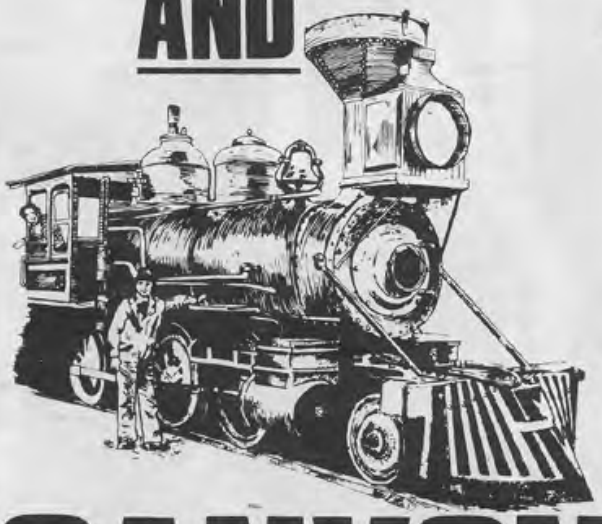
STEEL RAILS AND CANYON WALLS



The building of the Canadian Pacific Railroad through the treacherous Fraser Canyon, "one of the worst places in the world," was an epic achievement of hand labor at the cost of countless lives.

LEIGH GORDON

This is the first in a series of railroad articles being researched and written by historian Leigh Gordon exclusively for *Canadian West* magazine. The February, 1986 issue will feature an article on the WHITE PASS and YUKON RAILROAD.

CPR masonry wall three miles west of North Bend in the Fraser Canyon.

THE canyon of the Fraser River, in southwestern British Columbia, was a horrendous and indomitable foe for any railroad builder to attack. Yet the Government of Canada did just that. Politically motivated, and with a gross underestimation of the canyon problems to be met, the Government selected the route and, in 1879, awarded a contract for the construction of a railroad through the chasm. Incredibly the track was laid—but it took thousands of men four years to complete the first 50 miles.

Simon Fraser the explorer, who had traversed the formidable and hazardous route twice in 1808, described it as a place, " . . . where no man should venture." Eighty years later, with the benefit of hindsight and after travelling the course several times in his private car, William Cornelius Van Horne, the builder of Canadian Pacific's transcontinental railroad (and whose company had inherited the route through the Canyon), observed, "If the CPR had had control of the British Columbia section . . . we would have found ways to circumvent the canyon," which he later described as " . . . one of the worst places in the world."

Because of the well recorded political infighting it was a small miracle that the Government ever built the railroad and retained British Columbia as a part of Canada. Premier John A. Macdonald promised to build a railway to connect the Colony to central Canada if it would join Confederation. B.C. did its part and joined in 1871, but years were passing without any evidence of the Government keeping faith. The western province was riled and was making plans to secede to the United States.

When Alexander McKenzie became premier he resented inheriting the problem of financing the railroad and of continuing Macdonald's project. However, B.C.'s furor and its possible defection became too great a situation for him to ignore. Possibly as a sop to pacify the Westerners, he ordered 5,000 tons of steel rails from England. These were delivered by a sailing vessel to Esquimalt and then carried by a paddlewheel steamer to Emory, a short distance below Yale, where they were put ashore. At the time there were no arrangements whatever for laying the rails.

For four years the rails laid rusting at Emory. Their delivery had not lessened the new province's dissatisfaction with the Federal Government. During this time Macdonald had been returned to power but political bickering and inaction continued. Then, as British Columbia was actually on the verge of secession, Macdonald signed a contract with Andrew Onderdonk to build the Fraser Canyon route. When Onderdonk started work and the rusty rails were actually about to be used, the western agitation was quelled with the effect that by this action, British Columbia was saved as a part of Canada.

For this work Onderdonk was the right man at the right time. Well backed by the California millionaire Darius Ogden Mills and a syndicate of means, the engineer had come to Ottawa to bid directly for the contracts. Charles Tupper, Macdonald's Minister of Railways who had had his fill of underfinanced contractors in the East, was pleased to see that Onderdonk would be the contractor to build the rail from Emory to Savonna on the Thompson River, a distance of 128 miles, for $9,167,040.

