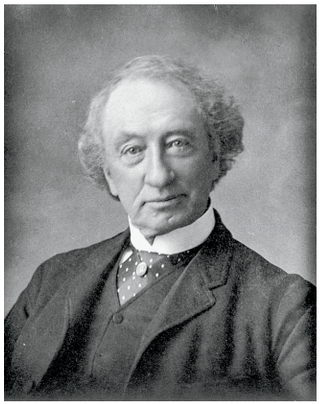
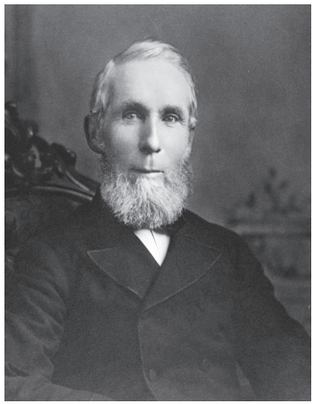
1
Dreams and Reality

Canada was five provinces strong and less than four years old in 1871 when Prime Minister John A. Macdonald made his promise. If the colony of British Columbia (BC) would enter into Canadian Confederation, the federal government would link it to the eastern provinces by a railway whose construction was to begin within two years and to be completed within ten years.

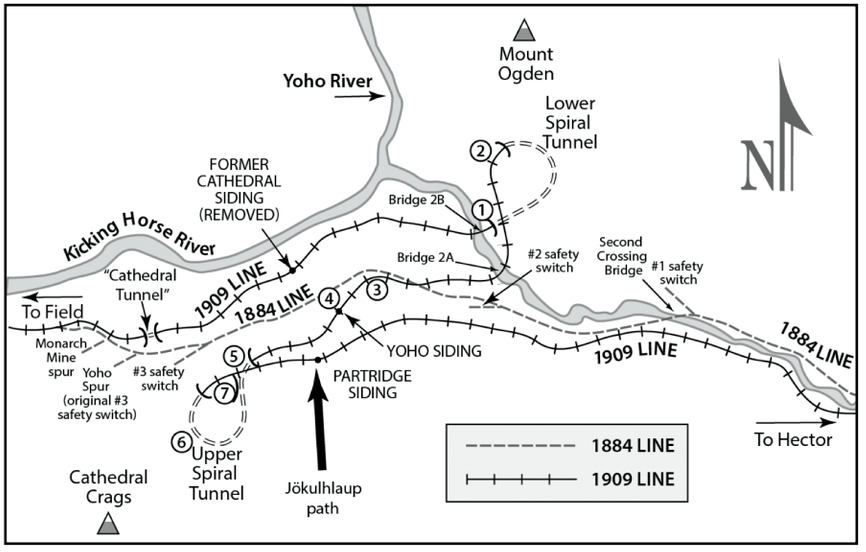
As is often the case with a bold dream, Macdonald was naïve about the challenges inherent. His pledge acknowledged neither political realities nor the physical reality of the Canadian landscape; particularly that of BC. In crossing the province-to-be, the tracks of the Canadian Pacific Railway (CPR) would be obliged to make roller-coaster traverses of three mountain ranges and to squeeze through the canyons of the Thompson and Fraser rivers while making an end-run around the Coast Mountains. The Shield country of what is now northern Ontario and eastern Manitoba – a formidable jumble of granite and muskeg – would pose challenges to railway construction, the likes of which had never been seen in the world.

As far as we know, Macdonald had no acquaintance with muskeg. It is a certainty that he had never seen the western mountains, with their dense forests, sinuous canyons, and hazardous avalanche terrain. It is probably just as well. For if he had known about the perils posed by the Pacific slope of Kicking Horse Pass – a place that when set with the rails of the CPR would become known as the Big Hill – Macdonald may well have reconsidered, and his dream of uniting Canada by railway steel may never have become a reality.





The doer and the dour: John A. Macdonald (left) championed the CPR during his two terms as Canada's prime minister, 1867-1873 and 1878-1891. Alexander Mackenzie (right), who filled the gap, inherited the promise of the railway but lacked the intent to see the project through.



The Big Hill grade and the Spiral Tunnels. The circled numbers are keyed to the text below. The route of Highway 1 approximates that of the "1884 Line."

How The Spiral Tunnels Work

Eastbound from Field, a train climbs 5.5 miles along a 2.2 percent average grade (maximum 2.4 percent) to the lower portal of the Lower Spiral Tunnel in Mt. Ogden – known to CPKC as "Tunnel #2." This takes approximately 15 minutes. En route the train passes through the 131-foot long Day's Tunnel in Mt. Stephen, the concrete 492-foot long Mt. Stephen snowshed (map, p.10), the 179-foot long Cathedral Tunnel, and crosses the 225-foot long Kicking Horse River bridge 2B. The train then negotiates the 2,922-foot long Lower Spiral Tunnel, completing two-thirds of a circle **(1)** on an average grade of 1.62 percent. It emerges from the upper portal 52 feet higher, heading south **(2)**. After crossing Kicking Horse River bridge 2A, the track curves southwest. The train thunders by beneath the viewpoint on Highway 1 **(3)**.

