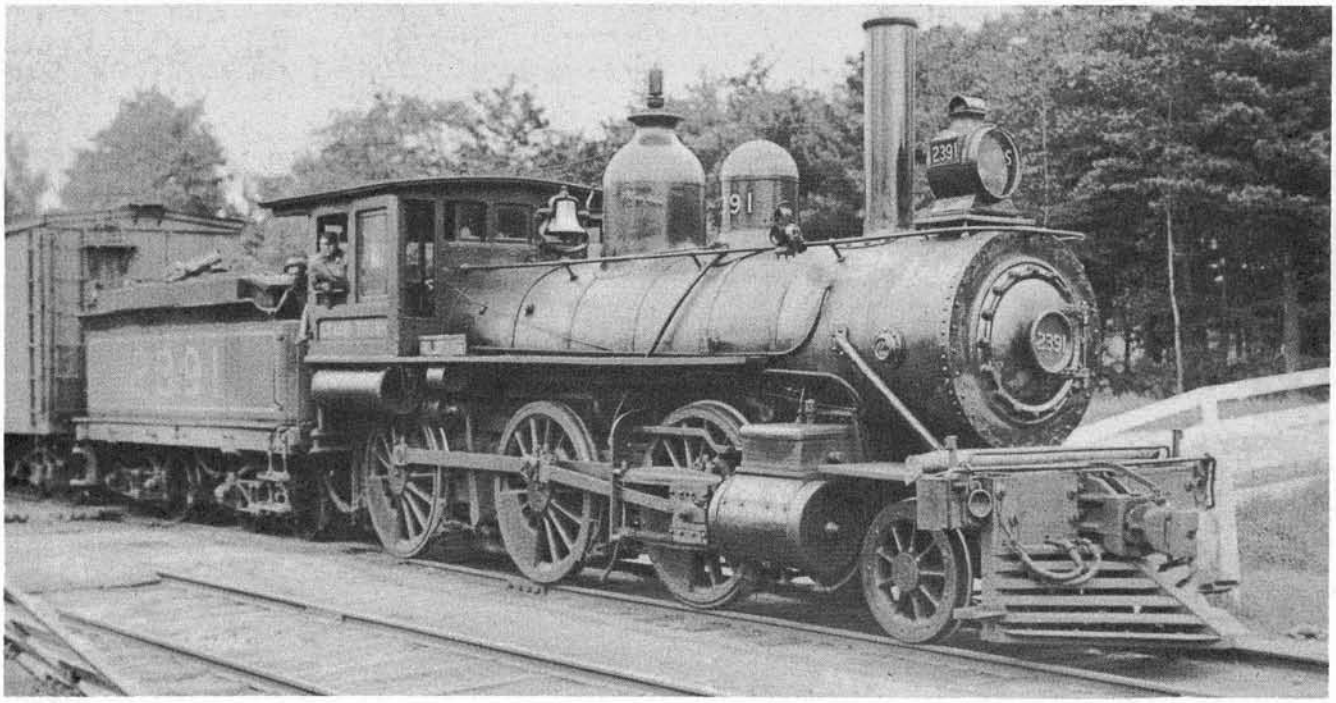
NEWS REPORT NO. 98

MARCH 1959

CANADIAN RAILROAD HISTORICAL ASSOCIATION
INCORPORATED.

P.O. BOX 22, STATION "B"
MONTREAL 2, QUEBEC

CANADIAN CLASSIC .....



A GRAND TRUNK "MOGUL"

Complete with cross-bar pilot, rifle-barrel stack, and distinctive steam dome, this locomotive is a representative of a classic development in Canadian locomotive design. This picture, contributed by Mr. C.F.H. Allen, shows one of the very few Grand Trunk Railway 2-6-0s not built at Pointe St. Charles works; an 1881 product of the Rhode Island Locomotive Company, No.2391 finally puffed into history in 1934 when, as Canadian National Railways No.540, Class E-4-a, it was sent to the scrap dock at the age of fifty-three.

-ooOOoo-

Notice of Meeting

The March meeting of the Association will be held in Room 202, Montreal Transportation Commission Building, 159 Craig Street West, Montreal, on Wednesday, March 11th, 1959, at 8:15 PM.

The programme will feature an illustrated paper to be given by Mr. R.M. Binns, on the "Pay-As-You-Enter" system of street railway fare collection, which originated in Montreal more than fifty years ago. Members are cordially invited to attend, and guests, as usual, will be welcome.

While there will be no business meeting, the meeting will be called to order briefly by the Chairman for the acceptance of proposals or approvals for membership in the Association.

Association News

TRIP COMMITTEE ... Members are reminded once again of the excursion which is to be held out of Belleville, Ont., on Sunday, May 10th, using double-headed steam locomotives. A circular giving details is attached to this issue.

RAILWAY DIVISION ... Members will also note that the benefit farewell excursion, which is being sponsored by members of the Railway Division to go toward the preservation of some of the rolling stock of the Canadian National's Montmorency Subdivision, will be held on the last day of service on this line, Sunday, March 15th, 1959, using car 401 and passeger/baggage combination car 105. Circular was attached to last month's News Report. Tickets are $2.50, obtainable from the Railway Division, Box 22, Station B, Montreal 2, Canada. Reservations are requested.

Publication by the Vancouver Island Railway Historical Assn.

