Railway Department

PROVINCE OF BRITISH COLUMBIA

ANNUAL REPORT

Year Ended December 31st

1957

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1958

To His Honour FRANK MACKENZIE ROSS, C.M.G., M.C., LL.D.,
Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present herewith the Annual Report of the operations and activities of the Railway Department for the year ended December 31st, 1957.

LYLE WICKS,
Minister of Railways.

Victoria, B.C., February 17th, 1958.

VICTORIA, B.C., December 31st, 1957.

The Honourable Lyle Wicks,
Minister of Railways, Victoria, B.C.

SIR,—I beg to submit herewith the Fortieth Annual Report of the Railway Department, covering the year 1957, together with Appendices.

Your obedient servant,

W. H. SANDS,
Deputy Minister.

FOREWORD

The Railway Department kept pace with the demands of industry during the yeai, and pipe-lines, industrial roads, railways, and aerial tramways were inspected during construction and otherwise.

The training programme with respect to the training of off-highway equipment drivers was stepped up during 1957.

The Pacific Great Eastern Railway and logging and industrial operations benefited from the research facilities of the Department during 1957.

Regulations pursuant to the " Pipe-lines Act " were formulated during 1957, subsequent to a series of meetings with engineers from the oil companies and pipe-line companies.

Report of the Railway Department

PACIFIC GREAT EASTERN RAILWAY COMPANY

Inspection of Track, Structures, and Mechanical Facilities

Various operational phases of the Pacific Great Eastern Railway from North Vancouver to Prince George were inspected during 1957. Locomotives, rolling-stock, shop facilities, station facilities, communications and train operation, road-bed, bridges and structures, and the investigation of accidents were included in these inspections.

There is considerable improvement over previous years in the general condition of the track, road-bed, and right-of-way. Rail wear was noticeable in a number of places where curvatures were in excess of 10 degrees. This is due to increase in traffic and tonnage. A system of flange-oiling was recommended for locomotives in an effort to reduce rail wear at points on the railway where sharp curvature exists. Following is the rail-renewal programme from 1951 to the end of 1957:—

	Miles	Year
70-pound relay—Mile 45.8 to Mile 50.2	4.4	1953
85-pound rail (new)—		
Mile 39.0 to Mile 40.8	1.8	1956
Mile 40.8 to Mile 45.8	5.0	1955
Mile 45.8 to Mile 50.2	4.4	1956
Mile 50.2 to Mile 66.7	16.5	1951
Mile 66.7 to Mile 72.9	6.2	1952
Mile 72.9 to Mile 77.6	4.7	1954
Mile 77.6 to Mile 90.3	9.7	1954
Mile 90.3 to Mile 94.9	4.6	1955
Mile 94.9 to Mile 123.3	28.4	1956
Mile 123.3 to Mile 160.1	36.8	1955
Mile 160.1 to Mile 191.6	31.5	1954
Mile 191.6 to Mile 208.3	16.7	1956
Mile 258.5 to Mile 312.5	54.0	1957
Mile 386.3 to Mile 466.3	80.0	1952[1]
85-pound rail (second hand) — Mile 312.5 to Mile 320.1	7.6	1957
Total	312.3	

[1] Prince George extension.

The tie-renewal programme is well in hand. Considerable portions of the permanent way have been brought up to good main-line standards. Following is the ballasting programme from 1954 to the end of 1957:—

	Miles	Year
Mile 192.0 to Mile 218.9	26.9	1957
Mile 219.3 to Mile 238.3	19.0	1954
Mile 238.3 to Mile 243.3	5.0	1953
Mile 273.4 to Mile 305.5	32.1	1957
Mile 337.3 to Mile 348.7	11.4	1956
Mile 348.7 to Mile 376.4	27.7	1955
Mile 376.4 to Mile 382.3	5.9	1956
Mile 386.3 to Mile 406.3	20.0	1954
Total	148.0	

The relaying of 85-pound rail and ballasting on the section between Exeter and Williams Lake has been the most important work carried out to improve speed and safety of train operations during 1957. The coming year, 1958, should see the end of light steel on the main line, when the gaps between Mile 218 and Exeter and between Mile 320 and Baker are relaid. With the completion of the 85-pound rail over the entire line, operation and safety will be very much improved.

In addition to the aforementioned improvements, the following capital work has been completed during the year 1957:—

(1) 4 miles of new railway company sidings and spurs constructed—1.5 miles by the railway company forces and 2.5 miles by contract.
(2) 1.8 miles of extensions to railway company sidings.
(3) Twelve private sidings constructed during the year, representing 2.1 miles of private trackage.
(4) Tie-plating the 85-pound rail on tangents on the Squamish and Prince George subdivisions was continued, with approximately 4,500 tie-plates installed during the year.

Tie-renewal Programme.—A total of 144,832 ties were renewed during 1957. It is expected that, during 1958, 30,000 creosoted ties will be laid.

Drainage and Relocation, Mud Hill.—The work which commenced during 1956 at Mud Hill, which included cutting back of the side-hill slope, installation of sub-surface drainage, and relocation of trackage, was completed during 1957, so that by the end of the year the inspection revealed that conditions at Mud Hill are more stabilized than over previous years.