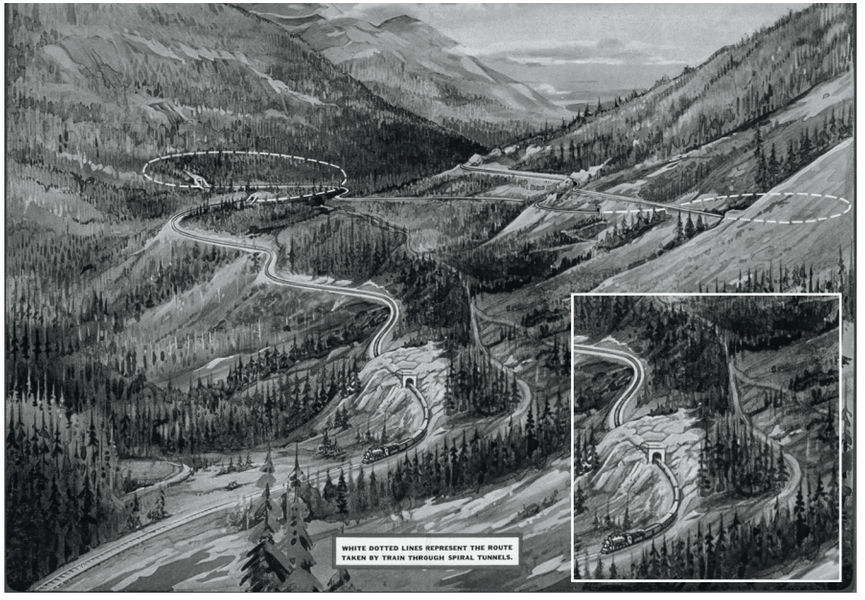
West of the viewpoint, the train passes Yoho siding and goes out of view beneath a highway overpass **(4)** to the lower portal of the Upper Spiral Tunnel **(5)**. There are 1.7 miles of track between the two tunnels. The train negotiates the 3,255-foot long Upper Spiral Tunnel (known to CPKC as "Tunnel #1") within the lower slopes of Cathedral Crags on an average 1.66 percent grade, completing three-quarters of a circle **(6)**. It emerges eastbound from the upper portal 55 feet higher **(7)** and visible again from the viewpoint on Highway 1. The train is now paralleling the original railway grade, constructed in 1884. Between the old Cathedral siding and Partridge siding, (below and above the Spiral Tunnels), the railway line climbs 488 feet in 4.9 miles, at an average grade of 1.88 percent. Westbound trains reverse this sequence.

If placed portal-to-portal the Spiral Tunnels would create a shape much like a figure-eight. "Spiral" means that trains gain or lose elevation as they trace the figure.

As many as 30 trains pass through the Spiral Tunnels daily. However, there can be long waits between trains; so if you have the time, be patient. You can best appreciate the Upper Spiral Tunnel from the viewpoint at km 2.3 on the Yoho Valley Road. The road receives no winter maintenance. It is generally open from June to October.

*There are three levels of track on the grade east of Field. "Level one" is the 4.9 miles between Field and the Lower Spiral Tunnel. It crosses Kicking Horse River bridge 2B **(1)**, from where track leads to the lower portal of the Lower Spiral Tunnel, **(2)**. The upper portal of the Lower Spiral Tunnel is **(3)**. "Level two" is the 1.7 miles of track between the Spiral Tunnels **(4)**; including Kicking Horse River bridge 2A **(5)** and Yoho siding, out of view to the left. Photographer Byron Harmon was standing just above "level three," the section of track **(6)** east of the Upper Spiral Tunnel, including Partridge siding. CPKC employees sometimes refer to the three levels as Cathedral, Yoho, and Partridge, after their respective sidings (although Cathedral siding was removed in 2020). The straight-line distance between the camera and **(1)** is about 2,460 feet. The elevation difference is about 488 feet, whereas the distance along the track is about 4.9 miles – an average 1.88 percent grade.*

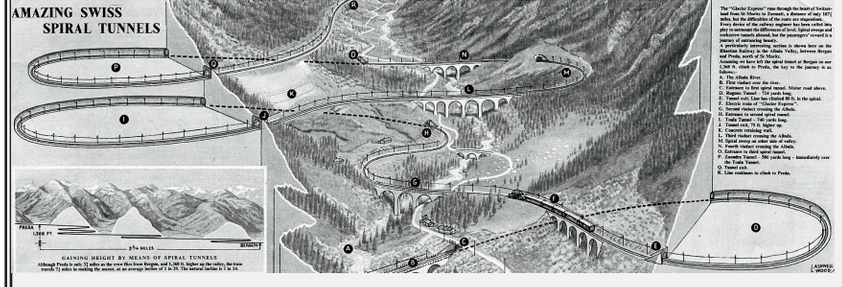
*In the background you can see steep cliffs on the southwestern flank of Mt. Ogden. It was this terrain that deterred the CPR from "looping" the track into the Yoho Valley to reduce the grade. The lead locomotive of Train 301 derailed at bridge **(5)** in February 2019. (See pp. 124-27.)*



This illustration, which served as a menu cover and then as a postcard in the 1910s, depicts the Spiral Tunnels from the lower slopes of Mt. Stephen. The dotted lines indicate the spirals; the lower tunnel on the left, the upper tunnel on the right. Cathedral Tunnel is prominent, lower centre. To the right of it you can see the 1884 grade (now the route of Highway 1) and the #3 safety switch runaway track (enlarged in inset). Compare with the top photograph, p. 102.