Andrew Onderdonk, only 32, had just finished building the great sea wall and ferry slips at San Francisco. He had come for an old New York family that had a historical background. A Dutch ancestor, Adrian van der Donk, had sailed up the Hudson River in 1672. His mother was pure English from Boston. Tall and handsome, with an always neatly trimmed beard and moustache, he was a flawless man with an impeccable reputation. He was a gentleman in every way, always neat, well dressed and courteous. In fact, even in the wild western canyon he was always

Andrew Onderdonk

dressed as if he were still in New York City, and he maintained his lifestyle similarly. A well trained engineer, he commanded so much respect that many laborers often tipped their hats when he passed by.

Early in February 1880 Onderdonk arrived at Yale and immediately by horseback he reconnoitered the route of his contract through the canyon. What he saw must have depressed him for there seemed to be scarcely an "inch" of the roadbed that could be built without costly blasting—simultaneously detonating his potential for profit. This route had been surveyed by Walter Moberly in 1879 but he had not recommended it as the best—and Onderdonk must have agreed. But the young contractor was not dismayed. He knew that engineering could conquer any physical problem—at a price and he immediately set to work to initiate his logistics.

Yale, the one-time boom town of the old gold rushes which would be his headquarters, was at this time only the southern terminus of the Cariboo Stage routes that connected with the paddlewheel riverboats. These sailed to New Westminster and Victoria (Vancouver would not be created until six years later). The former gold-rush village of Emory, just south of Yale, would be the start of construction and would house construction camps. Soon Emory would boast two hotels, nine saloons, a brewery and a newspaper published by Michael Hagan. A black Irishman, Hagan had brought the historic old Demers printing press down from Barkerville. This press had printed newspapers in Victoria as early as 1856. Hagan moved his press to Yale when it later became the center of activity and eventually to Kamloops in 1884.

Yale became a scene of building commotion even before the railroad laborers arrived. Here too cooking and boarding facilities for laborers were constructed. Onderdonk built a comfortable home for his family, and also a small hospital that his wife capably supervised. Above town he built large engine and repair shops capable of building railway cars. The *Eva*, Onderdonk's private railway coach, was constructed here.

At Texas Creek, a little below Emory, Onderdonk built a sawmill to cut the timbers for the endless number of trestles that would have to be built. He also built a nitroglycerine storage building and a dynamite blasting powder factory. For this 16 men were employed who turned out about 1,200 pounds per day of top quality explosive.

During May the first of the two locomotives ordered by Onderdonk, arrived. The first was the *Yale*, a 2-2-0 built in San Francisco in 1869 which had worked on the Virginia and Truckee Railroad under the name of *Storey*. The second locomotive the *Emory*, to be known