Soda Creek Tunnel.—The Soda Creek tunnel was eliminated by means of an open cut, and the work was completed by 1957. This work has removed a hazard, as the lining of the Soda Creek tunnel was in bad shape.

Seton Lake Grade Protection. — Riprap where required was completed and new retaining-walls were installed at various points on this subdivision.

Fencing.—Approximately 10 miles of new right-of-way fences in the Williams Lake and Quesnel areas were constructed and completed during 1957.

Track-lubricators. — Fifty new track-lubricators were purchased and installed on 85-pound rail during 1957.

Diesel Track-side Fueling Systems.—The advent of Budd trains rendered the diesel-fuelling systems at Lillooet and Williams Lake inadequate. Consequently, during 1957, railway company forces installed new fuel-lines at Quesnel shops to the main line adjacent to the station, and also installed a fuelling system at Lillooet, so that trains are not required to proceed to the shops for fuelling but may be fuelled at the station while baggage is being handled. This speeded up passenger service considerably.

Ballasting, Howe Sound, North Vancouver to Squamish.—Ballasting was completed along Howe Sound during the year. Slow orders were in evidence at the various points where highway construction was taking place, and flagmen were engaged so as to make operation safe; however, it can be reported that when the highway is completed, conditions along the Howe Sound portion of the railway will be very much improved as rock-scaling and retaining-walls may then be permanently completed.

Rock-scaling Programme. — A rock-scaling programme continued throughout the year. Considerable improvement was effected in the widening of narrow cuts and day-lighting of cuts, improving visibility and making snow-removal easier, particularly on the Squamish subdivision between Garibaldi and Pemberton.

Bridges and Structures.—During the year a number of pile trestles were constructed in North Vancouver and fifty-two other bridges were repaired and maintained on the line.

A number of new pipe culverts were installed, replacing existing timber culverts at various locations.

Stations.—Passenger facilities were greatly improved over the entire line during the year 1957. The new station at North Vancouver was completed, together with platforms, fences, and a parking area for motor-vehicles. A new station and freight-shed were completed at Squamish. The new Squamish station and freight-shed area is complete with black-top paving and parking-lot properly marked for the parking of motor-vehicles. Adequate outdoor lighting has been installed, and the passenger areas are properly marked off with white lines and pavement printing for public information. Station facilities at Williams Lake and Prince George were improved.

Mechanical Facilities.—Annual reports of previous years have reported that the mechanical facilities on the Pacific Great Eastern Railway were lacking in comparison with other facilities on the line. The extension of the railway from Squamish to Vancouver created an impetus in all departments of the railway company to bring facilities up to a better standard; consequently, the mechanical department of the railway was included in the general 1957 betterment programme to a large extent.

A new mechanical-maintenance shop of steel and concrete construction was built in North Vancouver, together with mechanical yards, rip-shed, and other facilities, and while this new installation was not completed by the end of 1957, it is expected it will be in operation during the early part of 1958. The new maintenance-shops and maintenance-yards in North Vancouver will not only take care of the extra maintenance brought about by the advent of trains originating in North Vancouver, but the new installations will go a long way to alleviating congestion in the mechanical department at Squamish, as it is expected a great number of the monthly inspections will be carried out at North Vancouver once the new facilities are in operation. The new shop is of modern design and is comparable to any similar shop on any railway in Canada, as it was designed to accommodate Budd cars and diesels, with no consideration for steam-locomotives, which are now a thing of the past.

During the latter part of 1957 a new diesel-maintenance shop was under construction at Squamish. This was a most necessary addition to the mechanical department, as the old shops, built in 1914, were designed to accommodate steam power and were entirely inadequate to handle the repairs of modern diesel locomotives and Budd trains. The new mechanical heavy-repair shop at Squamish is of steel and concrete construction, designed to modern trends for the accommodation of diesel-electric locomotives. The new shop incorporates the use of a wheel-truing machine. This new type of machine will true the wheels on diesel locomotives, Budd cars, and passenger-coaches without removing the wheels from the locomotive. Some of the more progressive railways in North America have installed such machines, and studies indicated that the wheels on a diesel-electric locomotive could be turned in a few hours, whereas with older methods locomotives were tied up for several days.

The company is to be commended on its choice of the new equipment being installed at the heavy-repair shops in Squamish, which includes a new 300-ton wheel-press and modern steel-wheel boring machine. The arrangement of the shop is such that one side of the shop is designed for heavy maintenance repairs, while the other side is so arranged to accommodate the daily servicing of modern diesel locomotives and Budd trains. Modern methods for handling lubricating-oil, waste oil, sand, and fuelling are incorporated in the over-all design of the new Squamish shop, and the design is such that it can be added to as the railroad progressively grows larger.

The advent of the extensions into the Peace River country, and the extension to North Vancouver, has necessitated the procurement of extra rolling-stock for the railway. A large number of box cars and gondola cars are being procured. Two additional diesel-

electric locomotives of 1,800 horse-power each were procured and placed in operation by the company during 1957. In addition, a large wrecking-crane was ordered for delivery early in 1958.

Level Crossings.—During the latter part of 1957 a complete survey was made of all level crossings on the Pacific Great Eastern Railway. The traffic engineer of the Department of Highways as well as the chief engineer of the Pacific Great Eastern Railway were present in the field during the survey. A number of recommendations were made to improve safety at level crossings, and in some cases automatic protection has been recommended. In this regard, the automatic protection ordered for the level crossing in the Village of Quesnel was not completed by the end of 1957, but it is expected the signal will be in operation during the early part of 1958. The delay has been caused due to the inaccessibility of repair and installation parts of the automatic crossing signal.

