

PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF COMMERCIAL TRANSPORT

HON. E. C. WESTWOOD, *Minister*

A. J. BOWERING, *Deputy Minister*

REPORT OF THE
Department of
Commercial Transport

containing the reports on

RAILWAYS, AERIAL TRAMWAYS, PIPE-LINES,
INDUSTRIAL TRANSPORTATION,
and COMMERCIAL VEHICLES

YEAR ENDED DECEMBER 31

1962



Printed by A. SUTTON, Printer to the Queen's Most Excellent Majesty
in right of the Province of British Columbia.

1963

STATE OF TEXAS

COMMISSIONERS OF THE GENERAL LAND OFFICE

TO THE HONORABLE SENATE AND HOUSE OF REPRESENTATIVES

REPORT

OF THE

COMMISSIONERS

FOR THE YEAR 1881

PRINTED BY THE STATE PRINTING OFFICE

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THE STATE OF TEXAS, 1882

VICTORIA, B.C., January 21, 1963.

*To Major-General the Honourable GEORGE RANDOLPH PEARKES,
V.C., P.C., C.B., D.S.O., M.C.,
Lieutenant-Governor of the Province of British Columbia.*

MAY IT PLEASE YOUR HONOUR:

The undersigned respectfully submits the Annual Report of the Department of Commercial Transport for the year ended December 31, 1962.

EARLE C. WESTWOOD,
Minister of Commercial Transport.

*The Honourable Earle C. Westwood,
Minister of Commercial Transport.*

SIR,—I have the honour to submit the Annual Report of the Department of Commercial Transport for the year ended December 31, 1962.

A. J. BOWERING,
Deputy Minister of Commercial Transport.

Report of the Department of Commercial Transport, 1962

A. J. BOWERING, DEPUTY MINISTER

INTRODUCTION

In reporting on the operation of the Department of Commercial Transport for the year 1962, a number of interesting events affecting the Department may be noted.

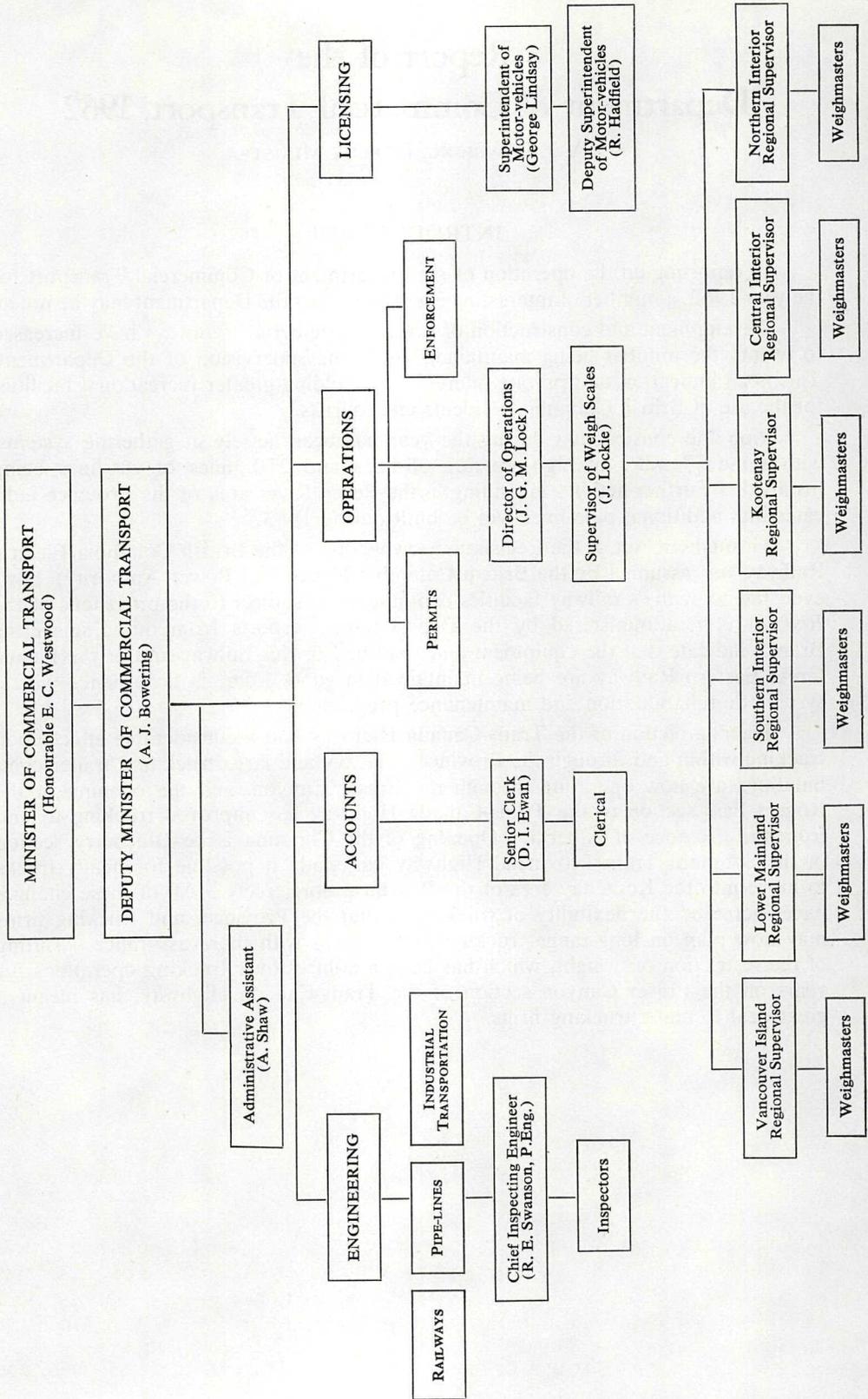
Development and construction of several more aerial tramways have increased to twenty the number being maintained under the supervision of the Department. This is an indication that private interests are building greater recreational facilities for the use of British Columbia residents and tourists.

Pipe-line construction during the year has been largely in gathering systems, with some 57 miles of high-pressure oil-lines and 270 miles of gas-lines being installed. Further activity in drilling in the Peace River area of the Province indicates that additional pipe-lines will be built during 1963.

Through an Act of the Legislature, ownership of the British Columbia Electric Railway was assumed by the British Columbia Hydro and Power Authority; however, the company's railway facilities continue to be subject to the provisions of the *Railway Act*, administered by the Department. Reports from our Engineering Branch indicate that the equipment and road-bed of this railway and of the Pacific Great Eastern Railway are being maintained in good order, in accordance with a systematic rehabilitation and maintenance programme.

The completion of the Trans-Canada Highway had a considerable effect upon trucking within and through the Province. Heavy and large truck and trailer combinations are now operating through the Fraser Canyon, and the opening of the Rogers Pass section of the Trans-Canada Highway has improved trucking to and from the Province of Alberta. Opening of the Christina Lake-Blueberry section of the Southern Trans-Provincial Highway has made it possible for heavy trucks to move into the Kootenay area of the Province more freely. All of these changes have increased the flexibility of trucking within the Province, and trucking firms may now plan on long-range trucking programmes with more assurance. Lifting of the restriction on weight, which has been a control over trucking operations for years on the Fraser Canyon section of the Trans-Canada Highway, has meant a great deal to many trucking firms.

ORGANIZATION CHART



COMMERCIAL VEHICLE BRANCH AND ACCOUNTS BRANCH

GEORGE LINDSAY, SUPERINTENDENT OF MOTOR-VEHICLES

J. G. M. LOCK, DIRECTOR OF OPERATIONS

D. I. EWAN, SENIOR CLERK

Road construction in British Columbia emanated from the introduction in the House of Assembly of Vancouver Island in the year 1860 of a *Road Act*, which provided for enforcement of Statute labour on roads. Despite considerable protest, this system prevailed until the year 1866, when a Bill establishing road districts was passed, based upon a \$2 annual road tax.

The successful completion of the trail from Yale to Spuzzum in 1860 created considerable interest in road-building in the Province, and from this was born the idea of building the Cariboo Road.

Preliminary engineering surveys conducted along the chosen route from Yale to Lytton and thence to Spences Bridge indicated the necessity of a crossing of the Fraser River. In the year 1863 the first Alexandra Suspension Bridge was built by Mr. J. W. Trutch.

This road from Yale north through the Fraser Canyon was used until 1880, when construction of the Canadian Pacific Railway destroyed portions of the road at various points, including the section immediately north of Yale.

Not until 1924 was any attempt made to replace the sections which had been destroyed. By 1927, however, there was again a completed road ready for use from Yale north. This construction included a new suspension bridge at Alexandra, which was built for heavier loads.

To provide revenue to pay for this new road, which was expensive, a toll-gate was established immediately north of Yale, where the road entered the narrow rocky section of the canyon. This toll-gate was also used for weighing trucks, as there was a gross limit of 30,000 pounds placed on vehicles using the road.

Improvements over the following years made it possible to increase this gross weight limit for trucks to 40,000 pounds. This increased load limit remained in effect until 1962, when the present Alexandra Bridge was opened. Alexandra III, as it is sometimes called, was designed and constructed to carry heavy modern equipment, and the present weight allowance for regular trucks and combinations is 76,000 pounds.

But let us look back at some of the history of this great accomplishment which has made this important change in trucking. In 1861 Governor Douglas, after receiving a report from the Royal Engineers, wrote to the Duke of Newcastle and in part said:—

“The information which I have thus laid before your Grace leaves no room for doubt as to the vast auriferous wealth and extraordinary productive capacity of British Columbia; and with scarcely less probability it may be assumed as a natural consequence resulting from the marvelous discoveries of Cariboo that there will be a rush thither, and an enormous increase of population becomes one of the paramount duties of the Government. I, therefore, propose to push on rapidly with the formation of roads during the coming winter in order to have the great thoroughfare leading to the remotest mines, now upwards of five hundred miles from the seacoast, so improved as to render travel easy, and to reduce the cost of transport, thereby securing the whole trade of the colony for Fraser's River and defeating all attempts at competition from Oregon.

"The only insuperable difficulty I experience is want of funds; the revenue of the colony will doubtless in the course of the year furnish the means, but cannot supply the funds that are immediately wanted to carry on these works—I have, under these circumstances, come to the resolution of meeting the contingency and raising the necessary funds by effecting a loan of £15,000 or £20,000 in this country, which will probably be a sufficient sum until I receive the loan which your Grace gave me hopes of effecting for the colonies in England."

May, 1862, saw the commencement of construction of the first 6 miles of the Cariboo Road by the Engineers under the direction of Captain Grant, R.E. Further contracts totalling over \$200,000 were awarded to Thomas Spence, J. W. Trutch, Walter Moberly, and Charles Oppenheim, but defection of the workmen to the goldfields and an epidemic of smallpox among the Chinese and Indians employed resulted in delays, and it was necessary for the Government to complete certain of the contracts.

Early transportation facilities were provided by means of mule trains of from sixteen to forty-eight animals. Freight from 250 to 400 pounds was carried on a sort of leather sack filled with straw, girded on the animal's back. The trip from Yale to Spences Bridge took nine days, and thence to the Cariboo, seventeen days. In the always present search for improvement, one of the many packers conceived the idea that camels might serve better than mules, and in May of 1862 the first of a string of twenty-one camels was placed into service. Alas! the experiment was not successful, as the rocky terrain, instead of the sand to which they were accustomed, proved unsuitable for the camels' feet. This and many other pertinent problems initiated litigation which resulted in the withdrawal of the camels from service.