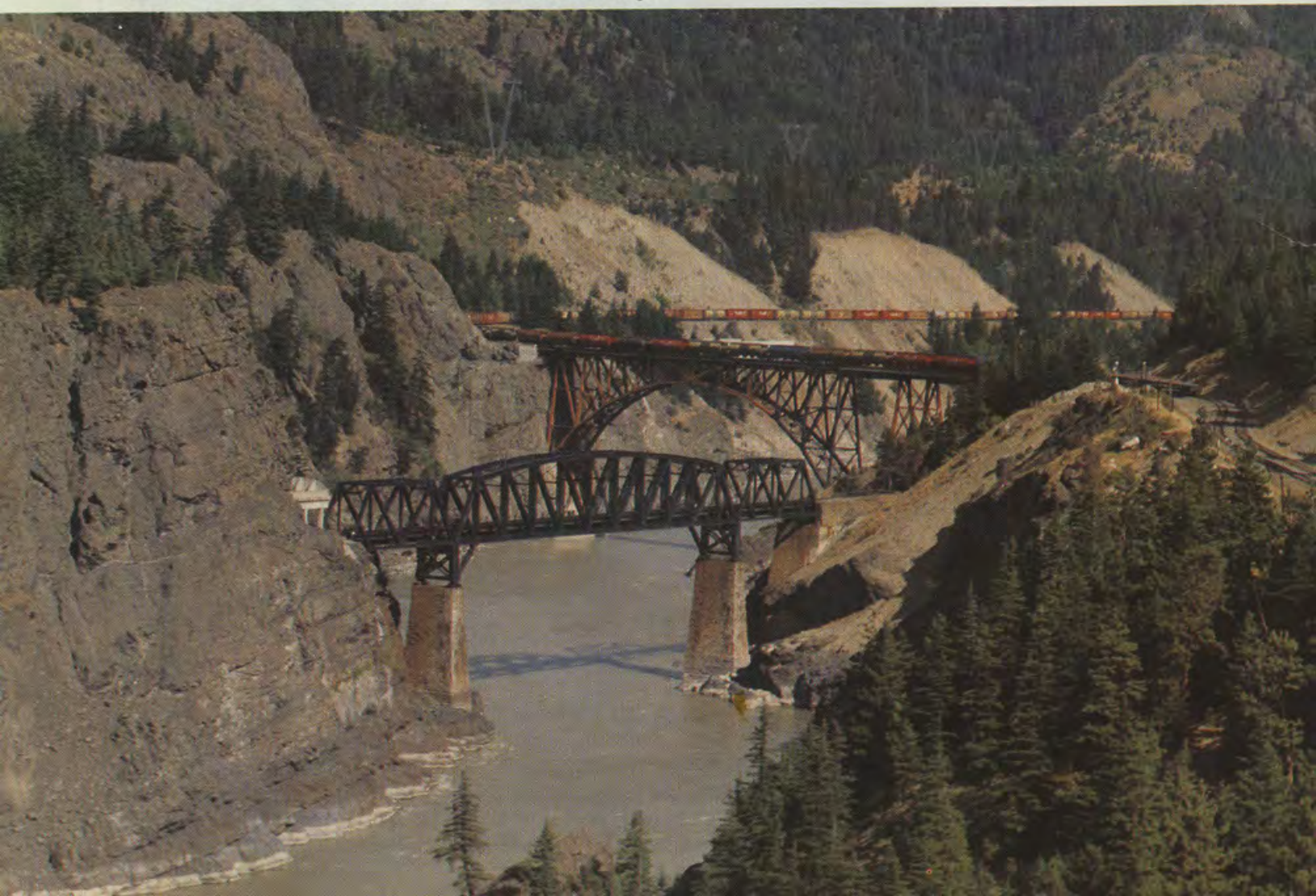
later as the *Curly,* arrived in July. It was destined to become a historic British Columbia locomotive.

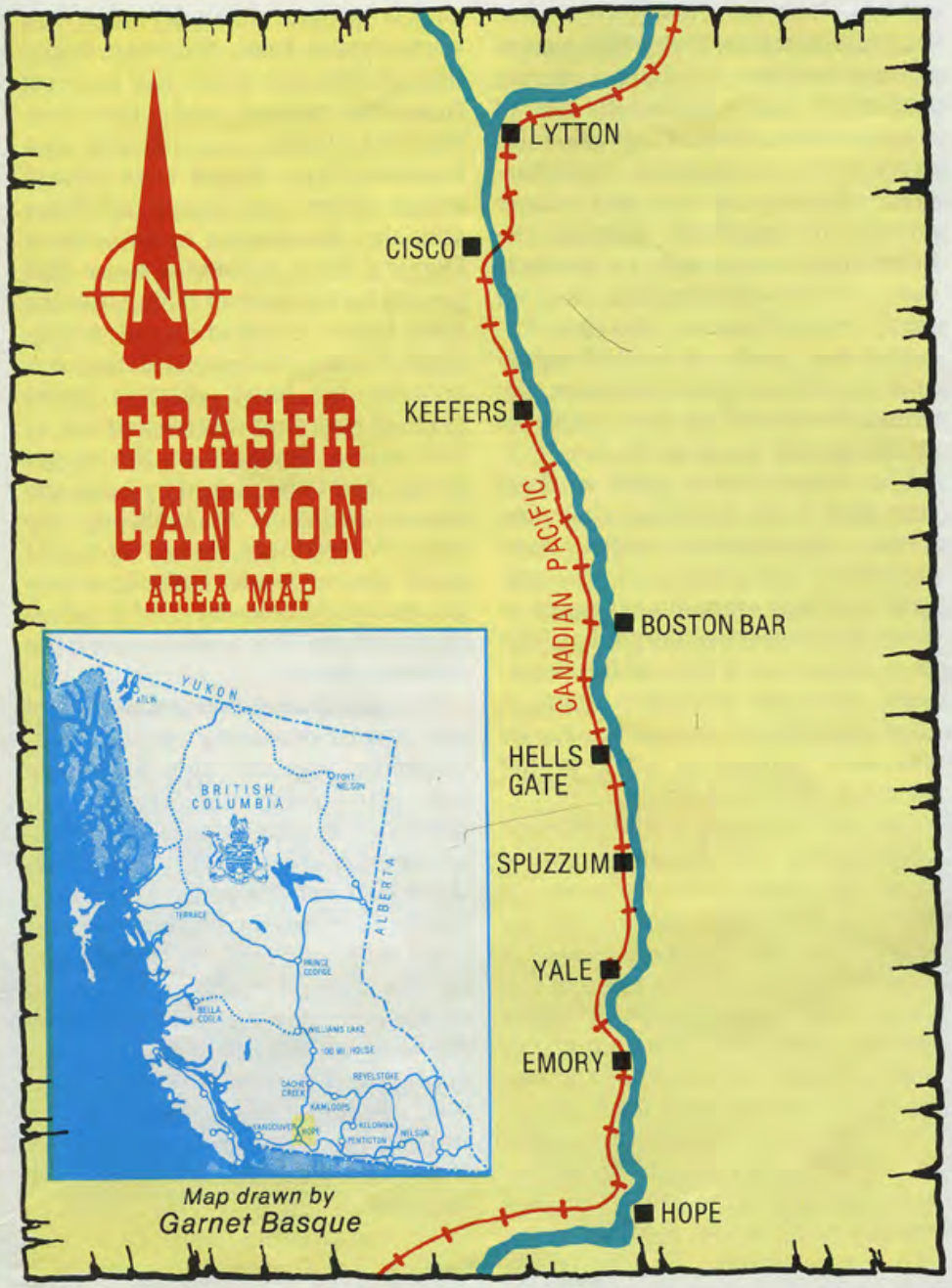
Curly was another 2-2-0 with a saddle tank atop its boiler. Onderdonk had used it in his San Francisco sea-wall construction. *Old Curly* apparently received its name a few years later while being used at Port Moody, when suddenly, all on its own, it started to move. A workman in the way was knocked off his feet by the moving and puffing giant. As the man looked up at the engine with its smoke curling upwards, he swore loudly beginning with, "You curly . . . !" The name stuck.