An illustrated bulletin has been prepared by this Association, on the subject of a history of the KASLO & SLOCAN RAILWAY, a three-foot gauge mining line which flourished in the Kootenays in British Columbia at the turn of the century. This bulletin, which is illustrated and sells for fifty cents, is an expansion of a history of the K&S which appeared in the CRHA News Report some years ago. We commend this publication to you and the cause for which the proceeds are intended: the preservation of Canadian National's 2-8-0 type No.2141 in Victoria, British Columbia. Orders should be sent direct to:

Vancouver Island Railway Historical Association,
587 McKenzie Avenue,
Victoria, British Columbia.

We are advised that another VIRHA Bulletin is almost ready for release, and will deal with the private railway and operations of the Canadian Forest Products company, at Englewood, Vancouver Island, British Columbia.

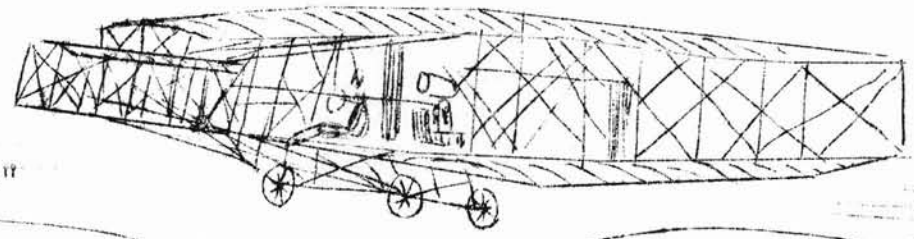
Those of our members who undertake personal correspondence for mutual advantage are invited to communicate with Mr. B.G. Sleath, of 90, Christian Fields, Norbury, London S.W.16, England. Mr.Sleath, whose age is 21, is interested in the historical, photographic, narrow gauge and operational aspects of railways, and is willing to exchange correspondence, as well as books, magazines and photographs, with any of our readers.

THE FIFTIETH ANNIVERSARY OF POWERED FLIGHT IN CANADA.

DURING THE MONTH OF FEBRUARY, Canada celebrates a very significant date in its history of transportation.

It was on February 23rd, 1909, that the first powered flight in Canada was made on the ice of the Bras d'Or Lakes off Baddeck, Cape Breton, Nova Scotia, by the Aerial Experiment Association, headed by Dr. Alexander Graham Bell, whose name attaches itself more familiarly, in an international sense, to the invention of the telephone.

The aircraft, known as the "Silver Dart", was the brainchild of Dr. Bell and of his assistants, one of whom, the Hon. J.A.D. McCurdy, later lieutenant-governor of Nova Scotia and happily alive today, piloted the craft on its initial Canadian flight. The "Silver Dart" was the culmin-



"Silver Dart"

ation of an aircraft design which Dr.Bell pursued independently following his own principles, and which he initiated in the form of man-carrying kites of tetrahedral design. One of these craft, "Cygnet I", made its first flight under the auspices of the Aerial Experiment Association on December 6th, 1907, when it was piloted, if such a term might be used in reference to a control-less craft, by Lieutenant Thomas Selfridge of the United States Army.

Other designs led to the construction of the "Silver Dart" at Hammondsport, N.Y., by Dr.Bell and his associates, in 1908. After trials at that point, it was taken to Cape Breton, where Canadian powered aviation history was set on its meteoric career. Aviation has made an inestimable contribution to mankind as a whole, but its full impact can only be appreciated in a country of huge, uninhabited and unexplored areas like Canada's northland, where development has been accelerated by the availability and versatility of the aircraft, the product of the inventive genius of men like Alexander Graham Bell, and of the adventurous spirit of the Hon. J.A.D. McCurdy and the pioneer airmen who followed them.

PUBLICATION:

En vente le 16 mars. On sale March 16th.

" CHEMIN DE FER DE LA BONNE SAINTE-ANNE "

Histoire bilingue illustrée des soixante-dix années de services férroviaires sur la côte de Beaupré. (QRL&PCO.) Contenu de 16 pages, avec carte, liste de materiel roulant, diagrammes de voie et de materiel roulant, et plusieurs photos. COMMANDEZ VOTRE COPIE BIENTOT !! 50¢

Bilingual illustrated (photo-offset) history of seventy years of railway service on the Beaupré coast (QRL&PCo.) Contains 16 pages, with map, roster, track and rolling stock diagrams, and many photographs. ORDER YOUR COPY NOW !! 50¢

S'adresser à -- Order from: C.R.H.A. P.O.Box 22, Station "B", Montréal 2, Canada.

FIFTY YEARS AGO .....

Montreal's Windsor Station Accident

by Omer S.A. Lavallée

It will be fifty years, on St. Patrick's Day, 1959, since a runaway train violated the passenger precincts of Montreal's Windsor Station, bringing death to five people.

This is the only major accident which has happened in the seventy years during which the Canadian Pacific's station and headquarters has been open to the public, but because of the mysterious and spectacular aspects of this incident, it is a tale which has been told and retold among railway personnel in the Montreal area. Many retired men can recall the events clearly to mind; the fireman on the ill-fated train died a natural death as recently as September 1958, and one of the Association's associate members, Mr. John E. Tinkler, of Hudson, Quebec, a retired CPR mechanical man, recalls the day of the accident as if it were yesterday.