In 1863 the road was completed, with the exception of the portion between Chapman Bar and Boston Bar to Soda Creek, and freight began to move without delay over the completed portions.

The introduction of toll charges by the Government on certain roads in 1864 was continued until 1886. Records indicate that a total of \$879,223 was collected in tolls during that fiscal period. This amounted to slightly under 27 per cent of the total road expenditure in the same period. These figures include only tolls collected by the Government and not those collected by the holders of private charters.

The discovery of the Cariboo goldfields gave great impetus to the development of transportation and road haulage facilities of the era. The goldfield settlements demanded supplies, and vast quantities of all nature of goods, from pins to pianos and bales of hay, shipped from San Francisco via Victoria and New Westminster, were hauled to the Cariboo mines. It is reported that the value of such imports into Victoria in the year 1862 was in excess of \$3,500,000.

The first freight line was introduced by the famous Billy Ballou in 1858 between Victoria and the Fraser River diggings. Soon after, Kent & Smith's Express was established, and on the Douglas-Lillooet Trail Messrs. Lindhart and Barnard began to operate. For the first few years, however, Ballou's Express remained the chief link between the goldfields and the outside world.

Although it was in 1860 that F. J. Barnard really entered the field of transportation by carrying express in a pack on his back, and then in 1862 by pony express, it was not until the year 1863 that Barnard became an active competitor, when he underbid Ballou in connection with a Government express contract.

From this point Barnard's future was assured, and Barnard's Express continued to grow. He introduced wagons into the express service, and in 1864 put the first stage-coach into service on the road.

Cost of construction and maintenance of the roads of the Province was borne from general revenue, and up to 1886 road taxes and tolls had provided approximately a 30-per-cent return on the investment. With the advent of the motor-car, however, the licence fees were a factor to be considered, and later a tax on gasoline.

Motor-car fees were first collected in 1903-4, amounting to some \$36. They did not represent any appreciable portion of the road expenditure until recent years.

As the popularity of the motor-car increased, changed conditions were required with respect to roads. Smoother surfaces, better grades and curvature were required, involving greater expenditures.

From the initial trails, built to accommodate foot passengers and mule trains, to the multitude of modern highways which we are privileged to enjoy today; from early wagons of Barnard's Express to the modern tractor-trailer units used today, a big step has been made by the pioneers of this country. The annals of history will record the names of these great men, responsible for the foundation upon which has been built the great road and transportation systems within British Columbia.

Judge Howay, in a graphic description of the Cariboo Road, said:—

"Reaching from Yale, the head of navigation, to the mines of Cariboo, a distance of nearly four hundred miles, and solidly and substantially constructed by our infant colony in less than three years, this road was the pride of British Columbia, and a source of wonder and admiration to its visitors, who were loud in their expressions of surprise at the daring conception and skilful execution of the work. Here the road was supported by piling—there built upon immense masonry 'fills,' sometimes on gigantic cribwork, the ruins of which remain—sometimes cut through a sheer rock bluff, now almost at the water's level and anon raised to a giddy elevation whence the river seemed but a silver ribbon. As one has said 'If we could look back into the past along that mighty highway, what a strange scene we would behold. Long lines of pack animals, heavy freight wagons, six-horse coaches, with the well-known faces of their passengers, camels and traction engines, an army of men with pack straps, some going, some returning, many unsuccessful, men drunk and men sober—all sorts and conditions of men—a motley crowd; bustling activity at the rough and ready roadhouses; such was the Cariboo road in the balmy days of its greatness that are no more."

This description by Judge Howay portrayed the ingenuity and intestinal fortitude of early residents of the Province. How these people would have enjoyed the use of modern-day equipment for construction, and even more so the modern truck-and-trailer combinations for transportation purposes.

The opening of Alexandra III for traffic provided the final strong link on the road from Vancouver to Prince George for heavy gross loads of 76,000 pounds. This major accomplishment in completing reconstruction of all the bridges through the Fraser Canyon section of highway has made the year 1962 one of outstanding importance to the trucking industry of this Province. In future years, truck operators will look back to this date as a turning-point in progress and improvement in the industry. For the first time in the history of the Province, two routes to the Interior area are now open for heavy trucking, and freight may be moved more directly to its destination.

OPERATIONS AND ACCOUNTS

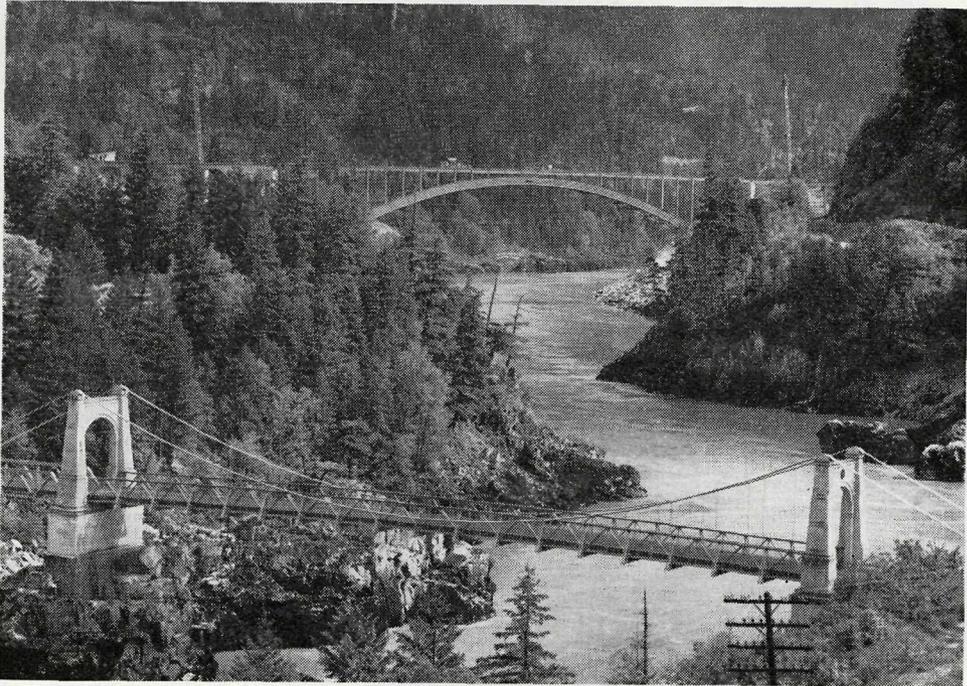
In the year 1962 there was a further increase in the use of restricted-route permits by operators hauling logs, poles, piling, and rough lumber. Increased activity in the forest industry, particularly in the Interior of the Province, has created this increased demand for permits.



Alexandra I.



Alexandra II.



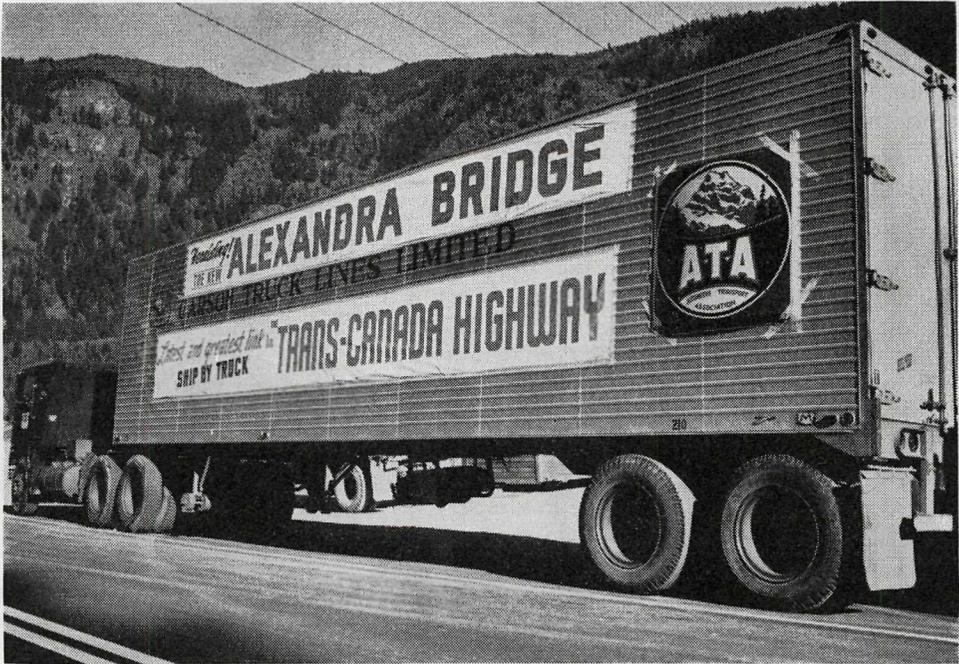
Alexandra II and III.

Further extension to the list and mileage of highways which have been classed for heavier trucking was made during the past year. The most important sections added to Schedule 8 of the regulations included the Fraser Canyon and Rogers Pass sections of the Trans-Canada Highway and the Christina Lake-Blueberry sections of the Southern Trans-Provincial Highway.

Opening of the Trans-Canada Highway through Rogers Pass has had a considerable effect upon trucking through the Province. Many firms are now using this route to Alberta, and trucks are travelling a greater distance within the Province of British Columbia. This will increase fuel taxes paid to the Province. Trucks which formerly operated over the Hope-Princeton Highway through Merritt to Spences Bridge are now travelling directly north from Hope on their way to Prince George. This has not only meant a saving in time and distance to operators, but it has decreased operating costs considerably as the grades on the Trans-Canada Highway through the Fraser Canyon are generally much easier than those encountered on the Hope-Princeton Highway.

The reduction in time required for trucks to travel from Vancouver to points in Alberta by the opening of the Trans-Canada Highway through Rogers Pass has increased trucking potential in the Province. Fresh fruit from various areas of the Province may now be placed in stores in Alberta in better condition at less cost. Lumber, poles, and piling are being hauled to other Provinces by truck rather than by railway. Plywood, cattle, and many other commodities are now moving more freely into and out of the Province.

As a result of this change in export of produce, trucking trends are altering, and provision for additional personnel at some points in the Province was necessary to take care of operators' requirements. At Golden three weighmasters have been employed at the weigh-station since the highway was opened to provide a twenty-four-hour control on trucking and a service to truckers.



Official cavalcade opening Alexandra III.

Opening of a new weigh-scale at Sicamous, on the Trans-Canada Highway near its junction with the Okanagan Highway, has provided a necessary control on trucking in the area. This new station has also provided a suitable location for the British Columbia Tree Fruit Board to check vehicles for transportation of fruit and vegetables.

The year 1962 has been the first full year in which weighmasters have checked trucks for operating authority under the *Motor Carrier Act*. Although only 7 per cent of all vehicles checked for this purpose were operating in violation of the *Motor Carrier Act* and regulations, the results from these checks have improved conditions generally in the trucking industry. Checking of commercial vehicles for this purpose will be continued during 1963, and the present level of enforcement will be maintained.

