

AN
INTERCOLONIAL
RAILWAY
DIARY

C. H. RIFF 2014

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COLLECTION.

1871

35 Victoria, No 4 1872

On the section known as the Eastern Extension running forty-one miles from Painsec Junction to Amherst, Nova Scotia were finished in December 1870 and handed over to the Government of Canada.

The General Mining Association coal railway made a connection with the Intercolonial Railway in 1870. None of the other colliery railways had an ICR connection at this time.

1872

36 Victoria, No 6 1873

The Windsor Branch was leased January 1, 1872 to the Windsor and Annapolis Railway.

After the General Mining Association had connected with the Intercolonial Railway the Intercolonial Coal Company pushed to build a branch line to connect with the government railway near Stellarton and intend to ship coal during the coming winter through the port of Halifax. There are talks of building a coal wharf at Halifax.,

January 5, 1872

There was a serious fire at the Richmond (Halifax) engine-house. Eight locomotives were caught in the fire: 6, 7, 12, 16, 21, 22, 23, and 24. While the wood work was destroyed the iron boilers were not hurt.

October 12, 1872

A severe storm hit Nova Scotia and in the gale the engine-house and turntable shed were blown down

Eastern Section

The completed section of the Intercolonial Railway east of Riviere du Loup was placed under the temporary care and operation of the Grand Trunk Railway by an Order in Council dated November 25, 1873. The Government provided two locomotives and a number of boxcars for this operation. Trains were run to Cacouna during the summer of 1872, and by December 1872 the railway was opened to Post Road twenty-two and a half miles.

Western Section

The line of the government railway in the Province of Nova Scotia that extended from Halifax to Truro, and from Truro to Pictou, a total of 113, plus the thirty-two mile branch to Windsor were by an Order in Council dated on November 9th, 1872 were combined with the railways in New Brunswick. The New Brunswick railways were the European and North American, running from St John, New Brunswick to Pointe du Chene, 108 miles and the Intercolonial railway between Painsec and Amherst, 41 miles. This combined railway was to be known as the Intercolonial Railway under the general superintendence of Mr Lewis Carvell.

Locomotives

The locomotives belonging to the Nova Scotia railway had been designated by a number commencing at No.6 and those of the European and North American railways by the names and numbers. After the consolidation it was determined that numbers only should be applied. The Nova Scotia Railway engines were allowed to retain their numbers and five of the E&NA Ry. engines were to assigned numbers 1 to 5, the remaining engines after the Nova Scotia engines. The Intercolonial engines were the last on the list.

1873

37 Victoria No.2 1874

The first locomotive from William Montgomery, No. 56 built for the ICR was delivered in September.

The Intercolonial Coal Company and the Vale Colliery railways are connecting with the Intercolonial railway. A new enginehouse was constructed at Stellarton that stopped the need for moving trains from Pictou.

A three stall brick engine-house and a frame car shed were built at Pointe du Chene.

Ballast wharf

The Ballast Wharf branch two miles long, construction was started in 1872 by Mssrs. Mahoney and Robertson, but the partnership was dissolved in February 1873 after work stopped in December 1872. With the death of Mr Mahoney all work came to a stop.

November 16, 1872 there was a fire at Shediak and the engine No.34, the Prince of Wales , was damaged.

1874

38 Victoria 1875

The railway between Riviere du Loup to Trois Pistoles 23 miles was still under the management of the Grand Trunk Railway. The line between Trois Pistoles and Ste. Flavie 61 miles was partially worked by the contractor while ballasting the railway.

Gauge

It is intended to reduce the gauge to 4 feet 8 1\2 inches, standard gauge when the Grand Trunk east of Montreal makes a change of gauge to standard gauge. When the gauge alteration was to be completed the railway to Ste. Flavie would then have been completed. The earthwork from Ste. Flavie to the River Restigouche, ninety-two miles was planned to be completed by the summer of 1874.

At this time the track from Moncton to the Miramichi River was still being laid as 5' 6" Broad gauge, but the track from Riviere du Loup to the River Miramichi would be laid as standard gauge.

Branch Lines

There were five branch lines at this time off the Intercolonial:

Dorchester, Sackville, Springhill, Newport, and London

Stations

Stations were built at Quispamis (21x 30), Nauwigewauk (25x65), Passekeag (25x65) .

At Moncton the old frame station was converted to a dwelling house and a new three story brick general office building was under construction.

Branch Lines

A branch-line was built to connect the Memramcook River with the ICR mainline one mile south of Dorchester Station 4900 feet long.

1874

38 Victoria No. 7, 1875

The Sackville branch-line was built 2600 feet to connect the ICR to the wharves on the Tantamar River.

A branch line 4.18 miles long was built between Springhill Junction and the coal fields. A frame engine shed and a covered turntable were also erected at Springhill Junction.

The Londonderry Branch was completed for a distance of 2.8 miles from the junction with the mainline to the Acadian Iron Works. An engine shed and a covered turntable of wood were constructed at the junction.

Richmond, a deep water wharf trestle. 114 feet by 750 feet with three coal chutes to ship coal from mines on the Pictou and Cumberland branch lines.

1875

39 Victoria, No. 6, 1876

The Windsor and Annapolis run their trains over the Intercolonial directly into Halifax.

The change of track guage from Broad guage to Standard Guage occurred on June 18th 1874, Thirty-eight new locomotives were acquired. The Windsor and Annapolis railway also changed the railway guage. New and converted locomotives were supplied by the Intercolonial.

