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STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINES AND MINERALS

ITINERARY REPORT ON A TRIP TO THE CHANDALAR DISTRICT, 1959

by

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During July 12 to 21, 1959, I made a trip to the Chandalar District with James A. Williams, Director of the Division of Mines and Minerals, to examine mining operations and to check on the activities of Harry Owen, who was prospecting under the Prospectors Aid Program. My itinerary for the trip was as follows:

- July 12 - We left Fairbanks via Wien Alaska Airlines and arrived at Bettles at 7:30 p m; after a short wait at Bettles, we proceeded via Wien Alaska Airlines to the camp of the Chandalar Mining Co, arriving there at 12 midnight.
- July 13 - We went on foot to Ed Toussaint's mill and prospect near the head of Big Creek, over the ridge to the camp of the Little Squaw Mining Co near the head of Tobin Creek, to Ellis Anderson's workings on Tobin Creek, and back to the Chandalar Mining Co camp.
- July 14 - We spent one-half the day at the mining operations of the Chandalar Mining Co and the other half at Ed Toussaint's mill.
- July 15 - We traveled on foot from the camp of the Chandalar Mining Co to Chandalar Lake, where we spent the night at the hunting and fishing camp operated by Wayne (Red) Adney.
- July 16 - We traveled via Wien Alaska Airlines to Big Lake. James A. Williams proceeded to Bettles, and, after I had visited the mining operation of Fred Pitts on Lake Creek, I traveled on foot around the northwest end of Big Lake to Harry Owen's camp.
- July 17 to 20 - I spent these four days with Harry Owen at Big Lake and vicinity. Our activities during this time will be described in a separate report.
- July 21 - I traveled from Big Lake to Bettles and to Fairbanks via Wien Alaska Airlines.

Chandalar Mining Co.

The Chandalar Mining Co, owned and operated by Hugh Matheson, Jr, was mining on St Mary's Gulch, tributary to Big Creek. The cut being mined was the first cut of the season; it extended 450 feet upstream from the

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mouth of the gulch and averaged 150 feet in width. The maximum depth of the cut was 27 feet, and the average depth was 15 feet.

A D-8 Caterpillar tractor is used for mining and pushing gravel to the wings at the head of the sluice box, and another D-8 is used for stacking tailing. The gravel is washed into the boxes with a nozzle. A TD-8 International tractor fitted with a rock blade is used to push aside boulders that accumulate in front of the wings. A ditch along one side of the cut carried water from the creek in St Mary's Gulch to the head of the sluice box for by-water. Water for the nozzle was being pumped from a pond on Big Creek a short distance upstream from the mouth of St Mary's Gulch.

The sluice box is 40 feet long and is set on a grade of 20 inches per 12-ft length of box. A twelve-foot-long section of transverse riffles at the head of the box is made of steel rails, and the remainder of the box has coco matting held down by expanded steel lath underneath punched steel plates. The punched plates are in 4-ft lengths and are set with their upper ends on the metal lath and their lower ends $2\frac{1}{2}$ to 3 inches above the lath so that the plates form a series of steps in the bottom of the sluice box.

Four men were working in the cut: one on each of the D-8 tractors, one on the nozzle, and one tending the sluice box. Whenever a large pile of boulders accumulated in front of the wings, the nozzleman would push the boulders aside with the TD-8 tractor, and the sluice box tender would run the nozzle keeping the stream of water on the boulders so that they were washed as they were pushed aside. The pump was slowed down while this was done.

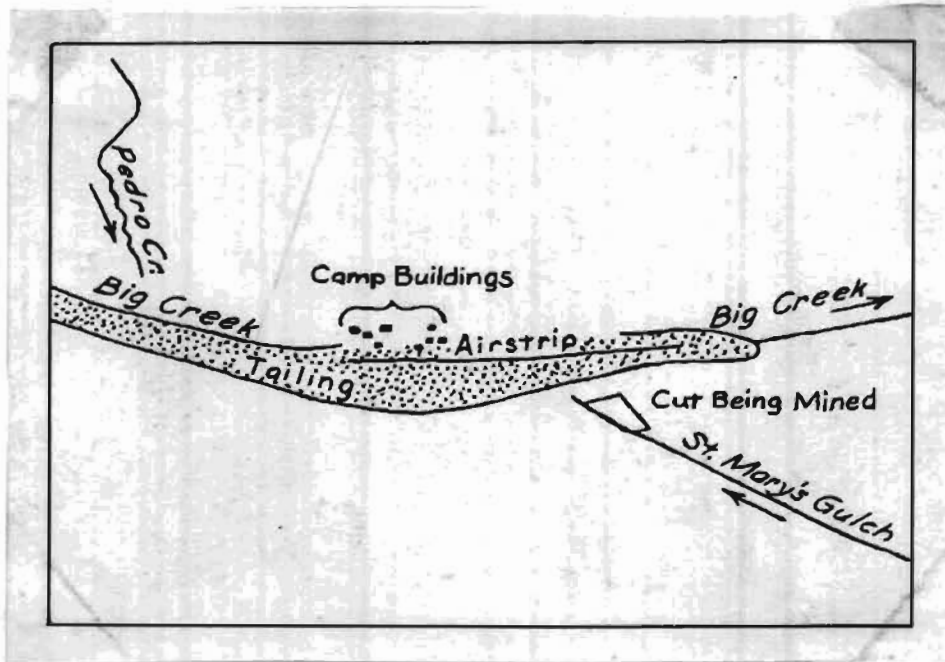


Fig. 1. Workings of the Ghandalar Mining Co.