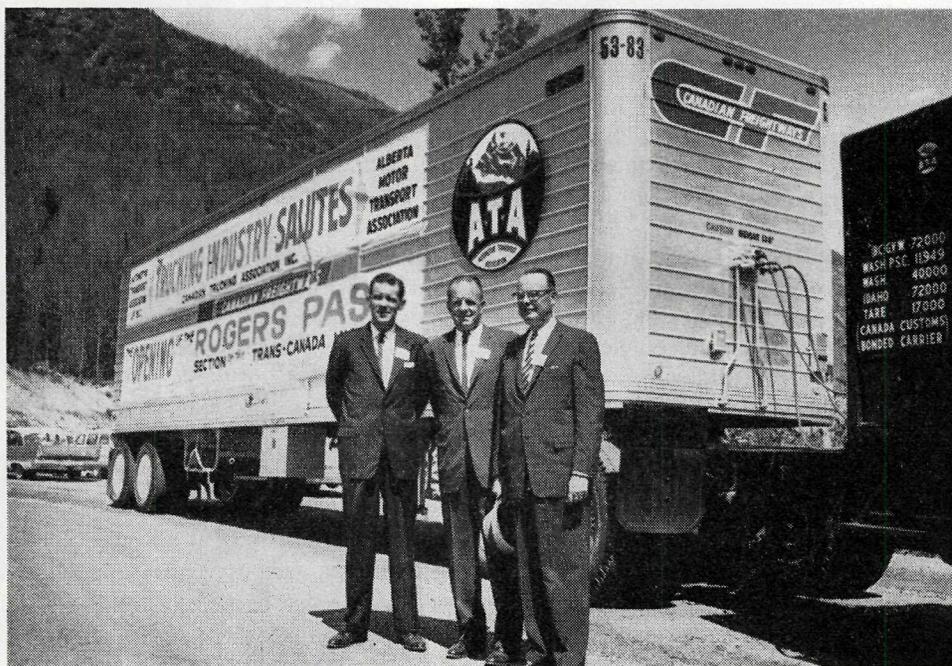
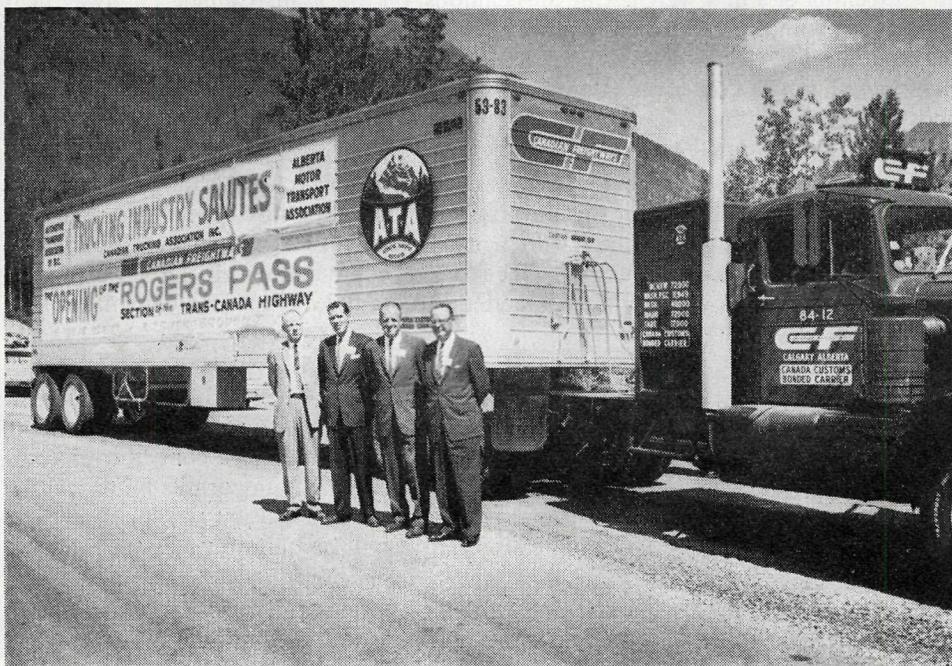
In the northern section of the Province, exploration for natural gas and oil continues at an active pace, resulting in frequent movement of heavy drilling equipment. Field staff of the Department have been busy checking these trucks and arranging for permits to move the large and heavy loads. To provide more control over commercial vehicles, and to make it possible for operators to obtain permits more readily, a new weigh-station has been built at Fort Nelson. This station was opened early in December, and there is every indication that it will be quite busy.

Construction work which has been carried out in connection with the new Peace River dam has required a considerable amount of attention from our field staff due to the movement of heavy equipment into the construction-site. Additional heavy equipment will likely move into this area in 1963 as progress is made on further construction contracts.

In other areas of the Province, development of mines has resulted in the movement of some heavy equipment, particularly on Vancouver Island and in the Merritt-Ashcroft area. Ore from the Bethlehem copper mine, south-east of Ashcroft, will be hauled by truck to tidewater at North Vancouver. The company expects to move 25,000 tons of concentrates annually in this manner. Opening of the Fraser Canyon section of the Trans-Canada Highway for maximum loads has been of real benefit in this operation. Copper concentrates being mined and milled at Phoenix, near Greenwood, will be moved by truck to North Vancouver in 1963. This operation calls for the movement of 1,200 tons per month.

During 1962 violation notices issued by the Department have been separated into three types. These notices segregate violations for revenue enforcement, *Motor Carrier Act* enforcement, and enforcement for oversize and overweight loads. The new forms have increased efficiency, and they are simpler for the operators to understand. More information is now available for ready analysis of the level of enforcement in each area of control.

Mileage charts which were produced by the Department in 1961 have been revised in line with new highway construction. These charts have been distributed to many operators in the industry for their use in calculating the cost of moving overweight loads. They also ensure uniform issuance of permits at all field offices. Several departments of government are using them for various reasons, including checking of mileage operated by private vehicles. Copies of mileage charts have been provided to the Automotive Transport Association, Construction Equipment Association, Heavy Construction Association, Royal Canadian Mounted Police, Liquor Control Board, Commissioner of Income Tax, as well as the Departments of Highways, Finance, and Agriculture, the British Columbia Toll Authority, and several others.



Official opening of Rogers Pass section of the Trans-Canada Highway.

The Reciprocal Commercial Vehicle Licencing Agreement which was entered into between this Province and fourteen States of the United States of America has proven satisfactory during the past year, and it is being extended for a further year. This Agreement has provided more flexibility for operators engaged in international trucking operations and has increased the export of commodities such as shingles, peat, and frozen fish. The arrangement has reduced over-all licence fees paid by operators, and it has provided them with a larger field for their trucking operations without reducing over-all Provincial revenue.

Auditing of the operators' records is carried out by using information taken at the time vehicles covered by the Agreement enter the Province at border point weigh-scales. This information has proven very useful when firms apply for new licences and state the mileage their vehicles have operated within the Province.

Movement of commercial vehicles, and particularly large trucking combinations, has changed to some extent since the Rogers Pass section of the Trans-Canada Highway has been opened and heavier units are permitted through the Fraser Canyon. It will be interesting to note how these highway improvements will affect trucking within and through the Province during 1963. Some adjustment of field staff has been necessary due to this change in trucking, and further moves may be required.

There has been a normal increase in the number of commercial vehicles registered in the Province, and this is expected to continue.

The average number of permits audited by the Accounts Branch during 1962 has been 2,100 per month. Auditing of operators' reports on term permits is done by checking these with weigh-station reports. The number of charge accounts has remained at approximately 500, showing the acceptance of this simple method of paying for oversize and overweight permits.

Portable weighing units operated by the field staff continue to check vehicles in areas where there are no permanent scales established. This operation not only provides control over large and heavy loads, but makes it possible for operators to obtain necessary permits to move trucks without travelling a considerable distance to weigh-stations or Government offices. Generally, the trucking industry is co-operating very well with the field staff of this Department and frequently requests assistance in the movement of large and heavy loads. Portable units are directed to areas by radio or telephone when required for this purpose.

During the twelve-month period a total of 1,300,000 trucks was checked at the Department's weigh-stations to ensure that they were not oversize or overweight and to ensure that they were correctly licensed. A smaller percentage of these vehicles was found to be out of line with Provincial regulations than in the previous year, which indicates that operators are becoming more familiar with the rules they are required to operate under.

The Department's field staff continues to carry out duties for other departments, including the Department of Agriculture, British Columbia Forest Service, Department of Finance, Department of Highways, Department of Municipal Affairs, and the Motor Carrier Branch of the Public Utilities Commission.

The Director of Operations and his staff continue to maintain a close liaison with the Department of Highways so as to keep an up-to-date record of bridge and road restrictions. A large-scale map of the Province is utilized for this purpose. It is posted with small flags of various colours, showing details of all bridge and highway restrictions. During the spring break-up period, all seasonal restrictions are posted on the map as well. As weather conditions change rapidly and restrictions are altered frequently, this is a quick way of providing necessary information.

A ready reference, kept up to date in this manner, is particularly useful when inquiries are received by telephone regarding the possibility of moving heavy loads.

TABLE NO. 1.—REVENUE FROM GASOLINE AND MOTIVE-FUEL USE TAXES FOR PASSENGER-CARS AND COMMERCIAL VEHICLES

Fiscal Year	Amount	Fiscal Year	Amount
1952/53	\$14,574,000	1957/58	\$24,500,000
1953/54	15,963,000	1958/59	26,100,000
1954/55	17,455,000	1959/60	28,582,000
1955/56	19,820,000	1960/61	30,093,000
1956/57	22,593,000	1961/62	39,262,000

TABLE NO. 2.—SUMMARY OF COMMERCIAL VEHICLE LICENCES AND PERMITS ISSUED, JANUARY 1, 1962, TO DECEMBER 31, 1962

Month	Number of Commercial Vehicles Registered and Licensed ¹	Number of Commercial Trailers Registered and Licensed ¹	Number of Non-resident Permits Issued	Number of Temporary Operation Permits Issued	Number of Oversize and Overweight Permits Issued	Number of Vehicles Checked at Weigh-stations
January	15,229	1,096	1,280	1,116	1,781	85,099
February	61,260	3,868	1,206	1,123	1,667	108,822
March	16,585	2,836	1,812	2,552	2,025	128,158
April	6,073	408	973	2,206	1,960	89,503
May	5,000	665	1,022	2,402	1,977	90,316
June	4,072	426	1,368	2,334	2,164	130,923
July	2,841	335	1,118	1,814	2,030	102,404
August	2,405	160	1,227	1,879	2,601	119,412
September	1,961	150	1,166	1,504	2,171	107,282
October	1,797	211	1,174	1,711	2,125	108,798
November	1,697	146	1,077	1,620	2,207	123,100
December	1,129	156	988	1,223	1,342	95,191
Totals	120,049	10,457	14,411	21,484	24,050	1,289,008

¹ Includes vehicles licensed under prorate agreement with American States.

TABLE NO. 3.—SUMMARY OF PRORATE OPERATIONS, 1962

	Companies Pro-rated	Tractor Units	Trailer Units	Reciprocity Plates
British Columbia	84	363	529	—
United States	193	2,050	3,470	12
Totals	277	2,413	3,999	12

TABLE NO. 4.—COMPARISON OF GROSS REVENUE COLLECTIONS FROM COMMERCIAL LICENCE AND PERMIT FEES FOR FIVE-YEAR PERIOD 1957/58 TO 1961/62, INCLUSIVE.