After its railroad career was over *Curly* was sold to the Royal City Mills. They removed the saddle and added a bunker supported by a four-wheel truck. It was then used for logging in Surrey for 50 years. In 1930 the locomotive was placed on exhibition at Hastings Park in Vancouver—where it was allowed to rust and to become a decrepit exhibit.

Three brand new Philadelphia

(Above) The CPR cantilever bridge crossing the Fraser River at Cisco. This was the first cantilever bridge in North America.
(Below) Railroad bridges at the site of Cisco in August 1985. The black bridge in foreground sits on the original piers of the cantilever bridge shown above. The original cantilever is still in daily use on Vancouver Island, where it was re-erected. Second bridge is the CNR bridge.





Construction on the CPR main line c1881-85. This view is Chinatown at Keefers Station near Yale.

made Baldwin 4-4-0 locomotives were added by Onderdonk in 1883. They were: No. 7, the *Kamloops*, No. 8, the *Shuswap*, and No. 9 the *Columbia*. All of these were wood burners with the wide-topped smokestacks. Although all of Onderdonk's mobile equipment bore the name of the Canadian Pacific Railway, it did not belong to them. The corporate company was not formed until 1881 and did not take over from Onderdonk until July 1886.

A major problem had to be solved before construction through the Fraser Canyon could begin—finding the manpower. At that time there were only about 35,000 white citizens in the province. Allowing for turnovers, the contractor would need some 10,000 laborers. On his arrival Onderdonk had sent telegrams all along the Pacific Coast to San Francisco seeking workers. He was hoping to find experienced men who had worked on the American railroads, but only a few tradesmen were found. Most of the American whites proved unsatisfactory and were sent back. But some Chinese who had worked on the Central Pacific construction were available.

Hiring Chinese laborers to work in British Columbia created a very serious problem. Because the Chinese worked for very low wages, the white population was very antagonistic towards them. The provincial government therefore advised Onderdonk not to hire them. But Onderdonk had no option. He hired them anyhow, telling Victoria, "No Chinese—no railroad." However Onderdonk did agree to give white men preference whenever possible—and they did get the better jobs.