Ordinarily, two cuts approximately the size of the one being worked constitute one season of mining. In 1959, the second cut, which was started in late July, extended up St Mary's Gulch from the upper end of the first cut to where mining became impractical because of the narrowness of the gulch. The second cut was much smaller than the first; it was finished in late August, and the remainder of the season was spent drilling on Big Creek below the mouth of St Mary's Gulch. Possibly large reserves of minable gravel remain on Big Creek, but additional drilling will be required to determine how far downstream the paystreak extends. Apparently the drilling done in 1959 was somewhat encouraging.

Fuel oil and other supplies for the Chandalar Mining Co are brought in before the Spring break-up in a chartered "flying boxcar" that lands on the ice on Chandalar Lake. The freight is then hauled 10 miles by tractor and sled to the site of the mining operations. Some house trailers have been taken into the district in this manner for use as camp buildings.

Ed Toussaint's Lode Prospect.

Ted Leppala and one helper were working in the adit on the Summit Claim. The portal to the adit is near the saddle between Big Creek and Little Squaw Creek at approximately 4600 feet altitude. In July the adit was in 100 feet; the vein at the face was 40 inches wide, but this included a horse of schist country rock 10 to 12 inches wide near the center of the vein. The slope of the hill above the adit is not steep, and there is not much back over the adit. An ore-shoot has been discovered at the vein outcrop, and the adit was being driven in anticipation of intersecting the ore-shoot. In the Fall of 1959, Ted Leppala reported that the ore-

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shoot had been intersected.

At the portal there was a Joy loader of the rocker-shovel type that had not yet been assembled. There was also a portable Chicago Pneumatic compressor and an air-drill that was designed for use without water. Rock cuttings from the drill bit were intended to be carried to a separate portable tank by a stream of air, but apparently the rock contained too much moisture for the drill to work properly. Later in the summer, accessory equipment was purchased for converting the drill to operate as a conventional wet machine, and it was reported that the drill then worked satisfactorily.



Fig. 2. Jaw Crusher and Ore-Trailer at Toussaint's Mill.

Toussaint's mill was built in an excavation in the bank beside Big Creek. Fig. 3 is a flow-sheet of the mill. Power for the mill is furnished by a diesel-electric generator. The Fahrenwald gyratory crusher