Source	1957/58	1958/59	1959/60	1960/61	1961/62
Commercial motor-vehicle licences	\$4,359,750.33	\$4,470,162.49	\$6,804,101.57	\$7,541,536.02 ¹	\$7,938,605.82
Non-resident commercial permits	106,882.19	133,716.34	189,374.06 ²	401,976.11	478,156.17
Trailer fees	185,866.41	201,547.95	128,123.38	60,325.00 ³	57,452.34
Temporary operation permits			5,001.20	45,765.00	58,442.51
Oversize and overweight permits		21,176.00	276,741.12 ⁴	317,568.53	321,730.55
Totals	\$4,652,498.93	\$4,826,602.78	\$7,403,341.33	\$8,367,170.66	\$8,854,387.39

¹ Commenced issuing licences on gross vehicle weight January 1, 1960.

² Department of Commercial Transport commenced issuing permits June 15, 1959.

³ Licence fees now collected on gross-vehicle-weight basis are charged to tractor unit and \$10 nominal fee collected on trailer. This has reduced trailer fees and transferred them to commercial vehicle licences.

⁴ Department of Commercial Transport commenced issuing permits July 15, 1959.

TABLE NO. 5.—SUMMARY OF VIOLATION NOTICES ISSUED, JANUARY 1, 1962, TO DECEMBER 31, 1962

Licence and Permit Violations

Gross vehicle weight	1,565
Motor-vehicle registration	249
Licence-plates	487
Trailer plates	77
Quarterly licence	11
Non-resident permit	18
Temporary operation permit	8
Motive-fuel emblem	21
Overweight permit	7
Oversize permit	38
Restricted-route permit	26
Highway crossing permit	31
Proration	19
Other	27
Total violations	2,584¹

¹ This figure represents 0.19 per cent of vehicles checked.

Motor Carrier Violations

Motor-carrier plates not displayed	283
Motor-carrier licence not carried	387
Conditions of licence not carried	424
Operating otherwise than permitted by licence	226
Total violations	1,320¹
Total number of vehicles checked	19,009

¹ The figure represents 6.9 per cent of vehicles checked.

Weight Violations

Overweight	647
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An 85-foot piggyback flat capable of carrying two 40-foot highway trailer vans at the same time.

ENGINEERING BRANCH
**(Railways, Aerial Tramways, Pipe-lines,
and Industrial Transportation)**

R. E. SWANSON, P.ENG., CHIEF INSPECTING ENGINEER

RAILWAYS

Remarkable changes in the nation's transportation system have taken place over the last fifteen years. A more complex transportation system has developed in which road carriers have expanded their business fourfold and air lines twelvefold, while oil pipe-lines now account for a significant portion of total freight. Among the traditional carriers, water-borne transport has almost doubled its volume, but railways generally have experienced difficulties in maintaining theirs.

A significant change, largely due to the development of alternative forms of transportation, is the heightened degree of competition in the transportation industry. Until such time as some form of competitive co-existence is achieved, carriers will have to make severe adjustments to their operations and become more flexible.

Railways, long established as the nation's principal carrier, will undoubtedly continue to play the major role, but at the same time will bear the brunt of competition from carriers catering to specialized forms of freight. The degree of flexibility of railroads being somewhat limited, they find it difficult to adjust, but they are continually experimenting with ideas to marry their operations with those of competing carriers.

A typical example of the results of this experimentation is the introduction of the so-called "piggyback" service, in which road trailers are carried on specially designed flat cars between railway terminal points.

The economic expansion currently under way in British Columbia and the increase in through traffic between the United States and its new State of Alaska continue to be an incentive to further experimentation and future development in the transportation media of the Province. This is more particularly apparent in the case of the Pacific Great Eastern Railway, which, due to its north and south location, plays a major role in the economic development of British Columbia.

The railways in British Columbia, both common carrier and industrial, can be justly proud of their achievements and their contribution to British Columbia's future.

EQUIPMENT INSPECTIONS DURING 1962 UNDER THE RAILWAY ACT

Following is a list of individual inspections carried out by Department engineers:—

Hydrostatic tests applied to boilers.....	56
Internal-combustion locomotives and cranes inspected and certified.....	30
Air locomotives inspected and certified.....	10
Electric locomotives inspected and certified.....	6
Self-powered rail-cars inspected and certified.....	21
Diesel-electric locomotives inspected.....	84
Air reservoirs tested and inspected.....	26
Railway cars inspected on industrial railways.....	400
Railway cars inspected on common-carrier railways.....	240
Miles of railway track inspected.....	1,800
Aerial tramways inspected and certified.....	16
Railway conductors examined and certified.....	2
Power-car operators examined and certified.....	3
Diesel-locomotive engineers examined and certified.....	2
Locomotive-crane engineers examined and certified.....	5
Steam-locomotive engineers examined and certified.....	3
Motormen examined and certified (Consolidated Mining & Smelting Co. of Canada Ltd.).....	4
Accidents investigated on logging and industrial railways (dismantling Kettle Valley Railway).....	1
Fatal accidents on logging and industrial railways.....	-----
Compensable employee accidents, P.G.E. Railway.....	94
Accidents involving automobiles at crossings, etc., P.G.E. Railway.....	17
Passengers injured, P.G.E. Railway.....	6
Fatal accidents to employees, P.G.E. Railway.....	2
Fatal accidents to non-employees, P.G.E. Railway.....	-----

LIST OF RAILWAYS AND SUMMARY OF MILEAGE

Industrial Railways

No. and Owners/Name of Railway	Head Office	Operating	Mileage			Gauge
			Main	Sidings, etc.	Total	
1. Aluminum Co. of Canada Ltd.....	Montreal.....	Kitimat.....	2.90	3.19	6.09	Standard.
2. Arrowhead Wood Preservers Ltd...	Revelstoke.....	Revelstoke.....	0.92	-----	0.92	"
3. B.C. Forest Products Ltd.....	Vancouver.....	Crofton.....	1.50	2.50	4.00	"
4. Canada Creosoting Co. Ltd.....	Montreal.....	New Westminster..	3.00	3.00	6.00	30" and standard.
5. Canada Creosoting Co. Ltd.....	Montreal.....	North Vancouver..	-----	0.75	0.75	Standard.
6. Canadian Forest Products Ltd.....	Vancouver.....	Nimpkish Valley..	91.00	19.10	110.10	"
7. Canadian Forest Products Ltd.....	Vancouver.....	Port Mellon.....	0.50	0.50	1.00	"
8. Canadian Industries Ltd.....	Montreal.....	James Island.....	6.25	1.25	7.50	30" and standard.
9. Columbia Cellulose Co. Ltd.....	Montreal.....	Watson Island.....	-----	7.01	7.01	Standard.
10. Comox Logging & Railway Co.....	Vancouver.....	Ladysmith.....	21.80	4.02	25.82	"
11. Consolidated Mining & Smelting Co. of Canada Ltd.	Trail.....	Trail.....	19.00	-----	19.00	18".
12. Consolidated Mining & Smelting Co. of Canada Ltd.	Trail.....	Kimberley.....	9.00	33.01	42.01	18", 36".
13. Crow's Nest Pass Coal Co. Ltd.....	Fernie.....	Michel.....	1.53	-----	1.53	30".
14. Hooker Chemicals Ltd.....	North Vancouver	North Vancouver	0.10	1.90	2.00	Standard.
15. Hillcrest Lumber Co. Ltd.....	Mesachie Lake	Mesachie Lake	6.00	1.50	7.50	"
16. Elk Falls Co. Ltd.....	Vancouver.....	Duncan Bay.....	-----	3.00	3.00	"
17. MacMillan, Bloedel and Powell River Ltd.	Vancouver.....	Chemainus.....	1.58	3.81	5.39	"
18. MacMillan, Bloedel and Powell River Ltd.	Vancouver.....	Dunsmuir District	1.00	3.10	4.10	"
19. MacMillan, Bloedel and Powell River Ltd.	Vancouver.....	Harmac Pulp Div.	2.20	-----	2.20	"
20. MacMillan, Bloedel and Powell River Ltd.	Vancouver.....	Port Alberni.....	-----	1.00	1.00	"
21. MacMillan, Bloedel and Powell River Ltd.	Vancouver.....	Powell River.....	1.50	-----	1.50	Narrow.
22. Osborn Bay Wharf Co. Ltd.....	Mesachie Lake	Crofton.....	0.33	-----	0.33	Standard.
23. Pacific Coast Terminals Co. Ltd...	New Westminster	New Westminster	5.20	-----	5.20	"
24. Pacific, Jefferson Lake, Westcoast (Pacific Petroleum Ltd.)	Calgary, Alta.	Taylor.....	3.05	0.71	3.76	"
25. Vancouver Steel Co. Ltd.....	Vancouver.....	Twigg Island.....	1.25	-----	1.25	"
26. Vancouver Wharves Ltd.....	Vancouver.....	North Vancouver	2.00	-----	2.00	"
27. Western Forest Industries Ltd.....	Honeymoon Bay	Honeymoon Bay	7.00	0.60	7.60	"
28. Western Plywood (Cariboo) Ltd...	Quesnel.....	Quesnel.....	0.95	-----	0.95	"

Common-carrier Railways

29. British Columbia Hydro and Power Authority	Vancouver.....	New Westminster- Huntingdon- Chilliwack	76.58	25.29	101.87	Standard.
30. Pacific Great Eastern Railway Co..	Vancouver.....	Vancouver to Fort St. John and Dawson Creek	788.60	146.10	934.70	"

ELECTRONIC SIGNAL EQUIPMENT

In keeping with the pioneering spirit and its efforts toward the betterment of railroading in British Columbia, the Pacific Great Eastern Railway Company is proud of its achievement in the development of a unique railway-crossing signal.

This signal, the first of its type on the continent, was designed by the engineers of the railway's communications department and operates by an electronic device which detects the presence of a piece of approaching railway equipment. The design allows for operation by emergency battery in case of power failure.

The major components of the signal were all built in British Columbia at considerably less cost than that of the conventional standard crossing signal previously used. Also additional savings are experienced in time and money spent on maintenance.

The first of these electronic signals was installed in the Squamish subdivision and is proving very successful. It is envisaged that in the not too distant future more such signals will be installed throughout the company's railway system.

RADIO IN RAILROADING

Outstanding among the advances made in the techniques of railroading in British Columbia is the modern communication system in use.

The current system, employing V.H.F. radiotelephone, received its introduction to railroading in British Columbia in the year 1956 by the Pacific Great Eastern Railway Company, who, through its pioneering efforts in the field, is responsible for the current interest in the use of this means of communication by other railroads and industries.

The Pacific Great Eastern Railway Company presently employs more than 300 radio units of various types to provide a communication nerve system which links the central dispatch office with engines, cabooses, stations, work and section crews, patrol speeders, and many other vehicles used by the company within its 800-mile sphere of operation.