Kong On Loo, a Chinese millionaire labor agent in San Francisco, received the contract to supply coolie laborers. The first group to arrive had gained experience on the Northern Pacific Railway in Oregon. Early in 1881 a second group of workers came from the Southern Pacific in California. These workers were too few in number, however, and Onderdonk realized he would have to import men from Asia. In 1881, '82 and '83, boatload after boatload brought in Chinese workers by the thousands. Most

came from Canton and Kwangtun province, but all were eager to come.

At home the Chinese were mostly tea bearers or laborers who had been receiving a pay of 7¢ per day. On the railroad they would receive $1 or more per day. They dreamed of saving $300 so they could return to China independently wealthy. Since they all regarded their journey to America as only temporary, they did not bother to learn the language.

To get to America the Asian coolies were hired by agents for a fee. These agents also advanced them their passage. These costs would then be repaid from their wages as they worked. The Orientals worked in well organized gangs of 30 plus two cooks and a "bookman." Normally the bookman was the interpreter for the group and handled all financial matters. After paying all expenses for food, clothing, etc., he would distribute the wages to the men. Each gang also had a white overseer. If he was too abusive, as often happened, the Chinese would attack him *en masse*, threatening his life. Usually the white boss would concede quite quickly.

The Chinese dressed much like the whites with broad-brimmed hats to avoid sunstroke, shirts and dungaree pants. There was one true Oriental difference however, their queues. These were worn hanging down the back, over the shoulder or sometimes curled up inside their hats.

The Chinese lived in encampments of tents or in log cabins of their own building. Besides the habitation quarters, there would be, for each gang, a food tent and a gaming tent. It appeared that most of the Chinese were inveterate gamblers. Because of this vice, many losers were unable to return home after the construction was completed. They also smoked opium. Attempts were made to discourage this habit, but failed. The Orientals could not understand why there were any objections for, after all, it was the British who had taught them to use opium.

Living entirely to themselves, the Celestials, as they were commonly called at that time, ate only rice and some imported food. There was a serious lack of fresh meat and vegetables in their diet which caused a large number of Chinese, during the construction years, to die of scurvy and beri-beri. They were also more prone to smallpox. Two hundred died during the first winter alone. To complicate matters, the hospital could care only for accident cases, which claimed the lives of many more Chinese. However, because the white overseers rarely kept records of fatal accidents, the actual death toll as the results of accidents will never be known.

The Chinese were good workers and, had it not been for their low wages, bankruptcy might have prevented completion of the railroad. Yet they were always ready to strike if they were underpaid as little as a penny, or if the whites interfered with their cultural customs. A good example of one such instance was their refusal to work in the presence of a dead man.

On this occasion 2,000 Chinese were sitting idle because one of them had fallen over an embankment to his death where he lay visible on the rocks below. It appeared impossible to remove the corpse from either above or below and the whites were in a quandry. A nearby Indian said he would remove the body for the very high fee of $10. The contractor could not afford to have so many men idle, so the fee was agreed upon. The Indian lowered some stolen dynamite caps with a slow burning fuse down the deep slope and blew the body into extinction. The Chinese returned to work.

At the peak of employment in 1884, when there was active construction along the route from Port Moody to Savona, Onderdonk had a full working force (known as Onderdonk's Lambs), of about 9,000 men—6,500 Chinese and 2,500 whites. In all he had employed 8,083 Chinese.

The working day was 10 hours and payment was by the day. The wages for whites varied between $3 and $4 for rock and bridge foreman; first class carpenters $2.50; stonemasons up to $3.50 and down to white laborers at $1.50 and $1.75 per day.

The road construction through the canyon proper, about 50 miles, was a nightmare from the very beginning at Yale. The grade had to be cut from the narrow and often nonexistent ledge just above the foaming river. Rocks were always rolling down from above and there was also the danger of snowslides. Dodging these was made more dangerous by the ease of falling into the river below. Some men did drown. Here, the roadbed construction was actually by hand. Almost every piece of rock that was blasted out, or that rolled down from the slopes above, had to be picked by hand and placed over-side to build up the edge. Where there was dirt it meant hand shovel work. Only in a few places could horses be used in actual construction. This was the work the Chinese did.

The precipitous canyon walls and the ever repeating rocky outcroppings was not only expensive but also very dangerous construction. In places men were suspended by ropes 200 feet down sheer rock canyon walls. There they had to bore holes with hammer and hand drills and tamp in the powder for the dynamite blasts. To escape explosions the men had to clamber upwards in incredible haste. Here many found it safer to work in bare feet. Falling rock, breaking or slipping ropes and premature blasts were deadly hazards and each took their toll.