At a number of points on the line, grade-separation projects were in evidence during the survey, and it is expected that a number of level crossings will be eliminated by under and over passes. The survey extended to a portion of the northern extension north to Prince George, where a number of level crossings will exist as well as a number of overpasses, implementing the advantage of grade separation.

In West Vancouver two automatic protection-gates were installed and placed in operation during 1957.

The seven new Budd cars procured during 1956 were placed in full operation during 1957. A fast passenger service has thus been inaugurated between North Vancouver and Prince George. The travelling time between North Vancouver and Prince George, now 16½ hours, has eliminated the necessity of hauling a dining-car, which has been replaced by serving aeroplane-type meals on the train. The company is to be commended upon the excellent service rendered by the use of Budd cars, and it is to be noted that trains now operate on time, with the exception of the usual delays on any railroad where slides and washouts are liable to occur. It can therefore be expected that the efficiency of train service will be improved as the improvements and betterments progress.

Extensions

The southern extension of the line from Squamish to North Vancouver was in full operation during 1957, which permitted the company to abandon the use of ferries and barge-slips between Squamish and Vancouver, thereby permitting all traffic to be hauled by rail. By the end of 1957 the construction on the Squamish–North Vancouver extension was completed, with the exception of betterments and buildings, which will be taken care of on the annual operating budget.

The northern extension of the line from Prince George to Fort St. John and Dawson Creek continued during 1957, so that, by the end of the year, steel was laid 130 miles north of Prince George. The grading was completed from Prince George to Fort St. John and the grade under construction on the branch line to Dawson Creek in the Peace River area. A tunnel in the Pine Pass area was not completed by the end of 1957, but it is expected the tunnel would be completed during the first month of 1958. With the completion of the tunnel, steel-laying will continue, so that it is expected that steel will be laid into the junction at Chetwynd by March 15th, 1958, with steel into Fort St. John by May 1st, 1958. The railway bridge across the Peace River was completed by the end of 1957, so that when the steel-laying gangs arrive there will be no delay at this point. Spurs were surveyed and laid out to serve the processing plant at Taylor Flats.

The advent of the extensions of the Pacific Great Eastern Railway ushered in a new era in communications on railways, as the company has installed a microwave system which will operate from North Vancouver to Fort St. John and Dawson Creek. The new system of communications will make the telephone communication formerly used obso-

lete, as now trains can communicate directly with dispatchers and vice versa, and also all company communication can be carried over the microwave system. The company's communication department engineered the project, and it can be reported the system is very successful and will do much to increase the efficiency of railway operation.

It is expected that traffic will be moving over the northern extension from Fort St. John to Prince George before the end of 1958, and it is probable that steel will be laid into Dawson Creek before the end of the year.

Conclusion

Conditions on the permanent way of the Pacific Great Eastern Railway have greatly improved during the year 1957. The line is safe for operation, and it is expected the improvements which will go forward during 1958 will do much to speed up traffic over the line.

The Budd cars purchased during 1956 are doing excellent work, and the passenger service and passenger schedules have been much improved.

The Squamish to North Vancouver extension was in full operation during 1957, and it is expected that the northern extension will have progressed during 1958 to the point that traffic will be moving over the northern extension before the end of 1958.

During 1957 the Pacific Great Eastern Railway added a safety director to its staff, and by the end of the year the results of a concerted effort on the part of the company have shown up. The Department Inspectors advise and assist this safety director.

B.C. ELECTRIC RAILWAY, NEW WESTMINSTER TO CHILLIWACK

On August 5th, 1957, a general inspection was made of the British Columbia Electric Railway Company's line from New Westminster to Chilliwack, a distance of 63.8 miles. Generally the line is in good condition.

Weed-control is well in hand over the entire line. Chemical weed-killer is being used and applied by the company's own equipment.

All level crossings are maintained in accordance with the "Railway Act." Two automatic crossing installations exist—one at Scott Road and the other at King George Highway. A third signal of the gate and flashing-light type has been approved by the Department for installation at the new Trans-Canada Highway in the vicinity of Chilliwack.

Freight traffic has increased steadily on this line over the past five years. The section between Huntingdon and New Westminster serves as a transfer between the Northern Pacific and the Milwaukee Road terminals in Huntingdon and the C.P.R., C.N.R., G.N.R., and P.G.E.R. in the Vancouver area. Seven diesel-electric locomotives were in service at the time of the inspection, and subsequently two new G.M. 900-horse-power diesel-electric locomotives have been added.

The betterment programme started in 1951 is 80 per cent completed. New 85-pound rail is replacing the old 70-pound, and by 1958 all rail will be renewed. Creosoted ties and reballasting is following through with the rail-renewal. All bridges have been rebuilt and are in good condition. The railway is generally in good condition and safe for operation.

The Annacis Island railway is a branch line of the B.C. Electric Railway and was officially opened for traffic during the latter part of 1956. This railway was considerably extended during 1957 to accommodate industrial expansion on the Annacis Island Estate. All spurs and railway installations were inspected prior to installation and approval given.

