sled road from Fairbanks is too narrow in several places for tractor freighting, and there is no bridge over the North fork of the Chena River, which usually is open during the winter. A permanent bridge also would make the Chena Hot Springs district more accessible. In view of the present small amount of mining activity, it is doubtful if large expenditures on the road would be justifiable. The landing field at Van Curler's Bar is rough and very short. It is bounded on its eastern end by a bend in the Chena River, and on the west by an old dry slough, 200 feet wide by 3 feet deep. In the event that a bulldozer is brought into the camp

it is recommended that this field be enlarged and the surface improved. Sufficient material could be obtained nearby to fill the old slough. The field could be made wider by cutting the small brush on the north side. A field 1,300 feet long by 250 feet wide could be made for approximately $700, if proper equipment and management were available. This estimate is based on 5,000 cu. yds. of fill at 10¢ per cu. yd.

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