To add to the difficulties, the Cariboo Road below had to be kept open. Later, when trains could take traffic through the canyon, the road became closed despite efforts to keep it open.

The rock outcroppings meant tunnels and trestles. Four tunnels had to be blasted within four miles of Yale. A-mile-and-a-half farther along six more tunnels were needed. Still another three had to be cut before reaching Spuzzum near the site of the Alexandra bridge. While the roadbed was normally 17 feet wide, in the tunnels it was 22 feet. In this area there were 15 tunnels in all. It took 18 months to cut the first four tunnels alone.

The Hell's Gate Tunnel, called the Big Tunnel, which was 1,600 feet long, gave Onderdonk the greatest difficulty. It was the scene of many

tragedies. Like the other tunnels, it could only be cut at the rate of six feet per day. On Friday, November 10, 1882, the east end of the tunnel was completely blocked by a rock slide. It was hoped that the tunnel could be cleared in weeks—but it took months as more rock slides kept coming down on the Chinese workers. The way was not cleared until April 12, 1883.

When building the Big Tunnel, Onderdonk was quick to pioneer a new scientific communications device—the telephone patented by Alexander Graham Bell only seven years previously. At this time there were no telephone "lines" in the province—that is a line that could serve several phone sets. In Victoria there were a few sets, but they were like "intercoms," connecting only one phone to another.

At the time Robert McMicking, the Victoria City electrician, held the agency for the Bell telephones, but he had sold none in the previous two years. Onderdonk hired McMicking to build for him the first multiple telephone line in the province. The line extended from Onderdonk's home over 15 miles to the Big Tunnel at Spuzzum, with other phones along the way.

It was this service that led to the formation of the Port Moody-New Westminster Telephone Company, a progenitor of the British Columbia Telephone Company. It can reasonably be said that this great company was a "spinoff" benefit derived from the construction of the railway in the Fraser Canyon.

Elsewhere construction had been proceeding slowly and dangerously. The main reason was the continuous blasting. The first blast had been made on May 14, 1880. After that they were daily events. Scarcely two weeks after the first blast came the first disaster in No. 1 Tunnel at Yale. Three blasts had been set and when the explosion came it was thought that the three had blown simultaneously. That had not happened—the delayed detonation killed one and severely injure two others. Not counting some Chinese, 32 men died during the first 19 miles of the road alone.

From Yale to Cisco there was scarcely any place where a rail could be laid without some previous blasting or cribbing. Also the road had many very sharp curves, some in excess of the four degrees allowable. In addition to the tunnels, over 600 trestles and bridges were needed to avoid impossible curves. These required over 40 million board feet of lumber. Building these were facilitated when Onderdonk

Cariboo Joe's Tunnel, CPR, in the Fraser Canyon. Note the masonry walls.

hired Michael Haney from the CPR. Haney's foremost contribution was to pre-fabricate trestles at the sawmill and assemble them at the site—which meant a considerable cost saving.

Many of the early trestles were of the notorious "grasshopper" type. Of these the outer posts might be very long to extend down the slope, while inner upper legs were short, not unlike a grasshopper's forelegs. These did not prove very satisfactory and most were replaced by walls of masonry. For this Onderdonk imported stone masons from Scotland. They were well paid and their work was excellent, much of it still in use. They also built the tall piers for the bridge across the Fraser at Cisco. They used granite from Hell's Gate with some slabs weighing over a ton.