GENERAL INSPECTION OF RAILWAYS AND OTHER TRANSPORT

RAILWAYS

General Trend.—It is common knowledge that the provincially owned Pacific Great Eastern Railway is being extended by the Government to open up the country and to keep pace with the industrial expansion and population increase.

A few years ago it was thought that trucking was a cheaper means of transport than railways. Several of the logging companies tore up their railways and installed truck-roads on the right-of-way. It has now come to light that in certain operations the cost to haul logs by truck is approximately two or three times greater than the cost to haul by rail when based on dollars and cents per thousand board-feet hauled. One of the larger logging companies installed a new logging-railway last year. The bulk of timber to be hauled, together with the distance the timber was to be hauled, justified a railway rather than a truck-road, and the cost per thousand board-feet by rail was so much lower than by truck that the truck-road was not justified.

Logging-railways.—All logging-railways in British Columbia were inspected during the year. These inspections included bridges, log-dumps, road-bed, rolling-stock, and locomotives. All steam-locomotives in use had the boilers hydrostatically tested and certified by Inspectors of the Department. Where logging-railways are used, the trend is toward a combination of logging-trucks and railway.

The Comox Logging & Railway Company operation at Ladysmith incorporates the use of both trucks and railway. The operation at Englewood of Canadian Forest Products Limited now transfers the loads of logs directly from the logging-trucks to railway cars so they can be transported by rail 30 or 40 miles to tidewater where the sorting is done and booms made up.

At such logging operations the Inspectors also made inspections of logging-trucks and truck-roads. They conducted examinations of railwaymen and examinations of logging-truck operators. At most of the operations the Inspectors conducted driver-training courses for truck-drivers and also safety courses for railwaymen. The operation and dispatching of railways was checked, as well as the operation and safety of truck-roads.

The two new diesel-electric locomotives placed in service during 1956 at the Canadian Forest Products Limited logging operation at Englewood have continued to do excellent work during 1957. All diesel locomotives were inspected and certified during the year, as well as all steam-locomotives at the Englewood operation.

The railway of British Columbia Forest Products Limited at Port Renfrew operated part time during the year 1957. At this operation the railway is used to transport logs from the trucks to tidewater, and during certain periods of the year the railway operation is shut down and other parts of the operation using trucks are put into full production.

Safety Trophy.—Since 1952 the Department has put up a safety trophy which is competed for by the various logging-railway companies. The trophy was won for the year 1956 by the Comox Logging & Railway Company at its Ladysmith operation.

Mining-railways.—All mining-railways throughout British Columbia were inspected during the year. The Sullivan mine operation in Kimberley has several miles of narrow-gauge railway operating between the mouth of the mine and the tipple at Kimberley. Electric locomotives are used at this operation. The company is very safety conscious, and the railway is in excellent condition. No accidents were reported on this railway during the year. The Morrissey, Fernie and Michel Railway has for a number of years enjoyed a very good safety record.

At the Trail smelter of the Consolidated Mining and Smelting Company of Canada, the narrow-gauge railway or tramming operation was inspected several times during the

year. All motormen on this operation are certified by the Department. Various matters involving safety have been straightened out by the Department Inspectors during the year at Trail, with particular reference to the lead-concentrator operation, where recommendations have resulted in safe practice.

Kitimat.—The terminal railway of the Aluminum Company of Canada Limited at Kitimat was inspected during the year. The locomotives were tested and the general operation of the railway checked. Reports of unsafe conditions reported by union officials were investigated by the Inspectors, and it was found most of the trouble originated through misunderstandings, which were straightened out once the proper procedures were established.

Steel-mills.—The steel-mills in the Vancouver area own and operate their own trackage in and around the plants. Railway locomotive cranes operate on the trackage switching cars and loading steel. The boilers of these cranes were hydrostatically tested and certificates issued during the year. Engineers operating the locomotive cranes were examined and certified.

Shipyards.—The shipyards in Vancouver and Victoria own their own trackage to serve the plants. The trackage and locomotive cranes employed were tested and inspected during the year. At Yarrows Limited, in Victoria, the bridge cranes in the shops and the hammer-head crane on the dock were inspected as to safety and lifting capacity. In one case, load tests were made in the interest of safety.

Board of Transport Commissioners, Ottawa.—For the past twenty years the Inspectors of the Department have been appointed as Locomotive Inspectors by the Board of Transport Commissioners. This appointment is made through the Department of Lands and Forests, so that the fire-protective appliances on all locomotives operating under Board jurisdiction within British Columbia are tested. In this capacity the Inspectors inspect locomotives for fire protection on lines operating under the jurisdiction of the Board. During 1957 the advent of dieselization on the main-line railways has reduced the number of inspections necessary on the Canadian Pacific Railway, the Canadian National Railway, and the Great Northern Railway in British Columbia. This also includes the Esquimalt and Nanaimo Railway and the Canadian National Railway on Vancouver Island. Reports were submitted of all inspections made to the Board in Ottawa, who, in turn, took up any defects with the railways and the Department of Lands and Forests.