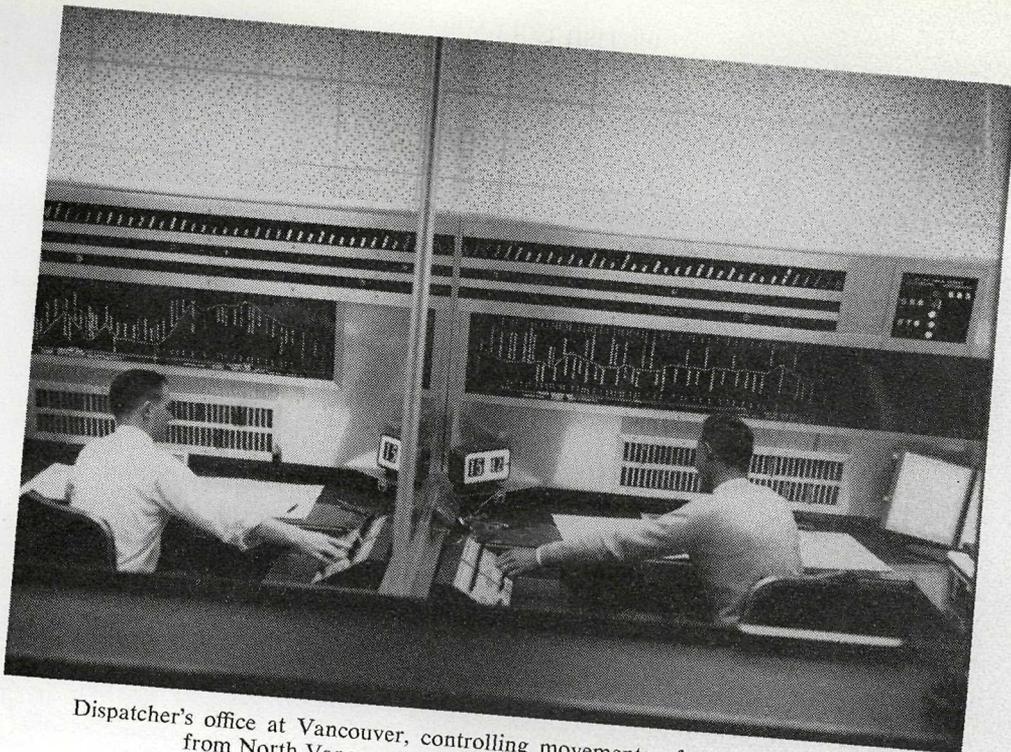
V.H.F. radiotelephone is ideally suited to railway operations. Special antennas may be installed at stations to direct the radio signal along the route of the track. The F.M. equipment employed has the ability to lock out any noise or static, and good-quality understandable communication is possible with this equipment even when operating completely surrounded by the numerous electrical components that comprise the modern diesel-electric locomotive. Its only disadvantage is its limited range in rough or wooded country. The Pacific Great Eastern has overcome this disadvantage by locating its main radiotelephone equipment at the mountain-top microwave repeater-stations that are established along the length of the railway.

Radio equipment installed in locomotives is of a type designed specifically for railroad use. The ability of the engineman to speak with other members of the crew and with other trains has made movement very much safer through areas of poor visibility.

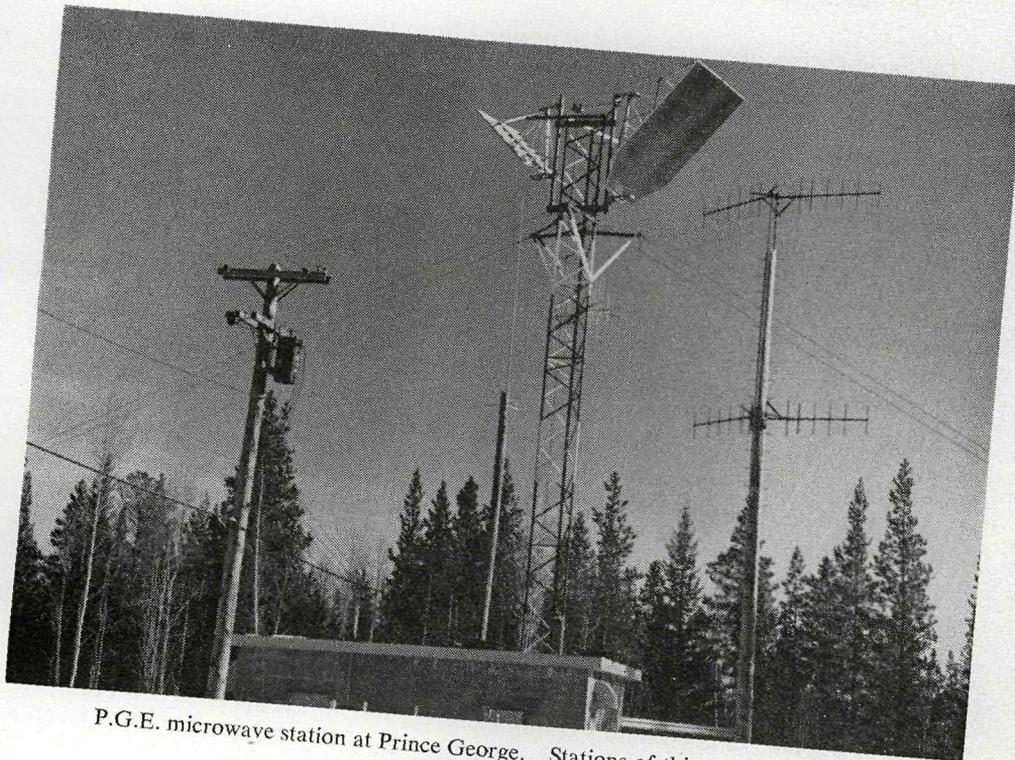
The units that are mounted in maintenance-of-way equipment, track motorcars, vehicles, cabooses, etc., are standard mobile or portable units but have been adapted by the Pacific Great Eastern communications department for their specific task. For instance, units mounted in track motorcars must be equipped with additional protective housings and vibration-damping mountings in order to prevent the very early destruction of the delicate components which comprise radio equipment. Track motorcars also have to be equipped with a heavy-duty generator in order to provide adequate battery-charging power to operate the radio equipment.

Caboose radios, allowing voice contact with the head end and wayside stations, have contributed much to the faster, safer, and more convenient handling of trains. Portable radios have found their way into many phases of railroading, such as switching operations, air-line tests, survey and construction, and for security purposes, and in emergency they have proven most valuable.

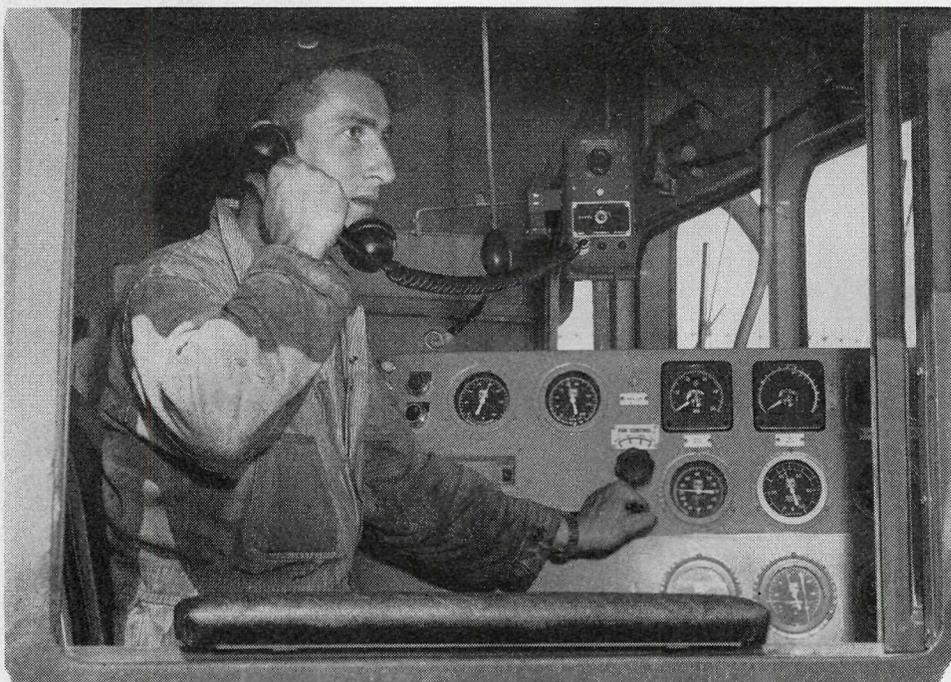
Maintenance-of-way operations have also been speeded up by the use of radio. Sets are installed in every kind of maintenance-of-way equipment on the Pacific Great Eastern. Roadmasters and section foremen may now communicate directly from any point on the line, and orders may be issued without the necessity of getting to a station or a siding to telephone.



Dispatcher's office at Vancouver, controlling movements of all trains operating from North Vancouver to Dawson Creek and Fort St. John.



P.G.E. microwave station at Prince George. Stations of this type have towers as high as 250 feet.



Communicating with dispatcher from cab of engine by radiotelephone.

The most spectacular savings have resulted from the prevention of derailments and delays by the use of radio-equipped patrol speeders. These units, which precede trains on the Pacific Great Eastern, are in direct contact with the locomotive engineer, and in numerous cases their presence and ability to communicate quickly and in detail has averted possible serious derailments from slides and washouts, etc.

Radio-equipped vehicles also provide officials with close contact to the railway operation even when travelling the highways or in the city. The Pacific Great Eastern communication system is operated in such a way as to provide communication between any radio-equipped units over the entire length of the railway. The dispatchers, who are located in Vancouver, may, by keying on radio units at selected points, talk with trains, stations, maintenance-of-way equipment, and officials at any location within range of the high-sited radio towers mentioned earlier.

The backbone of the Pacific Great Eastern communication system consists of a chain of twenty-seven microwave stations between Vancouver and Fort St. John. This 120-channel system carries a host of administrative and operational circuits to accommodate the increased business that has resulted from the railway's modernization.

Channels on the microwave are also leased to other companies for various purposes. All of the communications for the oil and gas pipe-line between Fort St. John and Clinton are carried on this system. All of the public telephone circuits between Vancouver and as far north as Lillooet are provided by the Pacific Great Eastern system. Forestry, highways, and various other Government departments utilize the Pacific Great Eastern's communication system to expedite their communications. Revenues derived from these facilities help to offset the cost of development of Canada's most modern railway communication system.

PACIFIC GREAT EASTERN RAILWAY

Inspecting Engineer's Report

Between September 11 and 20, 1962, the annual inspection of the Pacific Great Eastern Railway was conducted by track motor between North Vancouver and Chetwynd, Chetwynd and Fort St. John, and Chetwynd and Dawson Creek. The chief engineer, the right-of-way officer, and various roadmasters and assistant engineers of the Pacific Great Eastern Railway accompanied me during the inspection.

Observations were made of all conditions pertaining to the railway, its operation and its maintenance. A number of observations were made regarding the level railway crossings over the entire line, and in this regard an appendix is included in this report listing various railway crossings with conditions found and the remedial action required to put them in order. This matter has been taken up with the officials of the company concerned, and it has been agreed the necessary action as outlined should be taken.

Right-of-way conditions between North Vancouver and Squamish are generally good. Since construction, the road-bed has consolidated and the track is quite stable. Occasional slides occur, which are normal in this type of terrain, and the company maintenance crews handle the emergencies as a normal course of events. Bridges and tunnels in this area were inspected and found to be in order.