The train was the overnight Boston-Montreal run No. 12, consisting of engine 902, a 4-6-0 built by North British in 1903, a baggage car, two passenger cars, and a sleeping car. It was in charge of Conductor Arthur H. Harvey when it left Newport at 4:55 AM, March 17, 1909, due in Montreal at 8:30 AM. The engineman in charge of No.902 was Mark Cunningham, his fireman was Louis Craig. Joseph E. Pelletier was the baggageman and Joseph A. Dion was the trainman. The trip proceeded uneventfully toward Montreal, the train making its customary stop at Montreal Junction, now known as Montreal West.

Leaving Montreal West, Conductor Harvey gave his engineer the communicating signal which corresponded to the present signal 16 (d) --(stop at the next station), as he had a passenger to descend at Westmount. Engineer Cunningham acknowledged this signal on his engine whistle, also as prescribed by the rules, but it was after this acknowledgment was made that the prime event occurred which led directly to the accident.

According to the testimony of the fireman at the coroner's inquest, somewhere between Montreal Junction and Westmount, a plug blew on the boiler on the fireman's side, frightening him and filling the cab with live steam. He responded instantly to his initial reaction to jump, thinking that the boiler was about to explode. Landing in a snow bank, he was unhurt, suffering only a few bruises. The train rolled by him on its way to Westmount, the passengers and crew completely unaware of what had happened. Only when the train failed to stop at Westmount, was any concern manifested. The conductor attributed the failure to stop to the engineer having forgotten to do so (Westmount was only a conditional stop in those days) and desided to allow him to go into Windsor Station, which the passenger who had widhed to descend was agreeable to.

While accounts in the possession of the writer do not give exact details, it is apparent that Engineer Cunningham finally left the engine, after trying unsuccessfully to stop it, somewhere after passing Westmount Station. The train continued until, with the speed still unchecked passing over the Guy Street interlocking, one of the trainmen suspected that the engine was out of control and pulled the emergency cord. This had the effect of checking the speed seriously, indeed with

such a shock that the passengers were shaken up considerably, and the sleeping car porter, caught unawares, perhaps making up his berths, was thrown halfway along the aisle of the car.

While the speed of the train was estimated to have been between thirty-five and forty miles per hour just before the emergency brakes were applied, nonetheless the momentum carried it into the station, through the buffer stop, across the concourse, through the wall separating the concourse from the ladies' waiting room, finally stopping in that room. The engine remained almost upright, leaning against one of the pillars supporting the ceiling. The tender sank part way through the floor into the vaults, while the baggage car jackknifed and broke through the glass and metal latticework which screened off the south end of the concourse overlooking Donegana Street (the westward extension of Lagauchetiere Street). The station at that time consisted only of five tracks, with the fifth track on the south side parallel to Donegana Street.

The death toll was tragic. Killed were Mrs. W.J. Nixon of Ash Avenue, Verdun, and her two children, Marjorie and Ross. Another child, Elsie Villiers, who was also in the waiting room at the time, also died in the accident. The fifth victim was Mark Cunningham, the engineer, who suffered a fractured skull when he jumped from the runaway engine sometime after Fireman Craig. Both were picked up by the Point Fortune local train which followed the Boston train into the station, but Cunningham never regained consciousness and he died the day after the accident.

The case of the Nixon family was a particularly pitiful one. Mrs. Nixon and her two children were at the station to wait the return of Mr. Nixon, a train dispatcher at Medicine Hat, who was due in on the transcontinental train some time later. When Nixon did arrive, he saw the accident, but hastened home to Ash Avenue to see his family. Being told by neighbours that his wife and children had gone to the station to meet him, he returned to Windsor Station only to find out the worst.

Several days were required to remove the engine, tender, and baggage car from the building. Building engineers were profuse in their admiration for the structure of the building which could stand the shock and remain structurally sound. The Passenger Department occupied the floor above the waiting room where many of the pillars were knocked out by the careening engine. One can picture the consternation in this department when the crash came and the floor suddenly sagged dangerously. Among the injured was a clerk in the office of the CPR special police service, who occupied offices in the vault below the concourse. He was trapped for two hours by broken building beams, but was extricated without serious injury. Thomas Whelan, a gateman who later became Stationmaster, showed great presence of mind, in getting passengers who were clustered around the end of the track awaiting the train, out of the way when it became obvious that the train was not going to stop. The contrasts were striking; The wreckage of the engine, tender, and the baggage car necessitated the dismantling of these units to remove them; the passenger cars didn't leave the tracks nor was a pane of glass broken in them.

An investigation headed by Mr. D. McNicoll of the Canadian Pacific Railway, revealed that a washout plug blew out on the fireman's side of the engine. Why the cab would fill with steam remains a mystery

(continued on page 32)

CANADIAN NATIONAL DISPOSES OF 231 LOCOMOTIVES IN 1958

During 1958, the Canadian National disposed of 231 locomotives, a total of thirty-two less than in 1957. Of the following list, engine 5529 was donated to the Museum of Transport, St. Louis, Mo.