Pulp-mills.—During 1957 a large pulp-mill was under construction at Crofton, and a railway and trackage system were under construction to serve the plant both from the Esquimalt and Nanaimo Railway and from the wharves. This trackage was inspected during construction and plans approved. In some cases it was necessary to recommend changes to eliminate close clearances. This company operates its own diesel-electric locomotive at the Crofton pulp-mill, which was inspected and crews instructed and examined so that certified personnel would be available for the operation of the railway.

The trackage serving the pulp-mill of MacMillan & Bloedel Limited at Port Alberni was considerably extended during 1957, as was the trackage and equipment of the same company's pulp-mill at Harmac. At Harmac a 65-ton diesel-electric locomotive is used. During the year, inspections were made of the locomotive and rolling-stock.

At the Columbia Cellulose Company Limited plant at Prince Rupert, trackage and locomotives were inspected and personnel certified. The log-dump was also inspected. This log-dump is operated by the company, using railway cars hauled by the Canadian National Railway.

A barge-slip was installed during 1957 at Port Alice to serve the pulp-mill of Alaska Pine and Cellulose Limited. This was done to extend rail service to Port Alice by means

of a barge-slip and car-barges. The installation was approved by the Department and was inspected upon completion.

At the Elk Falls Company Limited paper-mill at Duncan Bay, Vancouver Island, the barge-slip and trackage, as well as steam-locomotive and equipment, were inspected. At this plant, close clearances required a certain amount of adjustment, which was handled during this inspection.

Canadian Industries Limited.—The barge-slip, trackage, and wharf of this plant at James Island were inspected. A diesel-electric locomotive is used to switch the barge-slip and to switch cars around the plant. The locomotive was tested and personnel examined and instructed in railway safety.

Small Narrow-gauge Railways.—The narrow-gauge railway which serves the power plant at Jordan River on Vancouver Island was inspected. This railway is several miles in length and exists to service the flume which serves the power-house. Two small gas-locomotives are in use. At the time of the inspection, the railway operating personnel on location were instructed as to safe practices.

A narrow-gauge (3-foot) railway has been constructed and is operated by Mr. G. Wellburn at Deerholme. This railway is operated by railway fan societies and by Mr. Wellburn. A 15-ton steam-locomotive is used, as well as 3-foot-gauge rolling-stock, speeders, and other historical railway equipment. The railway was inspected in the interests of safety, and as the locomotive is used only periodically, it was not subjected to a hydrostatic test during 1957 but is scheduled for one during the early part of 1958. It was recommended to Mr. Wellburn that in the interests of fire protection the locomotive burn oil instead of wood. This request was complied with, and the locomotive was converted to burn diesel fuel-oil.

The miniature railway operated by the Vancouver Parks Board in Stanley Park was inspected, and the miniature boiler of the steam-locomotive (which carries 150 pounds pressure per square inch) was inspected and certified in the interests of public safety as a number of children are on and around the locomotive during the summer months.

AERIAL-TRAMWAY TRANSPORTATION

The use of aerial tramways in British Columbia has developed steadily over the past ten years. Three passenger-carrying chair lifts operate on Grouse Mountain and Hollyburn Ridge, adjacent to Vancouver. These aerial tramways are common carriers, and their installation and tariff are under the jurisdiction of the "Railway Act." The tramways were inspected and certified during the year, and complaints by the public were investigated by the Department.

Adjacent to Trail and Rossland, the Red Mountain Aerial Tramway operates to serve a ski-ground in that area. Four years ago the Department recommended a modernization programme so that the tramway would be brought up to modern standards over a period of time. It can be reported at this time that during 1957 the modernization programme was completed, and the Red Mountain Aerial Tramway is now in very good operating condition and a certificate to operate was issued.

A number of ski-tows within the Province were considered to fall within the category of an aerial tramway, and consequently ski-tows were also inspected under the same regulations as aerial tramways.

The aerial tramway of the Cassiar Asbestos Corporation, in the northern part of the Province, was not inspected during 1957 as an arrangement was made with the Department of Mines to have the Mine Inspectors inspect this installation when they were in the district.

The North-west Telephone Company found it necessary to install a large and complicated aerial tramway on Dog Mountain, in the vicinity of Yale, in order to serve one

of its microwave towers. This aerial tramway falls within the jurisdiction of the "Railway Act," and consequently the design was approved by the Department after being carefully checked by the inspecting engineers. Upon completion the aerial tramway was tested and certified, and it is now in operation as a part of the North-west Telephone system.

The crossing of aerial-tramway cables over the lines of the Pacific Great Eastern Railway near Quesnel was approved by the Department in August, 1957.

INDUSTRIAL TRANSPORTATION

Truck Logging.—During 1957 the use of heavy-duty logging-trucks and trailers has once more been on the increase. One hundred and twenty-four new and reconditioned logging units were put into service by truck-manufacturers during the year in the Vancouver area alone.

Reports to the Department have shown at least twenty cases where the operation of the required safety devices has saved trucks and possibly the lives of the operators when failures of the braking system have occurred. No report of any serious injury to drivers of trucks equipped to safety standards has been received.

A total of 867 logging units of all types were inspected and tested. In some cases these units required alterations or additions to the brake equipment, and in most instances these defects were promptly rectified. It was found that an occasional operator failed to make the necessary repairs to his vehicle, thereby forcing the Department to put his unit out of service until such time as it was repaired to meet operating standards.