Between Squamish and Clinton, track conditions were observed and found to be normal. Maintenance is being taken care of. There is some rail wear on the heavy curves, and maintenance crews are changing and turning rail as required. Bridges and structures in this area are in order and are being well maintained.

Between Clinton and Williams Lake, maintenance was found to be good. A considerable amount of ditching had been done, and ballast was well maintained. It was observed that new creosoted ties have been installed on the Fraser River Bridge. The former ties were not creosoted and lasted approximately sixteen years. It is expected the creosoted ties will give double this life. Considerable rail wear was noticed on Pavilion Mountain, but rail is being turned and changed as required. Rail wear in this case is due to heavy grade and sharp curvature, but track-oilers installed at advantageous points are doing much to alleviate the condition. It is noted that wyes have been removed in a number of cases with the elimination of switches, and in a number of cases sidings have been taken out which are no longer necessary due to dieselization and the hauling of longer trains.

Between Williams Lake and Quesnel, it is noted a number of railway crossings need attention, and these conditions are outlined in the appendix. In this area considerable ballast work and ditching have been done, and the track is now in quite good condition. With regard to the ditching, use has been made of Jordan spreader equipment so that good clearance and drainage have now been provided in a number of the cuts, and a most commendable job has been done in this regard. This will go a long way in reducing maintenance and tie renewals.

From Quesnel to Prince George, observation as to the consolidation of the 1948-52 construction was made, and generally it was noticed the ground is consolidating, so that track conditions are becoming stable. The Cottonwood Bridge was observed, particularly at the north abutment. The ground at this point has consolidated, and the drainage tunnels are working properly. At Bellos, Mile 400.9, conditions have not stabilized, but slow orders and temporary measures on the part of the company have taken care of operating conditions.



New 1,800-horsepower diesel locomotives equipped with 26L Westinghouse as well as dynamic braking systems for smoother running and more efficient control.

At the Prince George south yard an overpass is being constructed to accommodate the new Fraser River Bridge. Considerable work is being done in this area, and signals and protection were found to be in order.

At mile 465.9 a public crossing has given considerable difficulty due to motor-vehicles running into the side of trains. The new bridge mentioned in the last paragraph will divert considerable traffic from this crossing, and after due study of conditions leading up to accidents, a conclusion has been reached that automatic protection at this point is not the answer, but mercury vapour street-type lights would illuminate the area so that motorists would see trains when they are stopped or are switching over the crossing. This recommendation is included in the appendix under the general heading of "Crossings."

Between Prince George and Chetwynd, particular attention was paid to road-bed conditions due to new construction. The Fraser River Bridge and other bridges were found to be in order. The unstable ground condition at the "old four mile" appears to be corrected. The corrective measures have been largely due to a soil study and the recommendations of soil engineers engaged by the company, and it can be stated that generally between Prince George and Chetwynd the track is in good condition and is being properly maintained.

Between Chetwynd and Fort St. John, the railway is in order, and it is noted that the Peace River Bridge has been painted, the approaches are in good condition, and ground conditions leading into the Peace River on either side are stabilized. This again is due to soil engineering practices which have been implemented by the management of the company. It was noted, however, at the Alaska Highway overpass near Fort St. John there was an unstable condition in the fill, where the ground

appears to be sloughing. This was discussed with the chief engineer, and soil engineering techniques are to be applied in this area.

The yard at Fort St. John was inspected and found to be in order, and it is noted a number of grain elevators have been completed in this area.

The inspection between Chetwynd and Dawson Creek revealed the track was in order, but in a number of places soil conditions have not yet consolidated. Soil engineering practices are being applied, and improvement is indicated.

Traffic on this branch-line subdivision is comparatively light, and most of the rail is 60-pound re-lay. This is adequate for present-day traffic, and as the ground consolidates conditions will improve.

An inspection was made of the automatic protection at the Alaska Highway. This was found in order.

Construction and maintenance work were being done on the interchange tracks between the Pacific Great Eastern and Northern Alberta Railways, and it would appear considerable traffic is being interchanged between the two railways.

General

Stations were inspected and found to be clean and properly maintained, so that the public is being properly served. Platforms were clear and passengers were being properly accommodated.

An inspection was made of the interchange between the McMahon plant and the Pacific Great Eastern Railway. This was found to be in order. The 2-mile railway between the McMahon plant and the Pacific Great Eastern Railway is not operated by the Pacific Great Eastern Railway. A Pacific Great Eastern Railway locomotive is leased to the McMahon plant but is manned by McMahon plant employees.

All pipe-line crossings were found to conform to the regulations, and necessary signs are displayed.

It was noted considerable fencing was being done in the Cariboo area. A substantial job of fencing is being made, and the fencing is being done in areas where most needed. In this regard it is interesting to note that over the past five or six years the wet summers have caused an increase in the grazing areas, and additional fencing has been done by the company to accommodate the cattlemen.

The shops and mechanical facilities of the railway were inspected a number of times during the year, when locomotives and rolling-stock were periodically inspected. It can be reported both the motive power and rolling-stock are in satisfactory condition as the new facilities at the shops are now capable of coping with maintenance conditions that arise throughout the operation.

It was observed the microwave dispatching is working properly and that communication can be made with the dispatcher at all times. Much time is saved in making meets, and the general operation of the railway has been very much improved. Over most of the line, telephone-poles and telephone-lines have been removed for salvage as they are no longer required.

In conclusion it can be stated the Pacific Great Eastern Railway is generally in a much-improved condition, and operation and maintenance are in order.

*Appendix.—Grade Crossings on the Pacific Great Eastern Railway
Requiring Attention*

Mileage	Name or Location	Remarks
28.1	Furry Creek.....	To be defined an industrial crossing.
203.2	Access to oil-station.....	To be made a public crossing.
259.8	Used as public crossing at Exeter Station.....	Should be made a public crossing.
260.2	Logging crossing.....	To be made an industrial crossing.
260.3	Public crossing.....	To be made a public crossing.
316.1	Industrial.....	To be made an industrial crossing.
316.3	Farm crossing.....	To be made a public crossing.
316.5	Garbage-dump public access.....	To be moved 625 feet north and made an industrial crossing.
344.8	Cariboo Road at Macalister.....	Further protection to be provided.
358.1	Alexandria Station.....	To be made a public crossing.
365.4	Westcoast Transmission access road.....	To be made a public crossing.
444.5	Public access crossing.....	Signs to be installed.
465.9	Prince George public crossing.....	Adequate illumination to be provided.
501.8	Industrial crossing.....	To be made a public access crossing and signs to be installed.
523.5	To be made a public access crossing and signs to be installed.
540.5	Industrial crossing.....	Install whistle-boards.
35.8	Dawson Creek Subdivision public crossing.....	Clear brush to improve vision.

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

Inspecting Engineer's Report

On October 12, 1962, the general annual inspection was made of the above company's District 3 main line from Mile 0, New Westminster, to Mile 63.92, Chilliwack.

The inspection was made by track motor in company with Mr. D. Martin, manager of railway operations; Mr. J. A. Deptford, superintendent of maintenance-of-way and shops; and Mr. W. Alcock, roadmaster.

The main line, passing-tracks, and spur lines are all in excellent condition. It is evident that ballasting, tie renewals, weed control, ditching of wet cuts, and culvert installations have been carried out under an efficient maintenance-of-way programme. The scaling of loose rock along the cuts in the vicinity of Mile 53 to Mile 55 has been almost completed, and good clearance obtained. The steel Vedder River span and all wooden trestles are in good condition.

Track-oilers are being kept in good working-order, and, as a result, flange wear on the motive power is kept to a minimum, and the 85-pound rail laid in 1959 shows little signs of wear.

All motive power and track vehicles are radio-equipped. This enables the movement of all traffic over the line to be efficiently controlled by the dispatcher. At the time of the inspection, radio contact with the dispatcher and also with traffic moving over the line was exceptionally good.

Diesel-electric locomotives, which are maintained at the New Westminster repair-shop, supply the motive power for the movement of freight over this line. The shop maintenance staff is maintaining the locomotives in good safe working-order for immediate use.

Highway, farm, and private crossings over the railway, 165 in all, were inspected, and in general are in good order. There are several farm crossings yet to be equipped with gates, and this has been taken up with the parties concerned. Mile-boards have been installed over the full length of the line, and this gives a much better method of the location of any particular item in comparison to the old method of place-names.

The Queensborough Bridge over the Fraser River on the branch line to Annacis Island was inspected. This was formerly a traffic and railway bridge combined and was owned by the City of New Westminster. It has been purchased by the railway company and completely rebuilt and strengthened, and is now a single-track railway bridge with a swing centre span, which is controlled and operated by railway personnel.

COMOX LOGGING & RAILWAY COMPANY

Inspecting Engineer's Report

On October 10, 1962, in company with Superintendent Gordon Naylor, an inspection was made of the railway track, bridges, and equipment operated by the above company between Ladysmith and Nanaimo Lakes.

The track terminates at First Lake as the Second Lake railway loading operation has been abolished. The new loading-works at First Lake is in good condition and is being operated in a satisfactory manner.

Generally the entire operation is in good condition and is being well maintained. Eight thousand new ties were installed this year, and anchors have been installed on all grades to prevent tie slippage.

The bridges were in good condition, some crossings have been replanked, and in most cases crossing signs were properly displayed.

Diesel-electric Locomotive No. 7128 was inspected in service and found to be in good operating condition.

Yard Switcher No. 107 and Rail Car No. 104 were also inspected, reservoirs tested, and certificates issued to cover same.

The following conditions were noted and require attention: Railway crossing sign required at Troutland crossing; repaint crossing signs at old pipe-line crossing; remove railway crossing signs north of Nanaimo Lakes camp as not required.

MACMILLAN, BLOEDEL AND POWELL RIVER LIMITED

Inspecting Engineer's Report

On December 12, 1962, an inspection was made of the railway installation and motive power owned and operated by the above company at the Nanaimo River operation.

The company operates the railway between Ladysmith and Nanaimo jointly with Comox Logging & Railway Company, and the maintenance of this line is taken care of by both companies on a cost-share basis.

The Nanaimo River operation is a truck-railway transportation system. Logs are brought in from the woods on trucks to a railway transfer point in the Nanaimo River camp. The entire truck-load is transferred from the tractor-trailer units to the skeleton railway cars. Trains are made up in the camp and hauled to Ladysmith by steam-locomotives. Further marshalling is done at Ladysmith, and the loaded log-car trains are hauled by the Esquimalt & Nanaimo Railway to the company yard at the Chemainus mill.

The following conditions were noted:—

The new gluelam bridge over the Nanaimo River adjacent to the camp is in good condition. Planking is intact on the deck and the footings appear to be in good condition.

The track in the camp is in good condition.

Locomotive No. 1055 was inspected under steam and is in order.

Locomotive No. 1077, which is held for spare and is out of service, was also inspected and is in order.

The boilers of both locomotives were given an annual hydrostatic test this year and were found to be in satisfactory condition. New driving-tires are on hand for Locomotive No. 1055, and it is expected they will be installed in 1963.