Steam:-

(2-6-0)
E-10-a 86

(4-6-0)
F- 2-a 1166
F- 1-c 1167
H- 6-d 1334
1339
H- 6-g 1359
1367
1372
1376
1378
1381
1382
1392
1408
H- 6-c 1523

(2-8-0) 1574
M- 3-a 2104
2120
M- 3-c 2125
2126
2127
M- 3-d 2130
2131
2133
2143
2151
M- 3-e 2158
2159
2169
2172
2175
2176
N- 3-b 2343
N- 3-c 2366
N- 3-d 2380
2381
N- 1-b 2390
N- 1-a 2402
N- 1-b 2422
2429
N- 1-c 2453
N- 2-b 2483
2485
2491
2492
N- 2-b 2495
2498
2510
N- 4-a 2515
2523
2548
2556
2560
2564
2573
2579
2582
2585
2592
2598
2602
2604
2622
2634
2646
2657
N- 4-d 2673
N- 4-e 2675
N- 5-a 2687
N- 5-b 2713
2717
2718
2722
2726
2730
2731
2733
2739
2744
N- 5-c 2748
N- 5-d 2762
2764
M- 1-a 2820
M- 1-b 2824
2830

(2-8-2)
S- 1-a 3205
3249
S- 1-b 3258
3277
3289
S- 1-d 3339
3349
S- 1-d 3367
3374
3381
S- 1-c 3401
S- 1-f 3430
3434
3438
3442
3448
3449
3462
3467
3469
3472
3482
3499
3500
S- 1-g 3505
3510
S- 2-b 3560
3567
S- 2-c 3572
3573
3576
3580
3585
S- 3-a 3710
3714
3720
3728
3729
3730
3738
3739
4045
4073

(2-10-2)
T- 1-b 4010
4012
4017
T- 1-c 4037
4044
T- 3-a 4191
4192
T-4-a 4300
4301
4305
4306
T- 4-a 4313
T- 4-b 4316
4318
4319
4323
4324
4325
4326
4327
4328
4331

(4-6-2)
J- 1-a 5000
5002
J- 3-a 5044
J- 3-b 5064
5068
5076
J- 4-a 5081
J- 4-b 5085
5088
J- 4-c 5092
5096
5099
J- 4-d 5108
5113
5116
5124
J- 4-e 5132
5138
5139
5141
J- 4-f 5146
5147
5153
J- 7-a 5250
5277
K- 1-d 5529
K- 2-a 5545
K- 3-a 5557
5563
5564
5566
5567
K-3- b 5586
5593
5596
K- 3-d 5604
K- 3-d 5608
K- 3-g 5618

(4-8-2)
U- 1-a 6003
6008
6011
6013
U- 1-b 6018
6036

(4-8-4)
U- 2-a 6107
6111
6114
U- 2-b 6120
U- 2-c 6141
6149
6157

(0-6-0)
O-10-a 7250
O-13-a 7304
O- 9-a 7308
O-12-b 7321
O-16-a 7340
7342
7346
7350
O-12-a 7373
7384
7385
7391
7393
7408
7411
O-18-a 7439
O-20-a 7535
7536
7540

(0-8-0)
P- 5-h 8382
8390
8405
8408
8413

diesel
GS-6-a 79

Grand Trunk Western locomotives - steam

S- 3-a 4067 (2-8-2)
O-18-b 7476, 7496, 7498 (0-6-0)
P- 5-j 8418 (0-8-0)

TOTAL: 231 locomotives

CANADIAN PACIFIC SCRAPS 197 LOCOMOTIVES IN 1958

DURING THE YEAR 1958, the Canadian Pacific Railway Company scrapped one hundred and ninety-seven steam locomotives. This totals thirty-six less than in 1957.

(4-6-0)

D- 4 437, 439, 441, 452, 456, 484, 489

D- 9 597

D-10 672, 675, 837, 846, 853, 879, 886, 887, 888, 924, 925, 962, 978, 985, 993, 997, 1003, 1020, 1021, 1024, 1029, 1032, 1056, 1059, 1060, 1061, 1063, 1086, 1105

(4-6-2)

G- 1 2210, 2220, 2230

G- 3 2310, 2312, 2313, 2330, 2333, 2342, 2346, 2347, 2348, 2350, 2351, 2355, 2382, 2386, 2393, 2402, 2410, 2413, 2416, 2425, 2431, 2456, 2458, 2462, 2463

G- 2 2521, 2523, 2525, 2533, 2534, 2539, 2540, 2548, 2553, 2572, 2575, 2584, 2592, 2593, 2594, 2617, 2657, 2665

G- 4 2701, 2705

(4-6-4)

H- 1 2800, 2801, 2806, 2807, 2809, 2810, 2813, 2828, 2842, 2855

(4-4-4)

F- 1 2990, 2990

F- 2 3000, 3004

(2-8-0)

M- 4 3418, 3428, 3433, 3437, 3471, 3473, 3488, 3490, 3495, 3499, 3509, 3545

N- 2 3601, 3639, 3657, 3662, 3720, 3721, 3723, 3731, 3736, 3742, 3748, 3749

N- 4 3954

(2-8-2)

P- 1 5100, 5101, 5104, 5109, 5110, 5120, 5121, 5122, 5126, 5127, 5140, 5142, 5154, 5155, 5157, 5169, 5177, 5182, 5190, 5194, 5200, 5204, 5201, 5215, 5217, 5220, 5222, 5223, 5228, 5235, 5239, 5249

P- 2 5323, 5347, 5350, 5368, 5380, 5382, 5383, 5384, 5385, 5386, 5389, 5419, 5424, 5425, 5426, 5447

(2-10-0)

R- 2 5750, 5751, 5752

R- 3 5759, 5771, 5775, 5776, 5782, 5786

(2-10-2)

S- 2 5800, 5801

(0-6-0)

U- 3 6280, 6290, 6295, 6298, 6301

(0-8-0)

V- 3 6908

V- 4 6925, 6936, 6940, 6942, 6946

V- 5 6960

(shop loco.)