Where formerly vacuum and hydraulic brakes were found to be sufficient for what was required, now air brakes have been found to be safer and more efficient. One disadvantage in using air brakes in the Interior has been the amount of moisture collecting in the air-reservoirs due to the severe climatic conditions. This condensation was found to be adversely affecting the mechanism of the different air valves. Upon advice from the Department, moisture-ejector valves were installed in the air system, which subsequently eliminated this trouble.

The Department Inspectors have conducted classes in all parts of the Province to teach safety and train drivers of equipment as to the safe use of air brakes and safety devices used in transportation. The talks and lectures are of a technical nature. Examinations are then conducted, and successful candidates are issued certificates of proficiency.

The Department operates two portable training units, travelling to all parts of the Province for the convenience of Interior drivers. These units are fully equipped with demonstration air-brake equipment and compressed air for the operation of the equipment, as well as a movie projector and slide projector. Complete examination material is also carried, so the Inspector can set up classes and examinations anywhere.

A truck-driver's training classroom has been set up at the Dominion-Provincial Vocation School in Nanaimo, where the Inspectors conduct courses each month and examine truck-drivers in the Central Island area. The classroom has been equipped with operating air-brake devices. One hundred and forty-six students were trained and examined at the school alone with the aid of these panels, as well as logging-truck drivers from the surrounding districts. All truck-drivers in industry who hire through Vancouver receive instruction and take examinations at the Vancouver office.

A total of 742 truck-drivers were certified during the year, bringing the total number examined to well over 2,500 to date. In addition, two more complete units were constructed for use in the Vancouver office, where other groups have been trained in the use of air brakes.

Truck Hauling, Mining.—There has been a noted increase in the number of trucks used in the hauling of ore in the Province.

Difficulties encountered in the braking systems of the truck-trailer units at Argonaut Mines Limited at Campbell River were investigated and overcome by an Inspector from the Department.

The roads and equipment of Empire Development at Port McNeill were inspected, and minor changes in roads and bridges were found to be necessary.

Western Nickel Limited, which began construction work at Hope, is expected to begin hauling early in 1958. The road was inspected, and it was found that quite a few sections of the road and some of the bridges required repairs. It is to the credit of the company that these repairs were made immediately.

The general feeling amongst operators and drivers is that while some time and money have been involved in the installation of this safety equipment, safety to driver and machine has increased tenfold. The feeling of assurance that comes from knowing that tested equipment and devices are now in use on the truck that is driven by a trained and certified operator cannot be measured in dollars and cents.

A talk was delivered to the Interior Lumber Manufacturers' Association at Penticton on the "Industrial Transportation Act" and a demonstration of the safety devices shown by the use of the working model on a panel board depicting a complete air-brake system. A similar talk and demonstration was also delivered at the annual safety meeting of the International Woodworkers of America at the Georgia Hotel in Vancouver.

PIPE-LINES

During 1957, pipe-line matters in the Province showed increased activity as a number of pipe-lines were under construction. A Pipe-line Inspector was appointed on January 1st, 1957.

Four hundred and six miles of various-sized pipe-lines, predominantly gas but including some oil, were constructed, inspected, and tested during 1957, with a number of applications pending for 1958.

Plans and specifications for bulk oil-products storage plants at Pemberton, Williams Lake, Clinton, and Squamish were approved by the Department, and the plants were constructed. During 1957 the oil and gas companies completed the following construction with respect to pipe-lines:—

Shell Oil Company: An oil-products line in Burnaby (2 miles).

Defence Construction Limited (Department of National Defence): Two jet-fuel lines for aircraft at Comox on Vancouver Island (6 miles).

Inland Natural Gas Company: A high-pressure natural-gas main line extending from a connection with Westcoast Transmission line at Savona through the Interior of the Province by way of Kamloops, Vernon, Oyama, Kelowna, Penticton, Osoyoos, Grand Forks, Trail, Castlegar, and terminating at Nelson (375 miles). In addition, the company also constructed numerous laterals to Interior cities and towns both from its own main line to adjacent locations and also from the main line of Westcoast Transmission Company to locations farther west.

Pacific Petroleums Limited: A series of short natural-gas "gathering" lines from gas-wells in the vast Fort St. John fields to feed the large-capacity Westcoast Transmission line.

Plains-Western Gas & Electric Company: A natural-gas utility line extending from the Pacific Petroleums gas cleaning and processing plant at Taylor on the Peace River to supply the needs of Fort St. John.

The location of pipe-line in some areas created a certain amount of misunderstanding between survey crews and property-owners. One case in point was in the Castlegar-Thrums area, where the relocation of the pipe-line was necessary subsequent to a survey conducted by the Department engineers.

Pipe-line regulations pursuant to the Act were prepared and approved during 1957. These will greatly assist in the administration of the Act both in the office and in the field.

The "Pipe-lines Act" administers pipe-lines located wholly within the Province, and inspecting engineers of the Department provide the inspection service required.

Before putting a pipe-line into operation following a field inspection a report certifying its safety and soundness of construction is submitted, and the Minister issues an order of his approval.