Unique in North America, But Not in the World

The Spiral Tunnels are the only such railway tunnels in North America. In using this approach to reduce the grade, the CPR imitated railways in Switzerland and Austria, where at least four routes employed looping and cross-over tunnels by the late 1800s. The Gotthard Railway – the model for the CPR tunnels – includes three sets of spiral tunnels. This graphic shows the complex arrangement of tunnels, loops, and viaducts on the narrow-gauge Albula Railway in Switzerland.



3
From Sea to Shining Sea

Events that led to construction of the Spiral Tunnels began when the province of British Columbia entered Canadian Confederation on July 20, 1871. Many of the new province's 36,000 residents of European origin imagined a bright and secure future that would result from union with the larger nation. The remainder of Canada's population of 3.6 million was uncertain, arguing over the wisdom of annexing the vast, distant, and largely unknown land of the west – with its "sea of prairie" and "sea of mountains" – inhabited by just one percent of the country's population. From protracted experience building the Intercolonial Railway, eastern Canadian taxpayers were also wary of the potential financial burden that the project would entail.

Prominent among the arguments in favour of the railway were two: national development and national security. BC possessed abundant natural resources that could aid the growth of the young nation, and many Canadians feared that the remote territory might soon be taken over by the US.

The Canadian prime minister was an old hand from the days of colonial politics that pre-dated Confederation. John Alexander Macdonald was a Scots Conservative, a visionary powerhouse, and a politician of intellect and commitment. His idea for a railway to the Pacific Ocean came during the height of Queen Victoria's reign – when much of the world would be subject to that empire.

Although he could be passionate about a cause, Macdonald often suffered an indecisiveness in seeing it through. For this, he earned the nickname "Old Tomorrow" – as in, *perhaps tomorrow he would get things done*. But there was shrewdness there. Macdonald had learned that if he dallied long enough on any particular issue, the factors involved could change, perhaps so much as to even negate the need for him to make a difficult and possibly unpopular decision. It was also no secret that Canada's first prime minister was an inveterate alcoholic, which had predictable effects on both his temperament and his health. Especially at crucial times he often vanished from public and parliamentary view, languishing in an alcoholic haze for weeks.

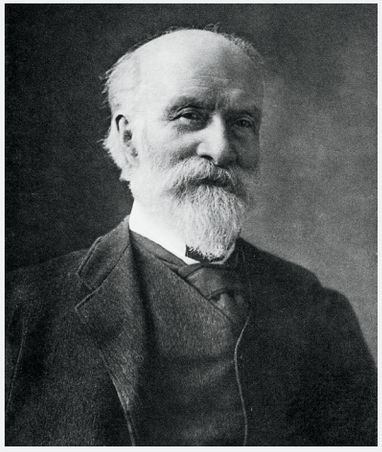
The linchpin that lured the recently united colonies of Vancouver Island and British Columbia into Confederation was Macdonald's promise to build a trans-continental railway to eastern Canada. Construction was to start within two years and to be completed within a decade. Through fourteen years of turmoil, scandal, and financial conniving, Macdonald championed the "Pacific Railway." The critics were proved right. The fledgling country was incapable of financing the tremendous work of trans-continental railway building. The initial surveys of the 1870s cost $3.5-million alone, and would, by 1884, top $37-million.

The Railway Renaissance Man

Sandford Fleming was 45 years old in 1872 when he set out to cross Canada by every imaginable conveyance, from steamer to sled dog. His purpose – as recently appointed Engineer-in-Chief of what was then called the Pacific Railway – was to inspect the ground being surveyed, with the aim of helping to choose the best route between Lake Superior and the Pacific Ocean. The journey took 103 days and covered 5,300 miles. This action – courting hardships almost indescribable to improve the public good – typified the man. Ten years earlier, uninvited, Fleming had presented the government of the Province of Canada with the first sensible plan for a railway route to the colonies of Vancouver Island and British Columbia. Long on detail and short on assumptions, Fleming's concept helped to set the idea for a Pacific Railway in motion five years before Confederation. Its merits also landed Fleming his first government job, Engineer-in-Chief of the Intercolonial Railway, then being built in eastern Canada.

Fleming was a man of remarkable intellect and passion, and was literate to the core. In his career as an engineer and as an emissary for science, he authored more than 150 articles and several books. Among other innovations, in 1851 he had designed Canada's first postage stamp, the "Three-Penny Beaver." To that point, all postage stamps used in "the colony" bore an image of the monarch. Fleming caused a sensation and broke ranks, choosing an utterly Canadian emblem for the stamp, which also was the first in Canada to include adhesive. (It is curious to note that, for most of a century, CP Rail's corporate emblem would be the beaver.) While overseeing the early construction efforts of the Pacific Railway, Fleming continued in the same capacity with the Intercolonial Railway. The demands on his time, health, and energy were beyond measure. He suffered injury and illness, rendering him unable to inspect work in the field. Fleming was not the first public servant to become a scapegoat for a troubled cause, but his fall from grace – by way of the 1880 Royal Commission that investigated the blundering pace and enormous waste of funds on the Pacific Railway during its first decade – was truly hard.

