

PLACER MINING at DAWSON, Yukon Territory.

It was a motley crowd who were dumped on the beaches of Dyea and Skagway in the spring of 1898. They had come from many countries and represented many ranks of life. Oxford dons packed side by side with clerks, farmers and beachcombers. They had one common heritage, membership in the Legion which Kipling extolled so highly, the Legion that never was listed, that carries no colors nor crest but split in a thousand directions has opened the way for the rest.

Many of the thirty thousand adventurers packed their outfits, approximately twenty-five hundred pounds, from tidewater to Lake Bennett, the head of navigable water in the Yukon River. The packs ranged from fifty to one hundred pounds, the weight being adjusted to the calibre of the men. The transfer took approximately seventy days of grueling work under wretched conditions. But the North was calling and at the moment the call was a compelling one.

At the Lake they whip-sawed lumber and built ten thousand boats. That spring the ice left Lake Bennett on May 31st. On June 1st the majority of the boats were launched, loaded and started on their way. During the day the lake was dotted with units of the flotilla. A few were wrecked at Whitehorse Rapids, a treacherous stretch of water, but the majority of the voyageurs reached the promised land without undue misadventures.

On arrival they had a wonderful opportunity, an opportunity to play a part in the affairs of one of the greatest placer mining camps the world has known. Unfortunately, few of the cheechakos were constituted to take advantage of the opportunity. During the summer Dawson was a scene of great confusion. Many had come with the firm conviction that gold could

be gathered with little effort. When they found that digging for it in a land of permafrost called for strenuous labor and that all the creeks which were known to have rich deposits had already been staked they were completely disillusioned. Thousands sold their outfits for whatever they could get and returned to a mode of life more suited to their temperaments. Others, made of sterner stuff, struggled for a foothold in the new land and for a share of the gold for which they had striven so gallantly.

Placer mining in the Yukon at that time presented many problems. The Dawson area was the first to be exploited on a large scale and those who developed it were the pioneers of the industry. The first essential was a shaft through the frozen glacial muck which overlays practically all the gold bearing gravel in the area. This varies from twenty to fifty feet in depth. Picking such a shaft was a baffling undertaking. For the purpose the point of the pick should be specially shaped and tempered. For an amateur even with the proper tools this is extremely difficult. With the equipment then generally available, a claw hammer and a wood-fired stove to heat the steel, lacking an anvil on wheels to hammer it into shape, it taxed the ingenuity of the most capable. In some locations the muck was impregnated with sand and had some of the characteristics of a grindstone and the pick required blacksmithing frequently.

The first gold mined in the Dawson area was won from gravel thawed with wood fires. That was a slow and tedious process. Hoisting the spoil with old-fashioned windlasses which were facetiously called "Armstrong Hoists" was another tedious chore.

By trial and error, the hard way, more efficient methods were gradually evolved. Finally the operators thawed the shafts with steam through a pipe driven to bedrock. In twenty-four hours a round shaft of sufficient width to permit the passage of the hoisting bucket would be

thawed. They thawed the gravel and bedrock with steam through a battery of points, pieces of pipe six to eight feet in length which were driven into the face of the drifts. The steam would work back to the face and gradually thaw the entire block. With steam maintained at a pressure of one hundred pounds each point would thaw approximately three cubic yards in a ten hour shift.

Thawing with steam was suggested by a simple incident. Many operators used a length of hose with a piece of pipe attached to clear the soot which gathered in the flues of the boilers and lessened their efficiency. On one occasion this useful piece of equipment was lying outside the boiler room. Steam, leaking through a valve which hadn't been completely closed, passed through the hose and pipe and thawed a passage through the overburden and a goodly portion of the underlying gravel. From this the thawing points of yesteryear were evolved. The final product was a section of xxx hydraulic pipe with a welded steel point and driving head with a nipple to which the steam hose was attached and they were driven with sledge hammers.