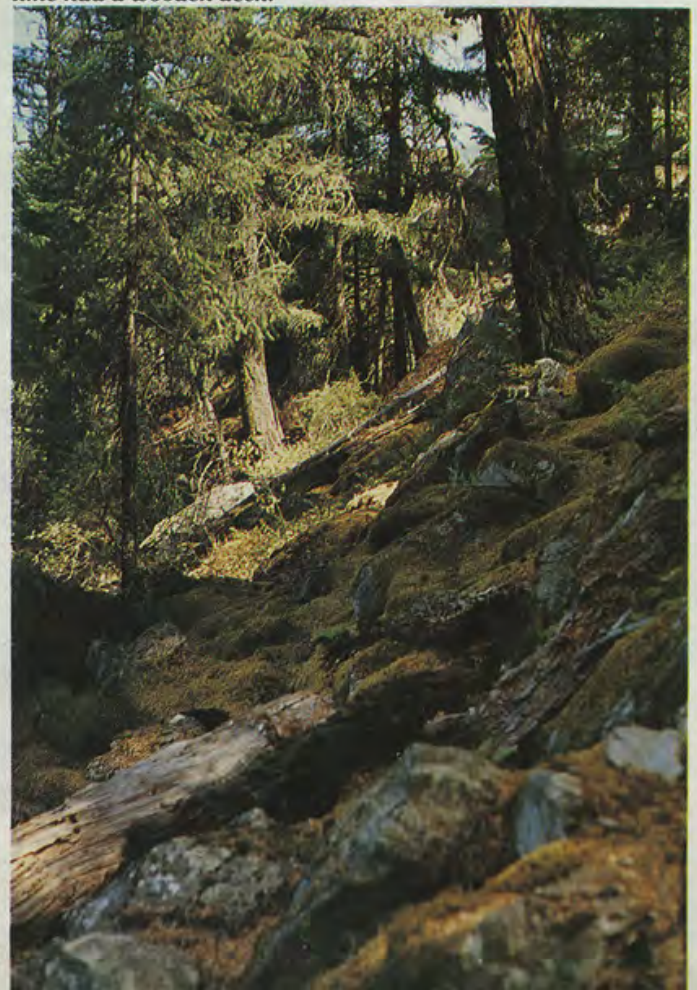
In building the bridge at Cisco, to make the shortest possible crossing, a tunnel was made at the west end. The bridge designed by a C.C. Schneider of New York, was a splendid cantilever type of steel construction—said to be the first of its kind in America. Prior to the bridge being built in 1884, both passengers and freight were carried in baskets by a pulley cable stretched across the churning river.

The steel work was fabricated in England in 1883 and arrived in B.C. in January, 1884 on the steamer *Stormy Petrel.* Onderdonk sublet the construction to the San Francisco Bridge Company. They were so proud of the bridge over the Fraser that they used a drawing of it as their logo for many years. The work was completed in June 1884 at a cost of nearly $300,000. Many years later the bridge was replaced and the original moved and re-erected on Vancouver Island where it is still in daily use.

From the very beginning of construction, Onderdonk was annoyed by what he considered excessive charges for hauling his supplies along the canyon. To solve this problem in 1882 he ordered the construction at Spuzzum of the sternwheel steamer *Skuzzy.* Named

(Above) Point of Interest plaque at Yale.

(Below left) The first prospectors through the Fraser Canyon had to make their way over slippery, moss-covered rocks.
(Below right) The Alexandra suspension bridge across the Fraser in August 1985. Prior to the construction of the CPR the mail stages for the interior used this bridge, which at that time had a wooden deck.



(Above) CPR station in Yale in 1899. Note men on speeder.
(Below) This view of the CPR buildings at Yale in July 1984 was taken from almost the same position as the one above.

after a nearby creek, the ship was built under the supervision of a Victoria boat builder William Dalton. It was 127 feet long with a beam of 24 feet, and of 255 gross tonnage. It was powered by two steam engines each developing 100 horsepower. It took two months to build and was launched by Mrs. Onderdonk on May 4, 1882. The ship was to win a place in B.C.'s maritime history for achieving what had been regarded as "impossible," navigating up-current through Hell's Gate.

Onderdonk had difficulty finding a skipper for his ship. With one exception none of the Fraser River captains would accept the dangerous assignment. They did not want a lost ship against their records. The exception was Capt. Ashbury Insley. He used every trick and skill at his command and failed. Defeated, he quit.

Months were passing as the boat just sat there while people speculated about her future. The concensus was that the ship would be dismantled and shipped by the Cariboo Road. But Onderdonk was not ready to concede defeat. He found three expert boatmen who had run the rapids of the Columbia River. They were two brothers, Captains Smith, and an engineer J.W. Burse. They requested the very great fee of $2,250. Onderdonk agreed and the trip through Hell's Gate to Boston Bar was started.

The new crew worked masterfully and the ship did make some progress, albeit very slow. The planned 10-hour trip would eventually take 10 days, but first further assistance was needed from Onderdonk. He had ring bolts driven into the stone intermittently on both sides of the canyon. Heavy ropes were passed through these and attached to a capstan manned by 15 men. On the shore at the other ends of the ropes were 150 Chinese.