CANADIAN FOREST PRODUCTS LIMITED

Inspecting Engineer's Report

During the period November 5 to 9, 1962, an inspection was made of the railway track and equipment owned and operated by the above company at its Englewood Logging Division.

The track between Beaver Cove, Nimpkish, Woss, and Vernon Lake camps was found to be in good condition. Rock ballast has been used between Beaver Cove and Mile-post 44.5, and it is intended that the balance of the railway will be rock-ballasted in 1963.

Mile-posts are clearly indicated, and the telephone-lines appear to be in good order.

The bridges on the entire railway operation were inspected and generally found to be in good condition; however, some conditions were noted and will require immediate attention, as follows:—

Elk River Bridge: Shim cap at rail pile, No. 3 bent.

Mile-post 4: Check culvert and provide support for lower side of track.

Woodengle Bridge: Renew No. 1 bent, south end.

Delusion Creek: Cap bearing poor, No. 1 bent, south end.

Bridge 10: New deck and guard-rail required.

Bridge 11: Check mud-sill for moving.

Groves Creek Bridge: No. 2 cap cracked, south end.

Rail Cars Nos. 121, 124, 125, 129, 130, and 131 were inspected, reservoirs tested, and certificates issued with defects noted. Rail Car No. 122 has not been repaired since being involved in a collision and is therefore out of service.

Internal-combustion Locomotives Nos. 250, 252, and 253 were also inspected, reservoirs tested, and certificates issued with defects noted.

Samuel Hardy and Walter Nadelko passed satisfactory examinations as power-car operator and crane operator respectively.

Twenty-two skeleton logging-cars were inspected, with defects noted on Form 2. The replacement of side bearings on the logging-cars is progressing favourably, and it is the intention to have a complete installation as quickly as possible.

It was noted that the operator of Locomotive No. 251 was not using the engine bell while switching around Nimpkish yard, the reason being that the bell-ringer operating valve is on the opposite side of the cab from the operator. This will have to be relocated to a position convenient to the operator so that the bell may be rung as required by the rules.

AERIAL TRAMWAYS

The use of aerial tramways has increased over the past three years by 200 per cent, the greatest increase being in 1962. Prior to 1961, fourteen aerial tramways were registered in the Department, and six have been added during 1962.

Some of the new aerial tramways include T-bar type tows of improved design. Several designs were imported from France, and others originated in Switzerland and other European countries. Many improvements to the European designs have been made by local builders to their tramways so as to increase safety, and these changes have been carried out with the Department's approval.

The first aerial tramway regulations written in the English language were published by the British Columbia Government in 1947, and since that time the State of California and Provinces in Eastern Canada, as well as New Zealand and Australia, have copied these regulations, making changes to suit their local conditions. As a result, the safety and general strength of design are fairly uniform throughout English-speaking countries, and this has resulted from the pioneering effort of personnel in the Department of Commercial Transport.

It is expected the use of aerial tramways will increase during the coming year as mountain recreational facilities are becoming more popular.

An additional use of aerial tramways has been brought about by microwave radiotelephones. Microwave requires reflector or repeater stations on the tops of mountains, which are accessible only by helicopter or aerial tramway, and, of course, during bad weather helicopters cannot be used, and aerial tramways provide the necessary transportation on a twenty-four-hour-a-day basis. Such aerial tramways now exist on Dog Mountain and Jarvis Mountain in the vicinity of Hope, and it is expected that wider use will be made of aerial tramways for this purpose in the near future.

No serious accidents on aerial tramways were reported during 1962, with the exception of the damage to the tramway of Hollyburn Aerial Trams Ltd. in December of that year.

Investigation revealed that interference by vandals at the lower terminal resulted in the destruction of a tower by a swinging chair. Several persons stranded on the tramway were rescued after a few hours of anxiety, but were fortunately none the worse for their experience.

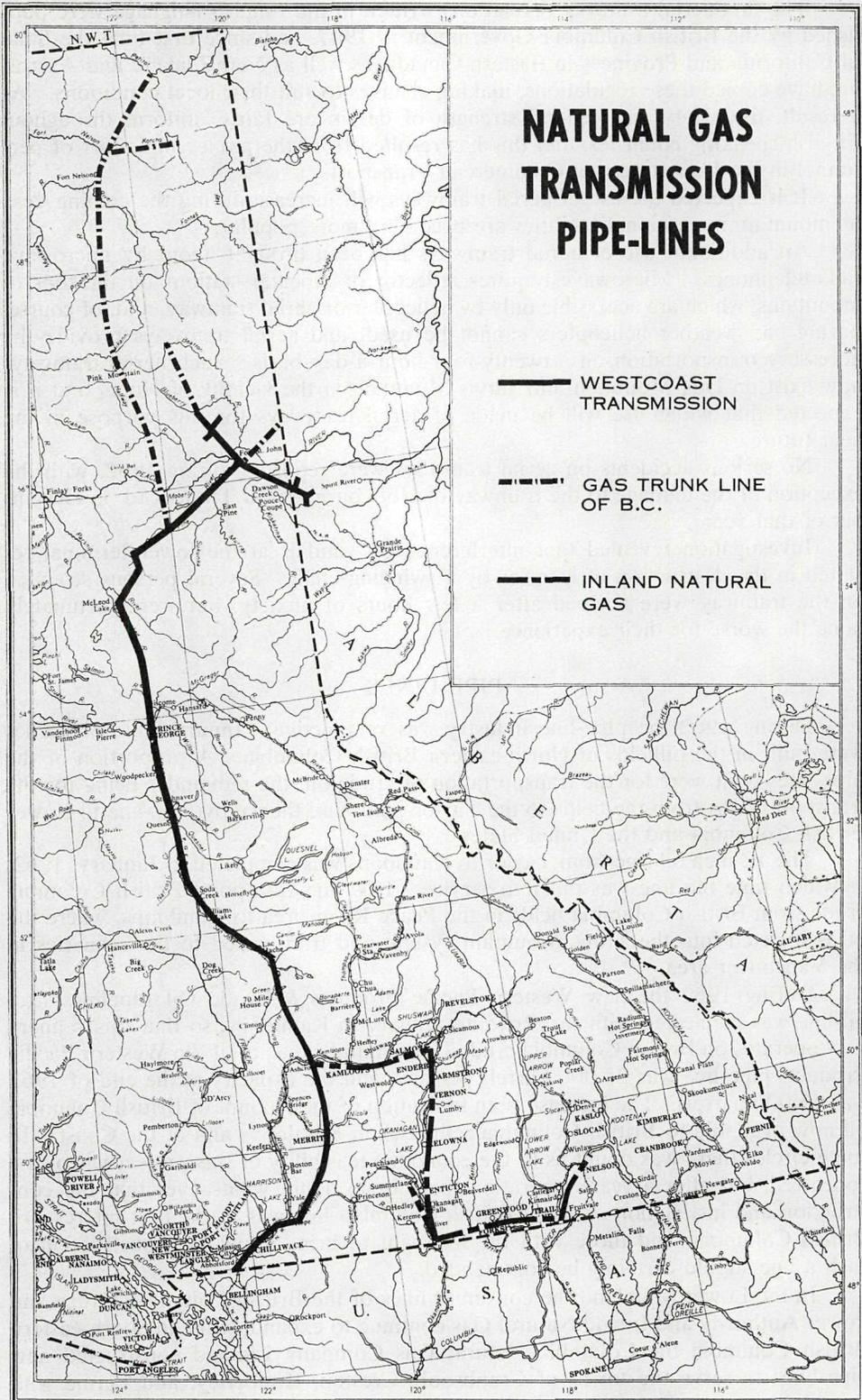
PIPE-LINES

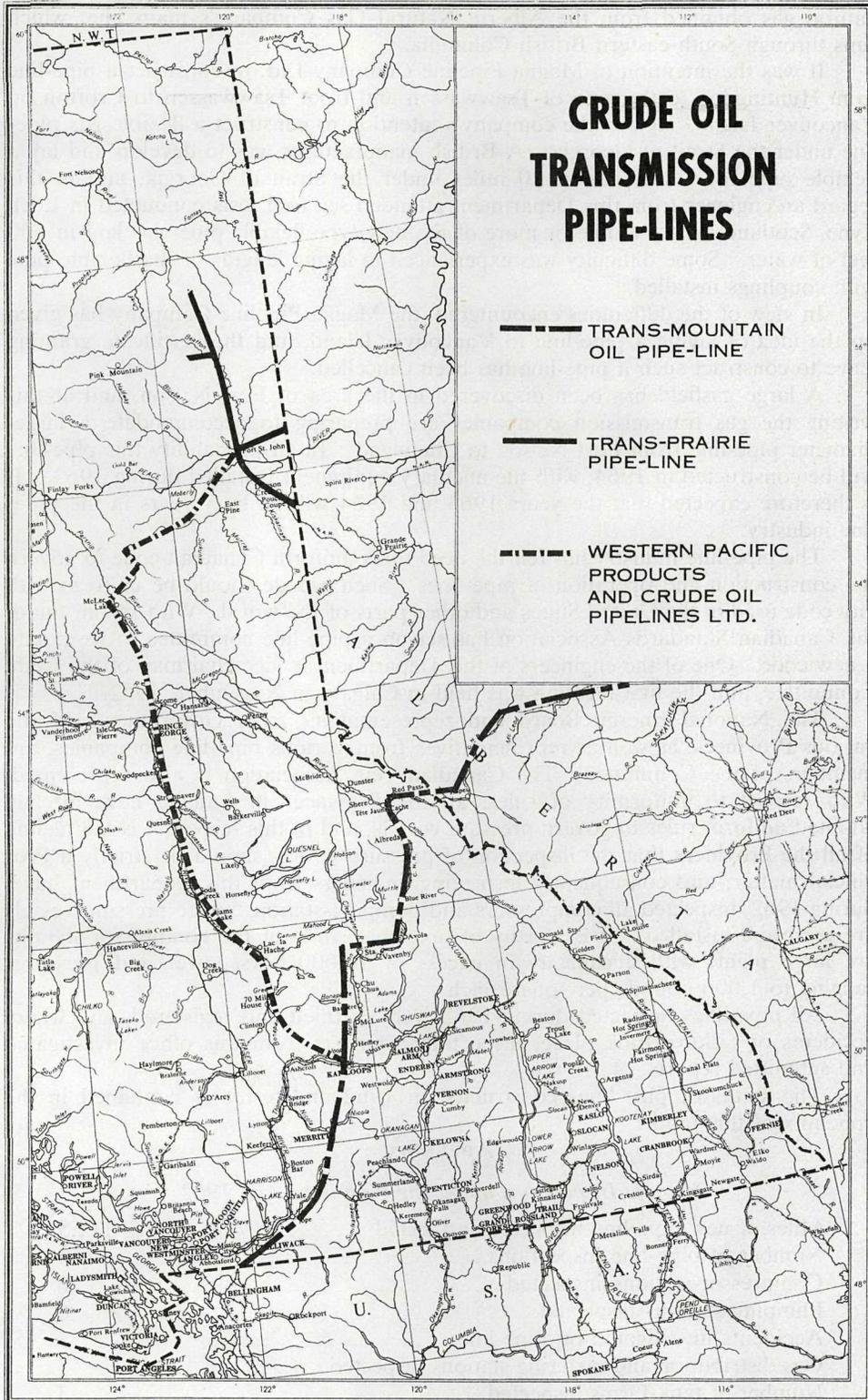
During 1962 the pipe-line industry was very active. Innumerable pipe-lines were built in the oilfields of North-eastern British Columbia. A proportion of the pipe-lines built were for the transportation of crude oil, the remainder being for the transport of gas from the fields to the Taylor plant and thence by pipe-line to Lower British Columbia and the United States.