The thawed pay dirt was hoisted with steam-driven, carrier-borne, self-dumping buckets with a capacity of three wheelbarrows. It was washed with water furnished by a pump which delivered a sluiceway, thirty-two miner's inches, at an elevation which allowed a free flow for the tailings. With such equipment twelve men could thaw, mine, hoist and sluice fifteen cubic yards in a shift of ten hours. That was the maximum in drifting achieved by the individual operators. Six shovel hands, as they were called, did the mining. This necessitated each trundling a wheelbarrow to the face of the drift, a maximum of seventy-five feet, picking sufficient gravel and bedrock loose, shovelling it into the barrow, wheeling it to the shaft and

dumping the contents into the bucket in six minutes. Ten such loads an hour was the quota for each miner. It was gruelling work, but it was done on many claims ten hours a day and seven days a week during the operating season.

No accurate record was kept of the production by the individual operators. The figures published by the Territorial Government based on the royalty collected are misleading. In the early days millions of ounces were mined on which no royalty was paid. The considered opinion of many who did the mining is that the recovery approximated two hundred million dollars. All of which was valued at \$20.67 per fine ounce.

The success of the individual operators depended entirely on a high productivity of labor. When the Canadian Klondike Mining Company Ltd. and the Yukon Gold Company launched their dredging programs they furnished a field where much less was expected from the employees. Men would no longer work in the drifts as they had formerly. The era of mining successfully with picks, shovels and wheelbarrows was ended.

Some of the larger dredges which, prior to the advent of the union in Dawson, were operated by a crew of twelve, dug and washed fifteen cubic yards in an operating minute, having increased the productivity of the men as compared to the pick and shovel method, six hundred fold. Many claims which had been considered worthless because the gold content did not warrant mining by the earlier method became gilt-edged property with the coming of the dredges.

Dredging in the Yukon entails three distinct operations. First the overburden is sluiced with water under pressure. Ten thousand gallons per minute is applied through hydraulic giants at a pressure of eighty pounds at the nozzle. When thawed the greater portion flows away in suspension.

Then the exposed gravel and underlying bedrock are thawed. A plant of approximately two thousand points is installed. These are spaced sixteen feet apart, driven through the gravel and a short distance into bedrock.

Through them a further volume of ten thousand gallons per minute is pumped. The flow of the water downstream thaws the ground.

Then a dredge moving along in its pond with the digging ladder in front, the washing and gold saving devices in the center, and an endless belt stacking the tailings at the stern, reaps the golden harvest.

The Yukon Gold Company operated eleven dredges in the Dawson area. It dredged 48,914,321 cubic yards and recovered \$ 25,127,956.44

The Yukon Consolidated Gold Corporation Limited and its predecessors in title, The Canadian Klondike Mining Co. Ltd., The Dominion Mining Co. Ltd. and the Big Creek Mining Co. Ltd., operated twelve dredges, dredged 266,662,088 cubic yards and recovered \$ 59,730,598.34

The above companies also carried on hydraulic operations, sluiced 38,104,741 cubic yards and recovered \$ 6,884,364.33

Gold in the greater portion of the above recoveries was valued at \$20.67 per fine ounce.

The Yukon Consolidated Gold Corporation Limited is still operating six dredges and carrying on hydraulic operations. During many months of the operating season which extends from May 1st until late November it mines, melts and ships to the Royal Canadian Mint in Ottawa a quarter of a ton of gold.

It also operates a power plant which harnesses the water in the Klondike River. In 1909 when the plant was installed it was, I believe, the most Northerly hydro-electric plant in the world. Many thought it would be unable to function during the winter when the thermometer occasionally registers seventy degrees below zero. It has, however, continued almost without intermission. The only serious lapses in service have been caused by leaks in the lower bank of the canal which conveys the water from the river to the plant. All of these were quickly repaired. During the fifty-one years it has been in operation it has delivered power at the

step-down transformers at a cost of four mills per K.W.H., a record seldom equalled by any such plant whether great or small. It furnishes power to the City of Dawson as well as to all the Company's operations.

This inexpensive power has been a major factor in enabling the Company to continue mining gold at a profit, notwithstanding the continued increase in wages and the cost of supplies and services.



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