With the boat's engines boiling almost to the point of bursting, with great huffing and puffing and billowing smoke, and with the grunting of almost 200 men, the ship, beat and battered, painfully inched its way to the upper side of the rapids. The *Skuzzy* was the only ship to ever defeat the boiling and racing waters of Hell's Gate. The job done, the Smith brothers took their money and went home to Portland.

For two years the ship hauled cargo between Boston Bar and Lytton. Then in 1884 her machinery was dismantled and installed in a newer and bigger *Skuzzy II* at Savona, on Kamloops Lake. The ship operated on the Thompson until she was dropped from the registry in 1897. The hull of the old worn-out *Skuzzy* was left beached at Keefers. Later she was carried by high water down river to Hell's Gate where she was demolished by the current on the rocks and disappeared into

The Quoi Eck trestle and replacement culvert, four miles east of North Bend. Note the masonry work.

history.

While the building of the railroad had experienced many difficulties, so had the little town of Yale, Onderdonk's headquarters. In the early years during the Fraser River and Cariboo gold rushes it had been a real "wild west" town with shootings etc. Now once again it was a "rip-roaring" boom town. With hundreds, even a thousand men on pay day having nothing better to do but drink, gamble or make whatever ruckus they could raise. Three times the town was razed by fire, two of the blazes having been deliberately set by drunks. And there was a great explosion. Every third building was said to be a saloon, most with gambling rooms in the back for faro, chuck-a-luck and keno. There were houses with little red curtains and, in weird contrast, there was also a private school for girls operated by Anglican Nuns.

A writer who had visited the town on a payday, confirmed the picture. Wrote he: " . . . The one long business street fronting the river presented a scene and sounds, at once animated and grotesque—bizarre and risque. The shell-like shacks of saloons, whereof every third building was nearly one, fairly bulked and bulged like Brobdingnazian (sic) wasps' nest, whose inmates, in a continual state of flux, ever and anon hurled in and out, in twos and threes of tangled, wrangling masses. Painted and bedizened women lent a garish color to the scene. On the hot dusty roadside, or around timbers, rails and other construction debris, men in advanced stages of intoxication rolled and fought or snored in bestial oblivion."

In July 1883 a brush fire west of Yale swept upon the powder factory. First it ignited and blew several bottles of nitroglycerine. Then 360 cases of giant powder blew with a cataclysmic roar. Every window in the nearby town was shattered. With the ground fire approaching, the townspeople prepared for evacuation. Fortunately the wind changed and drove the fire back onto the ground already burned. The residents were grateful, having every window broken was not as bad as having it leveled by fire a fourth time.

While not strictly a part of the railroad construction in the canyon, a note should be made of other parts of Onderdonk's contracts. In 1881 Tupper gave him the contract to build the rail from Emory to Port Moody. The work through this area was easy and was completed in 1884.

When the Fraser Canyon to Savona was completed the same year, another contract was given to build the rail from there to Eagle Pass. This was completed in September 1885. On October 8 Onderdonk paid off all his employees and went home.

With the close of construction the huge Chinese force was now without work. Likely those that could afford it returned to China. Among those that remained some continued to work for the railway on section gangs. Others mined the bars on the Fraser and some went into the laundry and restaurant business in Victoria and the budding new city of Vancouver. The white men returned to Yale where for awhile the town was extremely noisy and boisterous because of the drunks. When the men gradually drifted away Yale became unbelievably quiet. In 1888 the Sisters took over Onderdonk's home for their girls' school.

Onderdonk had not waited for the last spike ceremony for he had already left Canada. The following year he built the Entre Rios Railway in Argentina. Later he installed the sewage system in Chicago, the Chicago Northwest Elevated Railway and the Trent Valley Canal System. In 1905, when he was manager in charge of building the tunnel under the East River in New York City, he died, it is said, of overwork.

Nearly every individual who had anything to do with the early history of British Columbia or the Canadian Pacific Railway in the province has his name commemorated by the name of a town, a mountain or even a street or school. But there is nothing to remember the man who built the railway from Port Moody, through the "impossible" Fraser Canyon to Eagle Pass, which was some of the most difficult country on the continent. It would seem fitting that the name of Onderdonk, whose achievement here did play a significant role in the early history of the province, be commemmorated, ideally, by naming after him one of the mountain peaks that overlook the Fraser Canyon.

CPR station at Keefer c1881-85.