The 12-inch oil-line from Taylor to Kamloops was completed in January, 1962, at which time the line was put into service. This line transports British Columbia crude from British Columbia fields in the Peace River area to Kamloops, where the oil is injected into the Trans Mountain system and transported to the refineries in the Vancouver area.

During 1962 the new Western Pacific Products & Crude Oil Pipelines Ltd. oil-line was connected with the Royalite refinery in Kamloops, so that this refinery now operates on British Columbia crude. The initial capacity of the Western Pacific Products pipe-line was 25,000 barrels per day, and the capacity at the end of 1962 was 45,000 barrels. The increase is an indication of the amount of British Columbia oil now available to British Columbia refineries in Kamloops and at the Coast. In some circles there was doubt as to the economic feasibility of this project when first conceived, but after a year's operation there is no doubt whatsoever that the construction and installation of an all British Columbia line was in the best interests of British Columbia, and those with the foresight to bring about the construction of such a line should certainly be commended.

In the Lower Mainland the consumer lines of the British Columbia Hydro and Power Authority and Inland Natural Gas continue to expand, while in South-eastern British Columbia the Columbia Natural Gas Company Limited constructed new pipe-lines to serve the towns of Cranbrook, Creston, Kimberley, and Fernie with





natural gas obtained from the Alberta Natural Gas Company's main line, which runs through South-eastern British Columbia.

It was the intention of Magna Pipeline Company Ltd. to construct a pipe-line from Huntingdon to the area of Tsawwassen and from Tsawwassen to Crofton on Vancouver Island. It was the company's intention to construct a flexible gas pipe-line under the Strait of Georgia. A British manufacturer was to develop and lay a flexible pipe for a distance of 20 miles under the Strait of Georgia, and in this regard an engineer from this Department attended sea trial tests conducted in Loch Fyne, Scotland, where a mile or more of the new-type flexible pipe was laid in 600 feet of water. Some difficulty was experienced in laying lengths of the flexible pipe with couplings installed.

In view of the difficulties encountered, the Magna Pipeline Company has given up the idea of laying a pipe-line to Vancouver Island, and the certificate granting leave to construct such a pipe-line has been cancelled.

A large gasfield has been discovered in the area of Fort Nelson, and at this writing the gas transmission companies are preparing to accommodate a large-diameter pipe-line from Fort Nelson to Chetwynd. In all probability this pipe-line will be constructed in 1964, with the ancillary equipment installed during 1963. It is therefore expected that the years 1963 and 1964 will be busy years in the pipe-line industry.

The pipe-line industry has felt the need for a uniform Canadian code to govern the construction and operation of pipe-lines. Such a code should be uniform with any code used in the United States and other parts of the world. With this in mind, the Canadian Standards Association has set up a pipe-line committee to formulate a new code. One of the engineers of this Department is vice-chairman of the Code Committee, and the first meeting was held in Calgary in November, 1962.

The National Energy Board and representatives from Governments of the various Provinces, as well as representatives from various pipe-line companies, are members of the Committee. The Canadian Gas Association is also represented. With respect to uniformity of rules, all the Provinces in Canada have already adopted uniform rules to govern pressure vessels, and in this respect it is the feeling of all the Provinces that the inspection of pressure vessels should be strictly a Provincial matter, and consequently inspecting engineers from this Department have, during 1962, inspected all compressors and pumping-stations where pressure vessels are used and installed. It is worthy of note that some of the compressor-stations are large plants with a capacity in excess of 16,000 horsepower and pressures ranging to 1,000 pounds per square inch.

All pipe-lines inspected during 1962 were certified and registered, and where accidents or failures took place, inspecting engineers from this office investigated and submitted reports.

The status of pipe-lines constructed in 1962 and tested is contained in the appendix of this report.

APPENDIX

Annual Inspections under the Pipe-lines Act, 1962

Miles of new pipe-line inspected and tested.....	212.5
Number of pipe-line inspections.....	150
Compressor-stations inspected.....	6
Pumping-stations inspected.....	6
Accidents investigated on pipe-lines.....	1
Gas distribution and metering stations inspected.....	7
Number of tank-farms inspected.....	3

Number of new pipe-line projects approved	49
Number of pipe-line crossings of railways inspected	1
Number of pipe-line crossings of highways inspected	5
Number of pipe-line crossings of other pipe-lines approved	18
Power-line crossings over pipe-line right-of-way approved	3
Pipe-line hearings attended	3
River crossings of pipe-lines approved and inspected	4
Approval of sets of plans and specifications for pipe-line projects ..	49
Approval of company pipe-line testing procedures	7
Investigation of pipe-line problems involving subdivisions	2
Certificates issued under the <i>Pipe-lines Act</i> authorizing the construction of new pipe-lines	6
Certificates of inspection issued under the <i>Pipe-lines Act</i> authorizing the operation of new pipe-line projects	44

Pipe-lines Approved, Installed, and Tested, 1962

Name of Company	Oil or Gas	Project No.	Pipe-line Location
Atlantic Refining Co.....	Gas	1152	Nig Creek.
British Columbia Hydro and Power Authority.....	"	1139	Grandview Station, Vancouver.
	"	1140	Standard Oil Co. lateral, Vancouver.
	"	1120	Vancouver.
British Columbia Oil Transmission Co. Ltd.....	Oil	1129	Blueberry Field.
	"	1103	Blueberry Field.
Columbia Natural Gas Ltd.....	Gas	1132	Fernie lateral.
	"	1133	Cranbrook-Kimberley lateral.
	"	1134	Yahk-Creston lateral.
Dome Petroleum Ltd.....	"	1136	Laprise Creek.
Gas Trunk Line of British Columbia Ltd.....	"	1151	South Beg.
Imperial Oil Ltd.....	"	1153	Rigel Creek.
	"	1165	Rigel Creek extension.
	"	1164	Rigel Creek extension.
	"	1156	Rigel Creek extension.
	"	1163	Rigel Creek extension.
Inland Natural Gas Co. Ltd.....	"	1146	Community of Rolla lateral.
	"	1142	Prince George.
	"	1143	Prince George.
	"	1144	Prince George.
	"	1135	Prince George.
	"	1131	Prince George.
	"	1161	Kamloops diversion.
Northland Utilities Ltd.....	"	1147	Community of Rolla.
Pacific Petroleum Ltd.....	"	1149	Jedney Field.
	"	1123	Jedney Field.
	"	1119	North Beg.
	"	1121	North Beg.
	"	1122	Montney.
	"	1111	Jedney Field.
	"	1148	North Jedney.
	"	1150	Highway gathering system.
Plains Western Gas & Electric Co. Ltd.....	"	1137	Fort St. John.
Royalite Oil Co. Ltd.....	Oil	1141	Kamloops.
Sun Oil Co.....	Gas	1130	Blueberry.
	"	1109	Blueberry.
Texaco Exploration Co.....	"	1154	East Buick Creek.
	"	1125	Nig Creek.
	"	1159	North Jedney.
	"	1157	Boundary Lake.
	"	1158	Nig Creek.
Trans-Prairie Pipelines Ltd.....	Oil	1138	Boundary Lake.
	"	1126	Peejay Field.
	"	1127	Wildmint Field.
	"	1128	Boundary Lake.
	"	1124	Boundary Lake-Taylor loop.
	"	1116	Taylor-Pacific Western.
	"	1162	Taylor-Pacific Western.
	"	1160	Wildmint Field.

INDUSTRIAL TRANSPORTATION

During 1962 industry made full use of truck transportation by private roads. Some of the larger companies operate hundreds of miles of private roads, and these roads are scattered throughout various parts of the Province.

Since the *Industrial Transportation Act* came into force in 1955, companies concerned have responded well to the safety regulations brought about through that legislation. A number of the companies were quick to recognize the advantage of this Act and had their own regulations approved so that they could control traffic on their private roads, which did not come within the jurisdiction of the *Motor-vehicle Act*. This allowed such a company to appoint peace officers and to police its own roads. Offences have been dealt with through the Courts in the same manner as done under the *Motor-vehicle Act*.

The severe grades and the special conditions encountered on industrial roads require that the specifications for brakes and the qualifications for drivers be more stringent than they are on public highways, and as a result the Department engineers have conducted lectures on air brakes and safety so as to upgrade the drivers and create a sense of responsibility, where prior to our regulations no uniformity of rules or enforcement existed.

No fatal accidents occurred on industrial roads in 1962 due to the failure or malfunction of air brakes, whereas before our regulations were in force and the educational programme for drivers was put into effect, it was commonplace to have fatalities where logging-trucks operated on heavy grades.

The *Industrial Transportation Act* does not cover trucks or roads in open-pit mines, but in this regard the Department of Mines and Petroleum Resources has seen fit to adopt our rules where they could apply to vehicles operating in mines, and our inspectors work with the inspectors of that Department to bring about uniformity of regulations and safe practices on mining property.

A number of the logging-roads go through areas where hunting, ski-ing, and fishing are enjoyed by the public. Some of the companies have been most co-operative in making arrangements to accommodate those people wishing to enjoy these recreational facilities, and, accordingly, in some cases the companies have supplied a watchman at the gates and allowed access under controlled conditions. It is regrettable that all companies have not co-operated to the fullest extent in this regard, but it is felt conditions will improve with time.

During 1962, inspectors from this office have made inspections of as many industrial roads as possible, and where complaints have been received regarding equipment or the transportation of workmen, inspectors have been dispatched to the operation concerned, where corrective measures have been brought about to improve safety.

ANNUAL INSPECTIONS UNDER THE INDUSTRIAL TRANSPORTATION ACT

Logging-trucks inspected	292
Gravel-trucks inspected	42
Crummies	89
Miscellaneous vehicles inspected	15
Highway vehicles inspected with Royal Canadian Mounted Police	80
Number of new logging-trucks put into service	107
Air-brake lectures	16
Logging-truck operators certified	382
Lectures to Royal Canadian Mounted Police	2

Lecture classes held for mechanics for Department of Education.....	7
Mechanics examined and certified for Department of Education.....	22
Accidents investigated on logging-truck roads.....	-----
Fatal accidents on logging-truck roads.....	-----
Accidents investigated on highways for Royal Canadian Mounted Police.....	1

AIR-BRAKE LECTURES AND EXAMINATIONS HELD IN THE FIELD

	Number Attending	Number Examined
Blubber Bay.....	16	13
Boston Bar.....	12	7
Campbell River.....	38	16
Merritt.....	55	55
Nakusp.....	30	21
Nelson (R.C.M.P. patrol).....	16	---
Nitinat.....	28	21
Port Alberni.....	15	27
Revelstoke.....	13	13
Ucluelet.....	30	12
Vocational Curriculum Development Division, Burnaby.....	25	25
Haney Correctional Institution.....	45	26
British Columbia Vocational School, Nanaimo.....	84	84