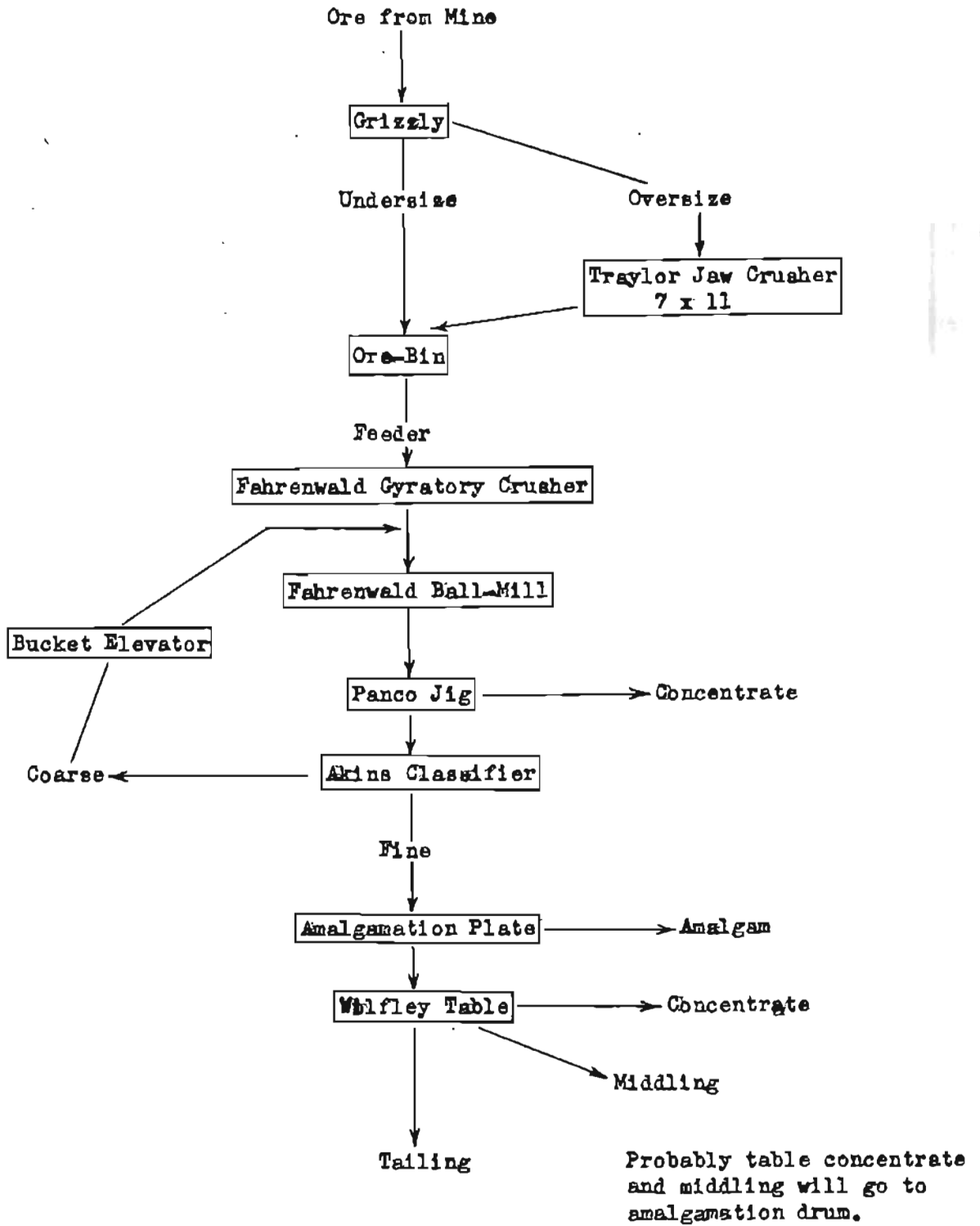


Fig. 3. Flow-sheet of Toussaint's Mill.



Fig. 4. Toussaint's Camp and Airstrip Looking South from the Head of Big Creek.



Fig. 5. Road from Head of Big Creek to Portal on Summit Claim. shows approximate location of portal.

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is run by a 1-HP electric motor, and the Fahrenwald ball-mill is run by a 7½-HP electric motor. The mill is a cylindrical ball-mill with the axis of the cylinder being vertical. The cylinder does not revolve, but is given a gyratory motion by an eccentric that moves in a horizontal plane. Ore is fed in at the top and is ground by impact of the balls, which are kept in motion by the gyratory movement of the mill. The ore discharges through a screen in the side of the cylinder a few inches above the bottom. The mill does not have liners; apparently the shell can be replaced as readily and as cheaply as liners could be. After the season's work had been completed, however, the shell showed an excessive amount of wear after only a few tons had been milled, according to Ted Leppala. Further changes may be required before the mill can be operated continuously.

Little Squaw Mining Co.

Frank Birch, mining contractor from Spokane, was working on the Mikado Lode at the head of Tobin Creek for the Little Squaw Mining Co. He had *Kk 31-12* one man, Bob Nussbaum, helping him. On July 13, they were still removing ice from the adit and had not yet begun to drive any additional workings. They had a compressor, rock-drill, loading machine, and an ore-car ready for use.

Ellis Anderson.

Ellis Anderson was mining on Tobin Creek three miles downstream from the Mikado Lode. He uses a wooden flume to carry water to his sluice box and also has a flume extending downstream from the lower end of the box to carry away the tailing. He shovels into the sluice box by hand, *Kk 31-45*



Fig. 6. Ellie Anderson's Workings.

and throws the boulders to the sides of the cut. The cut is approximately 12 feet wide and 6 feet deep.

Fred Pitts.

Fred Pitts is working on the left limit of Lake Creek. By hydraulicking and ground-slucing he is prospecting in hope of finding a paystreak.

Lake Creek had a rich paystreak at its lower end that apparently ended abruptly about one-eighth mile from its mouth. There was some mining done on the upper part of Lake Creek, but according to Fred Pitts; there is

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Fig. 7. Fred Pitts' Workings. Trench in bedrock shown in center of photograph. Lake Creek runs from left to right in foreground.

little or no pay between the paystreak at the lower end of the creek and the mined-out area near the head of the creek. On the left limit of Lake Creek there is a bench that is 75 to 100 feet above the creek with a rather steep slope between the side of the bench and the creek. In the bedrock underlying this slope, Fred has found several narrow, water-cut trenches in which there are pockets containing appreciable amounts of gold. The trenches were cut transverse to the present direction of flow of Lake Creek, and apparently they were cut along fractures or other planes of weakness in the rock. The trenches commonly are only a foot or so in width at the bottom, and the sides of the trenches tend to parallel each other, dipping at an angle as though they were following parallel fracture planes. The gold in the trenches and in the lower part of Lake Creek

may have come from a channel on the bench. By stripping into the bench toward the heads of the trenches, Fred should find such a channel, if it is there.

Paul Carr stopped at Pitts' while I was there. He was prospecting on Bore Creek, tributary to Glacier Creek. Primarily, he was searching for placer gold, and he reported that he had not yet made any discovery of economic importance.

A. W. Amero was reported to be prospecting on the East Fork of Chandalar River.