Sensing the axe about to fall, Fleming resigned in advance of the Commission, taking a colossal $29,800 payout (equivalent to nearly $900,000 today), while remaining on the government payroll as a railway consultant for $6,000 per year. Much of the blame heaped on Fleming was malicious. His attempts to build the railway had been upended by the philosophical void between the two governments under whom he served; the Conservatives, who supported the project, and the Liberals, who did everything they could to thwart it. But Fleming had also been woefully inept at managing finances. When Alexander Mackenzie took office, he asked for an accounting. None could be made other than the delivery to the Liberal prime minister of a massive steamer trunk full of unorganized vouchers and receipts. As Mackenzie soon discovered, Fleming been paying some government funds into personal bank accounts for the purchase of supplies, with no auditing of how, or even if, his underlings had spent the money on the railway survey.



"The Knight of Time"
Sandford Fleming in the 1890s

In a response of more than fifty pages written two years later, Fleming stated, "A reader of the Report of the Commission without knowledge of the facts, could only come to one conclusion… that three successive Administrations [governments] had employed a man [Fleming] to conduct the heaviest works ever undertaken in Canada, whose one aim and object was to do everything the way in which it should not be done."

It is further testament to Fleming's character that he continued in the public sphere. Fleming so believed in the Pacific Railway that, even after he had been replaced as its chief engineer, he was willing to assist the recently formed CPR and the government representatives who had as much as sacked him, in appraising the change of route, from his favoured Yellowhead Pass to Kicking Horse Pass. (It helped that he was on good terms with George Stephen and Donald Smith.) He did this in typical Fleming fashion, by walking from east to west along the route through the Rockies and Selkirks in August 1883. The executive of the CPR so liked the man that in appreciation they voted him to its board of directors.

After completion of the CPR, Fleming became a devoted promoter of a Pacific underwater cable, which was completed in 1892. But his greatest contribution to modern global society was his advocacy of the 24-hour clock, and devising the system of time zones so essential to long-distance travel, first called Standard Time, now called Universal Time. This was adopted in principal in 1884, with worldwide implementation by 1929. No longer would something as potentially unreliable as a conductor's pocket watch be the only defence sparing single-track train meets from head-on disaster. Noon in Toronto would be noon in Montréal, not 12:06 PM. Noon for a train in Kingston, Ontario would be noon for its connection on another line to New York, not 12:02 PM. The time of 9:45 AM could not be confused with 9:45 PM, because that would now be indicated as 21:45. (Fleming's interest in developing Standard Time began when he had missed a train in Ireland for that very reason.) Train travel became more convenient. Exchanges of freight and passengers between rail lines became possible. Trans-continental commerce was born.

Queen Victoria knighted Fleming in 1897. Six Canadian geographical features are named for him, including Mt. Sir Sandford, the 12th-highest peak in BC. Fleming's time on Earth ended on July 22, 1915.

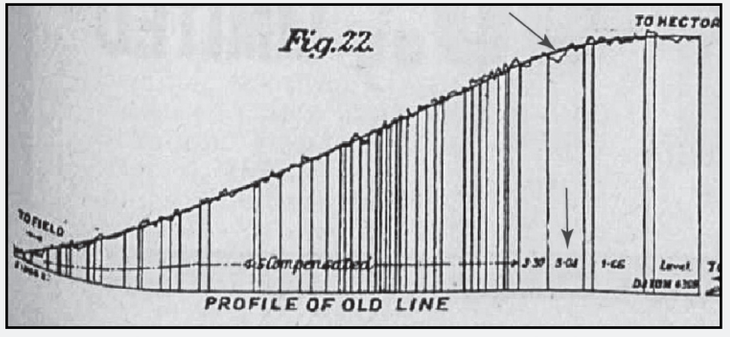
Yankee Bluster?

Within government and the voting public, construction of the CPR was under tremendous scrutiny as the rails entered the Rockies. Pamphleteers and detractors boldly predicted, quite accurately as it transpired, the difficulties and the risk that the Kicking Horse-Rogers Pass route entailed. Charles Tupper was the Minister of Railways and Canals in John A. Macdonald's government. The CPR, ignoring both the public clamour and the reality on the ground, bent his ear.

First, was William Van Horne, "Beyond this section (the first summit of the Rocky Mountains) [Kicking Horse Pass] to the point of connection with the section under construction by the Government [across Rogers Pass and Eagle Pass to the Fraser Canyon], no engineering difficulties exist; on the contrary, the work is light and may be quickly done."

Next came Samuel B. Reed, "The line over the Selkirk Mountains, a distance of sixty-three miles, is remarkably easy to construct, there being comparatively little rock excavation, and but one short tunnel. The great bulk of the work will be in earth and loose rock." The actual surveyed distance was 69 miles, and construction in the Selkirks had not even begun at the time that Reed made his assessment.