SL - 2

SUMMARY

Class D4	7	Class H1	11	Class P1	32	Class V3	1
D9	1	F1	2	P2	16	V4	5
D10	29	F2	2	R2	3	V5	1
G1	3	M4	12	R3	6	SL	1
G3	43	N2	12	S2	2	TOTAL	197
G4	2	N4	1	U3	5		

Second instalment of...

The Story of Tunnels by O.S. Lavallée

AMERICAN TUNNELS AND THE HOOSAC TUNNEL

Paralleling railway construction in England, that in the United States tended more toward the construction of inclined planes, switchbacks and open loops to avoid hills and mountains, than the construction of tunnels. Despite this policy, there was a railway tunnel in use in the United States as early as 1833. I refer to the tunnel on the Allegheny Portage Railroad which was some 900 feet long. It has long since been abandoned but it was, without doubt, the first railway tunnel in America. One of the first really ambitious tunneling projects in the Western Hemisphere was the construction of the Hoosac Tunnel.

As early as 1819, proposals had been made for the construction of a canal from Boston to the Hudson River to provide a direct route between New England and the rapidly developing Middle West. A Necessary consideration in such a scheme was a tunnel through the Hoosac Mountain, and surveys were made for this purpose in 1825.

Nothing was done for a number of years and during this time, the railways showed conclusively their advantages over canals and the importance of the waterways began to diminish in the face of the new transportation medium. Thus, by 1848, when the tunelling of the Hoosac was again brought before the public, it was as a passage for a railway, the Troy and Greenfield Railroad Company, which had been organized to build from Greenfield to Williamstown, Massachusetts. No time was lost in beginning to put the plan into effect, and surveying began in 1850, construction in 1851. As planned, the tunnel was to be about 4¾ miles in length, and the section of the bore 20 to 22 feet high and 24 feet wide to provide eventually for double track. The job was to be attacked from four points. That is, the east and west portals, and from both sides of a shaft which was to be excavated near the centre of the tunnel.

The Legislature of the State of Massachusetts, not desiring to see the project fold up because of lack of funds and realizing the advantages of the completion of the Hoosac Tunnel, made an advance in the year 1854 in the form of a $2,000,000 loan to be repaid in periodical instalments. Thus encouraged, the Company awarded a $3,000,000 contract in 1855 for the construction of the tunnel. For various reasons, this first contract was cancelled shortly after and, following some negotiations in 1856, a $4,000,000 contract was awarded to another contractor who proceeded to excavate a 16 x 16 foot bore for appreximately 600 feet.

In 1861, however, this contractor failed and the State of Massachusetts forclosed on its mortgage of the tunnel, and took upon themselves the task of its completion. In this wise, the State-sponsored construction continued until the tunnel was about 1/3 completed. Once again, in 1869, the State entered into a contract, this time with a Montreal firm, W. & F. Shanley, to complete the works for something less than $4,600,000. Up to this time, the tunnel itself had cost the State of Massachusetts upwards of $7,000,000. Indeed, the appropriations for the construction began to assume the proportions of a public scandal and feeling ran high against this literal, as well as figurative, "hole" into which the public funds were being poured.

After the contract with the Shanleys came into effect, the

work began to show appreciable results and the last barriers were pierced in November 1872, between the headings from the western portal and the section from the bottom of the central shaft. The first train passed through the tunnel in February 1875 and regular service commenced on the following October 13th.

From a constructional viewpoint, the Hoosac Tunnel carries two distinctions. The first is having been the first tunnel in America where compressed air drills were used, their use having been inaugurated in France in the construction of the Mont Cenis Tunnel. For the second initial distinction, it was also the first work in America to use nitro-glycerin, which superseded the use of black powder in 1867, following experimentation. The nitro-glycerin was subsequently used exclusively, but not without high cost in human lives. It is estimated that 196 persons lost their lives during construction, and the majority of these deaths can be traced, directly or indirectly, to the ignorance of the potential powers of the nitro-glycerin. Indeed, it was discovered quite by accident that the safest way to handle this explosive was to freeze it. Twenty four years of disconnected and spasmodic construction were necessary to complete the Hoosac Tunnel, which, with its length of four miles and 685 yards, is the longest tunnel in the eastern United States.

The Hoosac was used by trains of the Fitchburg Railroad and later by those of the Boston & Maine. In 1911, the smoke nuisance was eliminated by the provision of electric locomotives which supplied adequate and satisfactory service for more than thirty-five years. Recently however, due to the extensive use of diesel-electric motive power units on American lines, the Boston & Maine Railroad has deemed it expedient to remove the electric locomotives and equipment; passenger trains now roar through, propelled by the brainchild of Herr Rudolf Diesel.

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In continental Europe, construction of railways led naturally to attempts to surmount the various mountain ranges. In the construction of railway lines over the Alps, in particular, we find the most spectacular and the greatest railway engineering works ever undertaken. This applies not only to tunnelling, but to bridges and viaducts as well.