Following are the various pipe-lines constructed, inspected, and approved for operation in 1957 (main lines, laterals, and stubs which may operate under pressures up to 960 pounds per square inch are included):—

	Miles
Inland Natural Gas Company—	
Main line	298.00
Prince George lateral	3.03
Williams Lake lateral	6.77
100 Mile House lateral	0.06
Quesnel lateral	2.41
Kamloops lateral and stubs	3.73
Salmon Arm–Enderby	27.47
Merritt lateral	2.92
Summerland lateral	9.90
Vernon stub	0.37
Kelowna lateral	1.20
Osoyoos lateral	13.02
Oliver stub	1.19
Grand Forks lateral	0.50
Rossland-Trail stub	4.21
Nelson stub	0.37
	375.15
Shell Oil Company Limited	2.00
Pacific Petroleums Limited	20.00
Plains-Western Gas & Electric Company	9.00
Total	406.15

SAFETY

Following is a report of equipment inspections during 1957:—

Hydrostatic tests applied to boilers	62
Internal and external inspections of boilers	6
Internal-combustion locomotives inspected and certified	10
Internal-combustion locomotive cranes inspected and certified	15
Air-locomotives hydrostatically tested	9
Electric locomotives inspected and certified	12
Rail-cars inspected and certified	19
Air-receivers tested and inspected	9
Diesel-electric locomotives inspected and certified	58
Electric locomotives inspected on narrow-gauge electric railways	14
Diesel-electric locomotives inspected on Alcan project	3
Locomotives inspected other than hydrostatic tests	41
Logging-trucks inspected	867
Number of cars inspected on industrial railways	352

Number of cars inspected on common-carrier railways	190
Miles of track inspected	875
Aerial tramways inspected in British Columbia and certified	6
Aerial-tramway inspections conducted	15
Locomotive engineers examined and certified	1
Conductors examined and certified	4
Power-car operators examined and certified	6
Internal-combustion locomotive engineers examined and certified	17
Locomotive-crane engineers examined and certified	5
Engineers examined and certificates issued, P.G.E. Railway	10
Engineers examined and certificates issued, B.C. Electric Railway	2
Motormen examined and certified, Consolidated Mining and Smelting Co. of Canada	8
Logging-truck operators examined and certified	742
Students examined and certified at Dominion-Provincial Vocational School, Nanaimo	146
Accidents investigated on logging and industrial railways	1
Accidents investigated on logging-truck roads	9
Fatal accidents investigated on logging-truck roads	1
Accidents on P.G.E. Railway	24
Fatal accidents on P.G.E. Railway	6
New diesel-electric locomotives	5
New diesel-electric cranes	1
Second-hand diesel-electric locomotives imported	2
Safety lectures conducted by the Department	15
Truck air-brake lectures conducted by Department	132
Inspection of locomotive fire-protective appliances on P.G.E. Railway and industrial railways	24
Inspections made of locomotive fire-protective appliances on C.P.R., C.N.R., and G.N.R., for Board of Transport Commissioners	26

APPENDICES

APPENDIX A

Accidents Reported

	Killed		Injured	
	1956	1957	1956	1957
Pacific Great Eastern Railway Co.—				
Passengers	1	--	3	4
Employees	1	--	3	8
Other persons	--	8	7	12
B.C. Electric Railway Co. Ltd.—				
Passengers	--	--	--	--
Employees	--	--	2	3
Other persons	--	--	7	3
Industrial railways—				
Employees	1	--	3	1
Other persons	--	--	--	--
Locomotive cranes—Employees	--	--	--	--
Aerial tramways (industrial)	--	--	--	--
Industrial roads (trucks)	3	3	1	2
Totals	6	11	26	33