Countering this was the report of Major Rogers to the CPR, made early in 1883, in which he had upped the maximum grades for the Kicking Horse-Selkirk route from 1.5 percent to 2.2 percent, with the startling disclosure that the 2.2 percent grades extended for 49 miles – about one-third of the distance from Kicking Horse Pass to Second Crossing (now Revelstoke). It must have been clear to Van Horne and Reed that Rogers was not a reliable source, and that his reports bode ill. Did Van Horne and Reed really believe what they were telling the government, or was their under-selling of the difficulties innate to their Yankee confidence, allowing them to surmount the opinions and the geography that countered the project?



This drawing from a 1909 engineering journal shows the profile of the 1885 railway grade from Wapta Lake to Field. The grade is compensated (averaged) to 4.5 percent but, remarkably, indicates a short section of 5.01 percent (arrows) in the upper canyon.

Pick a Number

How steep and how long was the Big Hill grade? In a paper published late in 1884, Granville Cuningham, the CPR's supervising construction engineer, described the initial descent from Kicking Horse Pass. He called it "the temporary line" to distinguish it from the 2.2 percent grade plotted by Major Rogers.

The descent in this pass, at its commencement, is very steep; the [Kicking Horse] river falls 1,100 feet in 3 ½ miles… The temporary line begins at a point about 4 miles west of the pass. At first there is ½ mile on a gradient of 3.50 per hundred; this is followed by 3 ¼ miles of the 4.50 gradient, after which 3 ½ miles of the 2.2 gradient takes the line down to the base of the mountain and the flats of the river.

The steepest section of the Big Hill

Cuningham's distances tally 7.25 miles. According to the CPR's mileboards of the day, the distance was 7.1 miles. His claim of the river's descent of 1,100 feet in 3.5 miles (which would have produced a 6 percent grade for track nearby) is also at variance with the 1,140 foot descent over the length of the Big Hill. This produces a 3 percent average grade. Cuningham also disregards the 2.4 percent grade just west of Day's Tunnel.

So, if you can't trust the published numbers of the construction engineer in charge of building the Big Hill grade, whose can you trust? Perhaps those of another construction engineer who worked there. J.E. Schwitzer designed the Spiral Tunnels in 1907. In an article written in 1909 he stated that there was a 4.1-mile section of 4.5 percent grade on the Big Hill. However, in the same article he stated that the 4.5 percent grade ran for 3.71 miles, with another 0.2 miles of grade that varied from 3.5 percent to 4 percent. A diagram (opposite page) included with the article appears to indicate a section of 5.01 percent grade.

Another source for calculating the grade on the steepest part of the Big Hill states that the line descended 952.5 feet in 4.1 miles. This produces an average grade of 4.39 percent in that distance, sensibly rounded to 4.4 percent.

The CPR was required to report annually to the Minister of Railways and Canals on the extreme grades and curves on its route, and did so until 1895. Those reports always described a maximum grade of 237.5 feet per mile, or 4.49 percent, on a section of track between the first crossing of the Kicking Horse River (the outlet of Wapta Lake) and the #3 safety switch, a distance of 3.6 miles. After 1895, the CPR stopped reporting and the government, apparently, stopped asking. The "temporary solution" of the Big Hill had become defacto permanent until the CPR deigned to fix it.

The lower Kicking Horse canyon required six bridges in 11.6 miles. The third – the 6th crossing of the Kicking Horse River – was a 158-foot long Howe truss with the 320-foot "Muir's Tunnel" adjacent (left), and another 320-foot tunnel 0.5 miles farther east. Less than half a mile west, the track made its 7th crossing of the river. Between these 6th and 7th bridges the CPR somehow cloistered a siding named Cloister. Calgary photographers Boorne and May recorded the image in 1887.

This 1886 Oliver Buell photograph would have required hours to execute. It shows a bird's-eye view of "Holt's Tunnel" (see p. 63) and the 9th Crossing bridge in the lower Kicking Horse canyon. This tunnel was through material similar to the Mud Tunnel (photo, p.63), but it did not collapse. Buell would have climbed "the Golden Stairs" to get this high above the river. The train is being held without steam. About two dozen people gaze up at the photographer. The tote road follows the river's edge.

Despite the incredible toil involved in construction in the Kicking Horse Valley in 1884, the going would prove even harder in the Selkirk Mountains to the west. It took another year to complete Canada's first trans-continental railway. On November 7, 1885, Donald Smith – with William Cornelius Van Horne at his side and Major Rogers and Sandford Fleming looking on – drove the last spike to complete the line, at Craigellachie in Eagle Pass in the Monashee Mountains. Between November 16 and November 23, the CPR ran a special one-car freight train from Québec City to Port Moody, BC, to prove that the line was completed.