Of the earlier projects, the line of railway in the former Austrian Empire over the Semmering Pass is worthy of note. This line, completed in 1850, was planned and constructed under the supervision of the great engineer, Karl Ritter von Ghega. The culminating point is the Semmering Tunnel, 1333 yards in length, which is not long as tunnels go, but is mentioned as a pioneer. It is situated at a height of 2940 feet above sea level.

MONT CENIS TUNNEL

Next in chronological order, and the first railway tunnel to negotiate the western or main chain of the Alps, was the Mont Cenis tunnel. The tunnel is a misnomer as it actually passes under the Col de Frejus, the highest point of Mont Cenis being seventeen miles distant. Construction began in 1857 and was in charge of the Italian Government, the cost of the venture being divided equally between the French Government, the Italian Government and the Victor Emmanuel Railway, which was to use the line. The method of hand drilling then in use, made the work proceed at a very slow pace and, from the point of view of the engineer in charge, one Germain Sommeilier, it was very far from satisfactory. Accordingly, Sommeillier developed a crude type of compressed air power

drill with which the work proceeded at about ten times the speed as was formerly the case. In the spring of 1865 about a third of the work was completed and the headings met on the day after Christmas of the year 1870. In 1868, a rack railway on the Fell system was built over the Mont Cenis pass, at a height of 6,860 feet. This line carried mail, baggage and passengers until the tunnel was completed. It was built to the strange gauge of 3' 7". First efforts to operate the line through the tunnel in June 1871 were anything but successful; out of three locomotive engineers to operate trains through the tunnel, two died of suffocation. The third was revived with difficulty. Clearly, ventilation of the 8 mile 832 yard tunnel and the high temperatures reported therein, began to cause its constructors to question the practicibility of the fourteen-year venture. Eventually, however, British coke-burning engines were purchased and the engine crews were trained to keep the engines under steam without fueling up in the tunnel. The highest point on the line is in the centre of the tunnel, at 4,248 feet above sea level.

SAINT GOTTHARD TUNNEL SYSTEM

The Mont Cenis Tunnel's completion in 1871 hastened preparations for the building of another great Alpine bore, the Saint Gotthard Tunnel and the railway line from Lucerne and Zurich in Switzerland, to Milan, Italy. The completion of the Mont Cenis provided a through connection between France and Italy, avoiding the time consuming journey along the French and Italian Rivieras to Genoa. The Saint Gotthard Railway was projected to fulfill a similar purpose in providing a direct route from eastern France and Germany, through Switzerland, to the Italian peninsula.

The Saint Gotthard Pass was an artery of earlier times; it was in use as early as the Sixth Century and like the neighbouring Simplon and St. Bernard Passes, it had a hospice situated near its summit for the use of travellers. This hospice was established in the 15th Century. At this time, an irregular post service operated over the pass, and this service was developed into twice-weekly service in 1693. Just over a century later, the Swiss Republic caused a road to be constructed over the pass, the road being completed in 1834. In 1842, the postal service was bettered to a daily service and as many as eight passengers could be accommodated in the "diligence" or coach. The roadway at this time was eighteen feet in width.

On August 9th, 1872, a contract was let to M. L. Favre and construction began at the Italian end on September 13th, and at the Swiss end on October 24th, 1872. Trouble with water emanating from underground springs began almost immediately. The workmen drilling the rock had to work in the midst of jets of water which were discharging powerful streams in enormous quantities. Water was not the only trouble; the length of the tunnel precluded proper ventilation methods with the primitive equipment of the time and disease arising from the vitiated air, from oil lamps, fumes of explosives, rock dust and other contributory causes, caused the loss of at least 200 men. Indeed, sixty percent of the force were ill at one time.

Another trouble was the instability of rock in the workings. This necessitated three thicknesses of lining in some sections and caused a great deal of difficulty. Types of rock encountered were dolomite, schist, gneiss, and granite. Progress in the earlier stages averaged about eighteen feet per day, but later, improved McKean drills were used and the work accelerated considerably. The two headings met on

February 29th, 1880 and, on Christmas Eve 1881, the first construction train passed through the Saint Gotthard. Regular traffic was established on May 27th, 1881 and the festivities lasted until June 1st.

The Saint Gotthard Tunnel, 9 miles and 564 yards in length, runs between Göschenen and Airolo, entirely in Switzerland. At its deepest point near the centre, the tunnel passes under the Kastelhorn which is 6,076 feet above track level. The northern portal is 3,640 feet and the southern portal is 3,755 feet above sea level. In the centre, the summit is reached, this being 3,786 feet above sea level. Approximately one million cubic yards of rock were removed. Louis Favre, the engineer in charge, did not live to see the completion of the tunnel as he died of an apoplectic stroke in the tunnel in 1879. At first, steam locomotives were used but they were replaced by electric traction on September 14th, 1920. The original owning company, the Saint Gotthard Railway, was incorporated into the Swiss Federal Railways in 1909.

The story of the Saint Gotthard Railway is not composed principally of the story of the 9½ mile tunnel, which, without its approach lines, would be useless indeed.

The northern approach involves the use of three, and the southern slope of four, spiral tunnels. These tunnels are of particular interest in that they were the first of their type ever to be constructed. They have since been emulated in different parts of the world, perhaps most familiarly to Canadians in the Canadian Pacific Railway spiral Tunnels in the Canadian Rockies. Spiral tunnels can also be found in the Persian mountains on the recently-constructed Trans-Iranian Railway and there is another of considerable size on the Transandine Railway between the Argentine and Chile in South America. The greatest use of them has been made by the Swiss and they are to be found on all of their transalpine railways.