APPENDIX B

List of Railways and Summary of Mileage

Industrial Railways

No. and Owners/Name of Railway	Head Office	Operating	Mileage			Gauge
			Main Track	Sidings etc.	Total	
Standard Gauge						
Mainland						
1. Arrowhead Wood Preservers Ltd.	Revelstoke	Revelstoke	0.92	.....	0.92[1]	Standard.
2. Columbia Cellulose Co. Ltd.	Montreal	Watson Island, Shames, and Kalum	.....	7.01	7.01[1]	"
3. Dominion Tar & Chemical Co. Ltd.	Montreal	North Vancouver	1.00	7.00	8.00	"
4. Morrissey, Fernie & Michel Railway Co.	Fernie	Fernie	3.44	2.69	6.13	"
5. Pacific Coast Terminals Co. Ltd.	New Westminster	New Westminster	5.20	.....	5.20	"
6. Canada Creosoting Co. Ltd.	Montreal	North Vancouver	.....	0.75	0.75	"
7. Howe Sound Transportation Co. Ltd.	Vancouver	Port Mellon	1.00	2.00	3.00	"
8. Aluminum Co. of Canada Ltd.	Montreal	Kitimat	2.90	2.80	5.70	"
9. Hooker Chemicals Ltd.	North Vancouver	North Vancouver	0.10	1.90	2.00	"
10. Western Plywood (Cariboo) Ltd.	Quesnel	Walker Siding	0.95	.....	0.95	"
Totals, Mainland	.....	.....	15.51	24.15	39.66	
Vancouver Island						
11. MacMillan & Bloedel Ltd.	Nanaimo	Harmac Pulp Division	1.80	.....	1.80	"
12. MacMillan & Bloedel Ltd.	Vancouver	Franklin River	36.80	2.70	39.50	"
13. MacMillan & Bloedel Ltd.	Chemainus	Chemainus	1.58	3.81	5.39	"
14. MacMillan & Bloedel Ltd. / Nanaimo River Railway	Chemainus	Dunsmuir District	1.00	3.10	4.10	"
15. Elk Falls Co. Ltd.	Duncan Bay	Duncan Bay	3.00	.....	3.00	"
16. B.C. Forest Products Ltd.	Vancouver	Youbou	15.40	1.90	17.30[2]	"
17. B.C. Forest Products Ltd. / Renfrew Division, South	Vancouver	Port Renfrew	16.50	3.90	20.40	"
18. B.C. Forest Products Ltd.	Vancouver	Crofton	1.15	2.15	3.30	"
19. Canadian Collieries Resources Ltd.	Union Bay	Union Bay	2.00	4.00	6.00	"
20. Canadian Forest Products Ltd.	Vancouver	Englewood	129.20	17.10	146.30	"
21. Comox Logging & Railway Co.	Ladysmith	Ladysmith	23.40	5.05	28.45	"
22. Hillcrest Lumber Co. Ltd.	Mesachie Lake	Mesachie Lake	6.00	1.50	7.50[3]	"
23. Mayo Lumber Co. Ltd.	Paldi	Paldi	0.25	1.00	1.25	"
24. Osborn Bay Wharf Co. Ltd.	Mesachie Lake	Osborn Bay	0.33	.....	0.33	"
25. Western Forest Industries Ltd.	Honeymoon Bay	Honeymoon Bay	7.00	0.60	7.60[4]	"
26. Alaska Pine & Cellulose Ltd.	Vancouver	Port Alice plant	.....	0.42	0.42	"
Totals, Vancouver Island	.....	.....	245.41	47.23	292.64	
Totals, industrial railways, standard gauge	.....	.....	260.92	71.38	332.30	

[1] All leased.
[2] Includes 5 miles leased.
[3] Includes 5 miles leased.
[4] Includes 7 miles leased.

APPENDIX B—*Continued*

LIST OF RAILWAYS AND SUMMARY OF MILEAGE—*Continued*

Industrial Railways—Continued

No. and Owners/Name of Railway	Head Office	Operating	Mileage			Gauge
			Main Track	Sidings etc.	Total	
NARROW GAUGE						
Mainland						
27. Crow's Nest Pass Coal Co. Ltd.	Fernie	Fernie, Coal Creek, Elk River, and Michel	7.15	.....	7.15	30".
28. Canada Creosoting Co. Ltd.	Montreal	New Westminster	6.00	.....	6.00[5]	30" and standard.
29. Consolidated Mining & Smelting Co. of Canada Ltd.	Trail	Trail	19.00	.....	19.00	18".
30. Consolidated Mining & Smelting Co. of Canada Ltd.	Trail	Kimberley	9.00	33.01	42.01	18", 36".
Totals, Mainland			41.15	33.01	74.16	
Vancouver Island						
31. Canadian Industries Ltd.	Montreal	James Island	8.25	1.75	10.00	36" and standard.
Totals, Vancouver Island			8.25	1.75	10.00	
Totals, industrial railways, narrow gauge			49.40	34.76	84.16	
Totals, all industrial railways in British Columbia			310.32	106.14	416.46	
Common Carrier						
32. Pacific Great Eastern Railway	Vancouver	Vancouver, Squamish, to Prince George—				
		Main line	465.90	.....	.....	Standard.
		Sidings	.....	51.40	.....	"
		Spurs, wyes, etc.	.....	33.25	.....	"
		Private spurs	.....	16.60	.....	"
Totals			465.90	101.25	567.15	
Street and Interurban Electric Railways						
33. B.C. Electric Railway Co. Ltd.	Vancouver	New Westminster	76.97	25.65	102.62	Standard.
Grand total			.....	.....	1086.23	

[5] Includes 3 miles leased.

APPENDIX C

Mileage of All Railways Operating in the Province

	Mainland		Island		Total	
	Main Line	Sidings	*Main Line*	Sidings	*Main Line*	Sidings
Under the jurisdiction of the Board of Transport Commissioners for Canada—						
Canadian Pacific Railway	1,824.53	549.96	200.24	53.54	2,024.77	603.50
Canadian National Railways	1,342.14	398.53	90.17	24.21	1,432.31	422.74
Great Northern Railway	123.20	40.75	.....	.....	123.20	40.75
B.C. Electric Railway	26.25	26.58	.....	.....	26.25	26.58
Totals	3,316.12	1,015.82	290.41	77.75	3,606.53	1,093.57
Under the jurisdiction of the Provincial Government—						
Pacific Great Eastern Railway	465.90	101.25	.....	.....	465.90	101.25
B.C. Electric Railway	76.97	25.65	.....	.....	76.97	25.65
Industrial railways—						
Standard gauge	15.51	24.15	245.41	47.23	260.92	71.38
Narrow gauge	41.15	33.01	8.25	1.75	49.40	34.76
Totals	599.53	184.06	253.66	48.98	853.19	233.04
Grand totals	3,915.65	1,199.88	544.07	126.73	4,459.72	1,326.61

Total mileage of all railways in British Columbia in 1957	5,786.33
Total mileage of all railways in British Columbia in 1956	5,750.61
Increase in railway mileage during 1957	35.72

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