Van Horne promptly shut down operations in the mountains. He knew that, without snowsheds to protect the track from avalanches, winter operation in the Selkirks was impossible. The construction of the 55 snowsheds required in crossing the Selkirks delayed the beginning of operations the following year. It was July 3, 1886 before the first *Pacific Express* passenger train descended the Big Hill, apparently without incident. The train reached Port Moody the following day on time, at noon. Later that summer, John A. Macdonald made the cross-country trip by train to see for the first time, the wild, western reaches of Canada and his dream made real.

In the 23 years and 2 months that the CPR would run traffic on its "temporary" track, there were catastrophic wrecks and many derailments, prompting one CPR president to describe the grade as "a heavy cross to bear through the years." Yet, remarkably, not

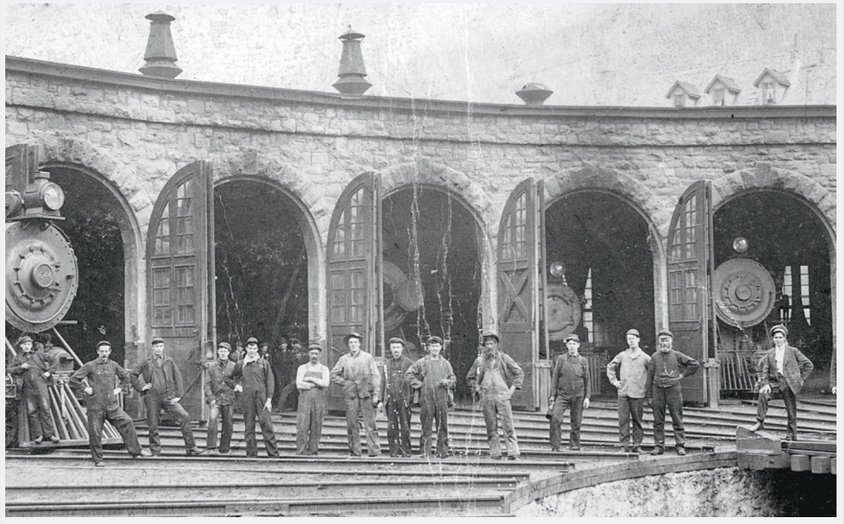
Alfred-Foolery

The first junket of special visitors to the Rockies interrupted work on the CPR in September 1884. Ninety-eight members of the British Association for the Advancement of Science – natural philosophers, geologists, botanists all – Lord Kelvin among them – crossed Canada by rail. Almost. From where track ended in Kicking Horse Pass, they set out on foot with their kits, nets, hammers, and boundless enthusiasm to explore the partially completed railbed ahead, and the slopes above and below the grade. This was all new ground, a fantastic location for a scientific collecting spree. At the entrance to Day's Tunnel on the Big Hill, Dr. Alfred Selwyn, director of the Geological Survey of Canada, "…was nearly killed by hammering on the rock at the mouth of the tunnel, which caused a fall of rock which blocked up the entrance, and no further progress in that direction could be made."

Although the collapse was the result of a foolish act, detractors of the CPR seized on this incident to further proclaim the unsafe nature of the Kicking Horse Pass route, going as far as to invent the deaths of two members of the Association in the mishap. William Notman took a photograph of Dr. Selwyn just before the incident. Perhaps looking for a scoop, Notman later captioned the minor tumble of rock, "The tunnel that collapsed in Kicking Horse Pass." Some members of the Association walked as far as the lower canyon – a distance of 25 miles – spending nights in the woods and begging food at work camps. No other near-disasters were recorded.

Turning the Locomotives

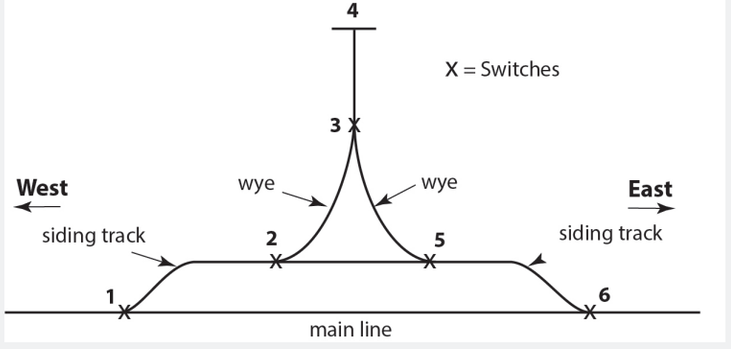
Because they were dedicated to work on the Big Hill and the Muskeg Summit, helper locomotives had to be turned frequently. The CPR installed a turntable at Field in 1884, and later built another at Laggan. The section of track on a turntable could be rotated 360°. Locomotives were turned to resume service or were pushed into stalls of the adjacent roundhouse for maintenance. Turntables were initially operated by hand. Later they were powered by compressed air from the locomotives, and eventually by electricity. The CPR removed the 3-stall roundhouse at Laggan after completion of the Spiral Tunnels in 1909. The remains of the roundhouse at Field – probably the third one built there – came down in 1988. CP Rail buried its foundation in 1993. The photograph shows Consolidation-type locomotive 732, delivered from Baldwin in 1899, on the first, 60-foot diameter turntable at Field, with part of the original 3-stall roundhouse.