The spiral tunnels on the north side of the Saint Gotthard Tunnel are the Pfaffensprung, 1635 yards long, the Wattinger, 1199 yards long, and the Leggistein, 1204 yards in length. Through their use, the line is raised approximately 400 feet in altitude in the vicinity of Wassen. Farther up the pass, the valley floor rises steeply, too steeply even for spiral tunnels on a main line railway, and it was thus necessary to construct the 9½ mile main tunnel. The pass itself is surmounted by a meter-gauge railway which connects the town of Göschenen at the north portal of the Saint Gotthard tunnel, with Brigue in the Rhone valley to the west, at the Swiss end of the Simplon Tunnel. The line also extends eastward to connect with the Rhaetian and Bernina Railways of the same gauge, operating in the St. Moritz and Davos area in the eastern Swiss Alps.

These meter-gauge lines afford even more latitude in the way of engineering features than a standard-gauge railway affords, and full use has been made of spiral tunnels and breath-taking viaducts. The Bernina Railway, which connects the St.Moritz resort area with the northern part of Italy, makes use of a double-spiral tunnel, one above the other, in its ascent of the Bernina Pass. The Rhaetian Railway, on its route from St.Moritz to the valley of the Rhine, passes through the 3 mile 1647 yard tunnel, the Albula Tunnel, situated at a height of 6133 feet above sea level. The construction of the Albula is noteworthy for the trouble experienced with ice-cold springs, contrasted, as we shall see later, with the abnormally hot springs which gave trouble in the Simplon.

To continue our description of tunnelling on the Saint Gotthard Railway, on the southern side of the main tunnel, the railway negotiates four spiral tunnels. First is the Freggio, 1712 yards long and immediately across the Ticino River is the Prato, 1711 yards in length, each tunnel giving the railway a difference in elevation of 118 feet. A short distance further on, the railway enters the Biaschina Gorge with two other spectacular spirals. The upper tunnel is the Piano Tondo, 1643 yards long and the lower is the [illegible] tunnel, 1706 yards in length. One tunnel is immediately above the other on the same side of the valley, and the line drops 300 feet at this point. Stations on each side of the Biashina spirals, Rodi-Fiesso and Giornico, 9 miles apart in a direct line, are 13½ miles distant by rail.

Let us now turn our attention towards the most ambitious project of all, the world-renowned Simplon.

(to be continued)

Windsor Station Accident (cont'd)

as the plug would be below, and outside of, the cab. All of the boiler staybolts appeared to be intact. The only person who might have been able to shed more details on this tragic accident, the engineer, was never able to give testimony before he died.

Fireman Craig, who, in an interview with a newspaper reporter, expressed fear that he would lose his job, remained with the company, becoming an engineer and retiring in April 1953. He died only six months ago. Engine 902 was taken to Angus Shops and repaired. As No. 2102, class E-5-e, it was finally scrapped in 1938

CANADIAN RAILROAD HISTORICAL ASSOCIATION

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NOTES and NEWS ... by Forster Kemp

- Canadian National Railways began operation of a new line in the Montreal Area in January. The line runs from Brosseau, Que, on the Rouses Point Subdivision, to Castle Gerdens on the Granby Subdivision (formerly Montreal & Southern Counties Rly.). First use of the line was made, commencing Wednesday, January 28th, by freight trains between the hours of 8:00 AM and 4:00PM for the purpose of settling the track. It is expected that all trains will be using the new line by the summer. The purpose of the line is to eliminate the necessity of trains, to and from the Rouses Point and Massena Subdivisions, having to back from St. Lambert to and from Southwark Yard, should they have cars to pick up or set off there. The new route, via the former M&SC Junction, will take them through Southwark Yard. It will also eliminate the sharp curvature of the line laid in 1864 to connect the Montreal & Champlain Rly. with

the Grand Trunk's Victoria Bridge line. This curvature would be accentuated by the new diversion which is being built west of St. Lambert station; a freight train using it would be describing almost three-quarters of a circle. It is expected that the present line from St. Lambert to Brosseau will be abandoned, with only the back spur from Southwark to Victoria Avenue being kept to serve industries in Ville le Moyne.

- Canadian National Railways has replaced its conventional local trains 89 and 90 between Ottawa and Barrys Bay, Ont., with "Railiner" service (Budd RDC units). The schedule has been arranged so that the cars arrive at Ottawa from Barrys Bay at 8:30 AM, and leave for the return trip at 5:30 PM. The service is on a trial basis, based on a decision reached after a hearing before the Board of Transport Commissioners, of the railway's application to discontinue passenger service. The new service began on March 2nd.

- Further to announcements concerning the abandonment of electric operation on the Canadian National's Montmorency Subdivision (Quebec City to St. Joachim), the last electric trains will apparently be:No. 48 which will leave Quebec at 11:59 PM on Sunday, March 15th and arrive at St. Joachim at 12:57 AM. Returning as No. 105, it will leave St. Joachim at 1:02 AM and terminate at St. Anne Station at 1:10 AM. No. 93 which will leave Montmorency Falls at 12:05 AM and arrive at Quebec at 12:20 AM, Monday, March 16th. A farewell excursion is being operated by the Canadian Railroad Historical Assn. on Sunday, March 15th.