The 12-stall roundhouse at Field was one of many structures built by CPR stone masons in the late 1800s and early 1900s. The best known are the piers of The Loops, just west of Rogers Pass. Most of those piers and many stone bridges on the Rogers Pass grade still stand. The maintenance crews, dwarfed by the locomotives in this photo, are near the turntable pit. Locomotive 1644, a Consolidation-type 2-8-0 in Class M4e, is at the left-hand stall. It entered service in June 1906 and was renumbered to 3444 in October 1912 when converted to burn oil. So, that provides a timeframe for the photo. The three other locomotives are probably also Consolidation-types.

How a Wye Works

The other method for turning a locomotive or a short train was an arrangement of track called a wye. Together with the adjacent section of siding track, a wye created a slightly embanked triangle. By going forward up one up arm of the wye past a switch, and reversing down the other arm, a locomotive could make a 180° turn. The earthworks of the wye at Field – the tail of which extended into the Kicking Horse River – were removed in 1988. There were also wyes at Hector, and at the west end of the old Stephen siding, near today's Ross Lake trailhead. Although the CPR removed the wye in 1955, you can still see some railway ties embedded in the pavement of the now decommissioned 1A Highway. You can see the earthworks of the wye at Leanchoil siding from Highway 1, just west of the Wapta Falls road. All of these wyes show up faintly in Google Earth views.



A lash-up of locomotives or a short train is eastbound on the main line, and needs to be turned. The switch at **(1)** is set to send the train onto the siding track. The switch at **(2)** is set to send the train onto the left arm of the wye. The entire length of the train travels past the switch at **(3)** and stops before the end of track at **(4)**. The train then reverses toward the switch at **(3)**, which is thrown to send the train backwards onto the right arm of the wye toward the switch at **(5)**. The train passes the switch at **(5)** onto the siding track. The train can now either be backed out onto the main line past switch **(6)** – from where, after that switch is reset, it can head west on the main line – or be held on the siding track to proceed forward past switches **(5)** and **(2)**. This will keep the train on the siding track until the main line is clear for the train to proceed back through switch **(1)**, now heading west. A westbound train on the main line can similarly be turned using the sequence of switches in reverse; by taking to siding track at switch **(6)** and the wye at switch **(5)**. In the days of steam, the conductor would often be on foot for the entire process, throwing the switches and communicating with the engineer with signals given by hand or by lantern. In winter, frozen switches could lengthen the process considerably. Today, most critical switches are heated during winter, and crews communicate using portable radios.

9
The Canadian Pacific Rockies

Completion of the CPR opened the formidable and formerly impenetrable mountains of BC to all who could afford the fare. Ironically, it was a problem with train operations on the Big Hill that propelled the CPR into one of its most lucrative "sideshows" – the development of a mountain hotel business. As William Cornelius Van Horne had envisioned, the extensive river flats at the bottom of the Big Hill offered an ideal base for local railway operations. The site was avalanche-free, had abundant firewood nearby, and the steep run of Stephen Creek to provide water. The CPR built a three-stall roundhouse and turntable in 1884.

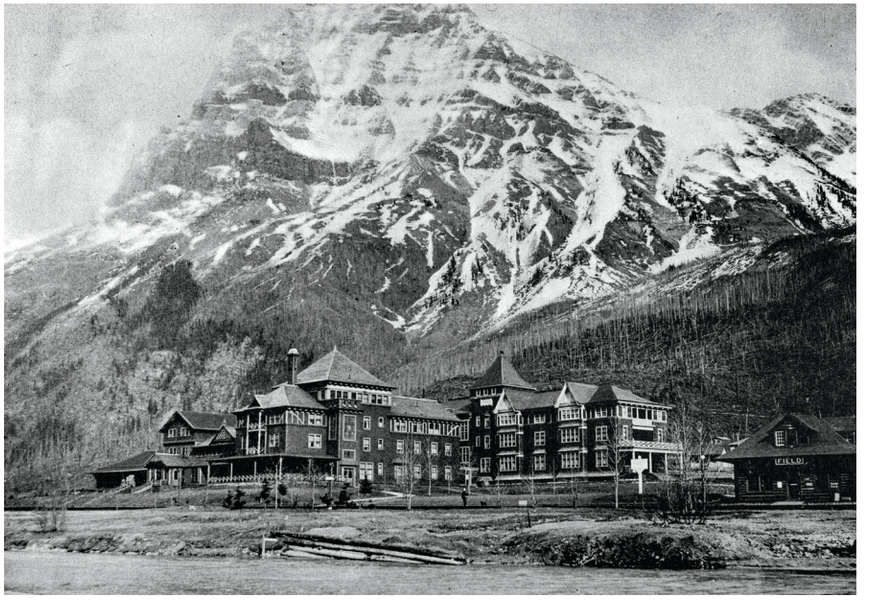
Two locomotives were required to haul a short passenger train over the Big Hill, so the CPR could ill-afford the luxury and the risk of including heavy dining cars between Field and Laggan, as this would have required a third locomotive. To sidestep this difficulty, Van Horne built a "dining room" next to the Field station in 1886. The mountain scenery struck mealtime awe. Van Horne realized that the facility should be expanded to offer overnight accommodation, and with customary dispatch saw to it that this was done before the end of the first season of passenger train operations. Thomas Sorby designed Mount Stephen House, the CPR's first mountain hotel, to reflect a Swiss chalet style. The building underwent annual expansions during its first two decades, with a major addition in 1901 designed by F.M. Rattenbury. At its peak in 1908 – as a summer operation only – the hotel housed 8,443 guests. It boasted 60 rooms, a 200-seat dining room, a billiards room, and a library.

Mount Stephen House was complemented by Glacier House at Rogers Pass (also built late in 1886), the Banff Springs Hotel (completed in 1888), and Chalet Lake Louise (built in 1890). These hotels turned the Rockies and Selkirks into destinations for affluent holiday-seekers, artists, scientists, and mountaineers from Europe and eastern North America. Room rates in 1888 started at three dollars per day.

On a visit to Banff in 1885, Van Horne had proclaimed the hot springs there "worth a million dollars." He successfully petitioned the government to establish a park reserve. Mindful of the CPR's desperate need to replenish its coffers, Van Horne did not intend to let other parties easily lay claim to potential tourist dollars in the Rockies.

The same motivation prompted him to request that a reserve be established near Field. With a lightning-fast response that would be unimaginable today, the federal government proclaimed the Mount Stephen Reserve, forerunner of Yoho National Park, on October 10, 1886. Visitors enjoyed the spectacular scenery and made outings to Natural Bridge, and to the fossil beds on Mt. Stephen. Those slightly more adventurous journeyed to Emerald Lake. In an attempt to secure its grasp on the area, the CPR sought to purchase the entire Kicking Horse Valley from the government in 1888.

The original dormitory of Mount Stephen House had been enlarged several times when Richard Trueman took this photograph in 1893.



At its maximum size, 1907-1912, Mount Stephen House dominated Field. The original hotel is at the far left. The railway station is at the right.

A pair of AC4400CW locomotives head a westbound train at the east switch of the Field yard after descending the Field Hill. The numbers atop the left-hand mast indicate 136.4 railway miles from Calgary. Field is 0.2 miles west – the division point between the Laggan and Mountain subdivisions.

CPKC operates 50, SD60 locomotives, which each deliver 3,800 hp. Built by EMD, production of the SD60 ran from 1984 to 1995. CPKC's SD60s include 43 from the original roll-out, and seven rebuilt SD60-3s, delivered in 2017-18. Some older SD60s are slated for rebuilds.

Since the 1960s, General Electric (GE) has been the principal competitor to EMD in the North American locomotive market. GE built 2,834 AC4400CW locomotives between 1993 and 2004. All but two of North America's major railways purchased them. CP Rail took 438, numbered 9500-9683, 8500-8580, 8600-8655, 9700-9740, 9750-9784, and 9800-9840. As its model number implies, this locomotive-class generated 4,400 horsepower. Beginning in 2017, CP contracted GE to rebuild most of these units to meet newer environmental and safety standards. Most in the 9500 and 9600 numbering blocks – each more than 25 years old – have been converted or stored. So far, the new numbering sequences are 8000-8080, 8100-8178, and 8200-8210. The revised AC4400CW(M) designation indicates "modernized."

In 2005, GE introduced the diesel-electric hybrid ES44AC locomotive – ES stands for "Evolution Series." Train fans know these as "GEVOs." CP purchased 291. Generating 4,400 horsepower with a 12-cylinder engine, the ES44AC was more fuel-efficient and, at the time, created fewer emissions than the AC4400CW. GE claimed that a GEVO used one gallon of fuel to move one ton of freight 500 miles. GEVOs are 15.5 feet high,

Locomotive 8763, an ES44AC "GEVO" delivered to CP in 2006, exits the lower portal of the Upper Spiral Tunnel, westbound. On the track above, you can see trailing cars of the same train west of Partridge siding, (moving left to right) that are yet to enter the tunnel.

74 feet long, and weigh 420,000 lbs. They carry 5,000 gallons of fuel and are capable of 75 mph in test conditions. By late 2008, GE had delivered 3,000 GEVO units worldwide, the largest ever launch of a new locomotive type. CPKC's GEVOs bear numbers 8700-8960 and 9350-9379.

Although trains are ever longer, with the greater horsepower available the arrangement of locomotives in CPKC's mountain operations has become minimal. Gone are the thrumming lash-ups of four to six units on the head end, with another four to six units roughly mid-train. It is now common to see two of the newer units (AC-4400CW(M), SD70ACU, or ES44AC) on the head end, with another one or two at the middle or end of the train; 13,200 whispering horsepower controlling a gross weight that can exceed 15,000 tons, and a consist pushing 2 miles in length whose hardware tops $20-million.

With CP's acquisition of the Kansas City Southern Railroad in April 2023, other locomotive types – particularly rebuilds of KCSR's older fleet – will make appearances on the Field Hill. (At the time, some KCSR locomotives did not meet Canadian safety standards for crews.) New or rebuilt locomotives, or those repainted, will sport a new CPKC livery that incorporates elements from the paint schemes of CP Rail (red and white) and the KCSR (red, yellow, and black).