- The last car operated by the Canadian National owned Niagara, St. Catharines and Toronto Railway (Thorold to Port Colborne Ont.), will arrive at the St. Catharines car barn at 8:24 PM on Saturday, March 28th. Two excursions are scheduled for the following day, Easter Sunday. One of these will be operated by the Upper Canada Railway Society, beginning after the arrival of train No. 104 at Merritton (scheduled at 10:12 AM), and returning in time for train No. 191 at 5:48 PM. According to recent reports, only two cars, numbers 83 and 623, are still serviceable. The line will continue to operate electric freight service.

- On Tuesday, June 23rd, buses will replace trams on the Montreal Transportation Commission's Route 17 CARTIERVILLE. The day selected is unusual as changes in Montreal's transit system are usually made on Sundays. June 23 is the eve of the feast of St. John the Baptist, the patron saint of French-speaking Canadians, who observe his feast day as a holiday. The five remaining MTC tramway lines will be changed over on Sunday, September 6. They are: Route 10 DELORIMIER, Route 24 MILLEN, Route 40 MONTREAL NORD, Route 45 PAPINEAU, and Route 54 ROSEMONT.

- After Labour-Day of this year, the only electrified passenger service in Canada will be that provided by the Toronto Transit Commission, and the Canadian National Railways' suburban service through the Mount Royal Tunnel. However, electric freight operations will still be found in several parts of the Dominion, as follows: Cornwall Street Railway at Cornwall, Ont., Oshawa Railway at Oshawa, Ont. (CNR), Grand River and Lake Erie & Northern Rlys. (CPR) Waterloo to Simcoe and Preston to Hespeler, Ont., London and Port Stanley Rly. from London to St. Thomas Ont. CNR also uses a trolley car to return riders to the top of the hump in its yard at Neebing, Ont., near Fort William. It operates on a separate track about one mile in length.

SURPLUS MAPS FOR SALE

The Custodian of the Association, Mr. S.S. Worthen, has the following used topographic maps for sale, as surplus material. While the maps are used, and some of them are quite old, they are all in very good condition, and may be had by applying to the Custodian at Box 22, Station B, Montreal 2, Canada. The price is 15¢ per sheet, proceeds going toward the Library Budget for 1959. When ordering, please give alternate selections where possible, as there are only single copies of some of the maps listed:

(All 1 mile to the inch)

Topographic Serial No.	Name	Top. Serial No.	Name
21 E/3	Malvina	40 I/10	Port Burwell
21 E/4	Coaticook	40 I/12	Bothwell
21 E/6	La Patrie	40 I/13	Strathroy
21 E/7	Woburn	40 I/16	Simcoe
21 E/10	Megantic	40 J/3,-6	Windsor
21 E/11	Scotstown	40 J/7	Belle River
21 E/12	Dudswell	40 J/9	Wallaceburg
21 E/13	Warwick	40 J/10	St.Clair Flats
21 E/14	Disraeli	40 J/16	Sarnia
21 E/15	St.Evariste	40 P/1	Brantford
21 E/16	Armstrong	40 P/2	Woodstock
21 G/1,-8 H4,-5	Saint John (NB)	40 P/3	Lucan
21 G/3	St. Stephen	40 P/4	Parkhill
21 G/6	Canoose River	40 P/5	Grand Bend
21 H/14	Petitcodiac	40 P/7	Stratford
21 H/15	Hillsborough	40 P/8	Galt
21 H/16	Amherst	40 P/9	Guelph
21 I/2	Moncton	40 P/10	Conestogo
21 I/14	Kouchibougouac	40 P/11	Seaforth
40 I/5	Ridgetown	40 P/13	Lucknow
40 I/9	Long Point	40 P/14	Wingham
		40 P/15	Palmerston
		40 P/16	Orangeville

THE FOLLOWING MAPS are offered for sale by Mr. W.E. Greening, 451 Mountain Avenue, Montreal, WE.3-8003. Those interested should apply direct to Mr. Greening.

Map of Manitoba and the North West Territories 1905, Federal Dept. of Agriculture, Ottawa -- $5.00

Map of Abitibi Region showing townships crossed by the line of the National Transcontinental Railway and those projected lying to the south of the railway. Ottawa, Dept.of Lands & Forests,1915- $6.00

Map of Manitoba and N.W.T., Dept. of Agric. Ottawa, 1915 --$5.00

COPY of plan of Upper Canada in 1793 by Wm.Chewett, Surveyor --$5.00

COPY of map of New France in 1685, Herbert Jaillot, Paris,1685 -$5.00

Copy of plan of Louisbourg made by the Chevalier de la Rigaud in 1756, published by LeRouge in Paris, 1758. Original in the service Hydrographique de la Marine, Paris. --$12.00

Map of British North America, J.Arrowsmith, London, 1854 --$10.00

Map of the N.W.T., Ottawa, Dept. of the Interior, 1875 --$10.00

Map of Manitoba and N.W.T., Ottawa, Dept. of Agric., 1904 --$5.00

Map of Labelle County and of the region northwest of Montreal, Dept. of Colonization, Quebec, 1915 --$5.00

Map of the Red River Colony,1811. Drawn up under supervision of Alex. MacLean, Secretary, HBCo. to accompany transfer of District of Assiniboia from Hudson Bay Co. to Lord Selkirk --$8.00

Map of Lower Canada showing Seigniories and townships done for Lord Dorchester by Gale and Duberger in 1794 --$10.00