On Friday June 18th, 1874 the St John to Halifax section, 276 miles; and the Shediac branch for 11 miles were from broad guage to standard guage. On the Monday following the guage of the Pictou branch 51 miles, and on the Friday June 25th, 1874 the Windsor branch was changed to standard guage.

February 17, 1875 there was a fire that destroyed the Petitcodiac station. A new station was to be completed by November 1875.

Stations were built at Bedford (25x45), Shubenacadie (25x45), Stellarton (25x45), and Springhill Junction (25x45).

At Salisbury a 2163 foot siding was built to the Travis Tannery.

FEBRUARY 6, 1875.

CANADIAN ILLUSTRATED NEWS.

INTERCOLONIAL RAILWAY
BRIDGE AT RIVIERE
DU LOUP.

We are indebted for the following particulars to Mr. Hazelwood, late engineer of the St. Lawrence District. It is built on the "Howe Truss" principle. It was designed by Mr. Sandford Fleming, the chief engineer of the Intercolonial Railway, and is composed of three spans of 100 feet each, with roadway on top. The depth of the truss is 18 feet, and the road-way above the bed of the river 40 feet. This bridge is supposed to be one of the strongest Howe trusses at present in existence. There is a little bridge of 30 feet span on the west side of this one, but connected with it, for the purpose of carrying the railway over the Temiscouata road. The Rivière du Loup and Isle Verte bridges, together with the one over the Missisquoi River, in Nova Scotia, are the only wooden bridges on the entire line of the Intercolonial Railway. They were built before the commissioners consented to comply with the suggestions of the chief engineers to have them all of iron. Our illustration is from a photograph by Mr. W. A. Campbell, of Rivière du Loup, *en bas*.



INTERCOLONIAL RAILWAY BRIDGE AT RIVIERE DU LOUP.

The section Moncton to Campbellton was opened on November 8, 1875.

At St John, New Brunswick, the property known as the ballast wharf was purchased from the city and the track around Courtney Bay was finished so that the ballast wharf was connected with the Intercolonial.

Old rails were used on the Chatham and Elgin branch lines.

A new ferry boat was placed in service at Pictou.

An extension from Richmond to North Street in Halifax was proceeding.

Work had started on a branch line one mile long at Stewiacke.

Three of the "convertible" locomotives were narrowed, four locomotives were converted for the Canadian Pacific Railroad, and two other locomotives sold to the Elgin and Chatham branch lines were also converted by the ICR.

1877

41 Victoria, No. 7 1878

The section between Ste Flavie and Campbellton was opened July 1st, 1876.

There are three more branch lines the Rimouski, the Dorchester and the Sackville.

The large iron works at Londonderry makes the Londonderry station the largest receiving and shipping station on the Intercolonial Railway.

The Halifax Extension opened October 2nd, 1876 for freight traffic and on October 16th for passenger traffic.

The Stewiacke branch was completed and opened for traffic October 16th, 1876. It is 5110 feet long and it diverges from the mainline 2236 feet south of the Stewiacke station. This branch connects with the Stewiacke River at its juncture with the Shubenacadie River about 22 miles from the flourishing village of Maitland. It is a tidal river.

One engine was converted from Broad Gauge to Standard Gauge for the St Martins and Upham Railway and another for A. E. Killam.

1878

42 Victoria,

1879

On August 8th, 1877 the new passenger station was opened at Halifax.

A 3380 foot siding was built for the Graham Brothers limestone quarry between Polly Bog and Stewiacke.

Stations were built at Greenville Crossing (21x29), and Riverside (22x30).

At Newcastle the old enginehouse was removed from the wharf and erected in the station yard for the storage of snowploughs.

At Acadieville a freight shed 25 x 50 feet was built out of the temporary passenger station at Halifax.

October 27th, 1877 there was a fire at the Assmetguagham station and a new station will have to be built.

1879

43 Victoria, No. 6 1880

Three new engines were built at Moncton.

Cast iron turntables were installed at St John and Riviere du Loup.

New stations were built at Isgonish, Stewiacke and Rockland.

An agreement was made to transfer the Pictou Branch, 52 miles to the Halifax and Cape Breton Coal and railway Company upon that company completing the construction of a railway from New Glasgow to Canso 82 miles.

The purchase of the portion of the mainline of the Grand Trunk railway from Hadlow (Levis, Quebec) to Riviere du Loup a distance of 124 1/2 miles was effected on August 1st, 1879. The purchase price was \$1,500,000.00. The Grand Trunk transferred the railway to the ICR August 13, 1879. The GTR has running rights from Chaudiere (Charny) to Point Levis. The Intercolonial also gained running rights from Hadlow to Pointe Levis over the GTR.

A new large station and refreshment room was erected at Chaudiere Junction. The old Grand Trunk at Chaudiere Junction was moved across the tracks and converted into two dwellings

The Rimouski station that was destroyed by fire in November 27th, 1879 was rebuilt.

The Riviere du Loup enginehouse was enlarged and the Grand Trunk enginehouse was converted into an engine repair shop.

New stations Lake Road, Ste Helene, Ste Denis,, Ste Pierre, Ste Francoise, St Charles, St Henri.

New iron turntables for Truro, Moncton, Newcastle, Campbellton, and Ste Flavie. These iron turntables manufactured by William Hazelhurst of St John replace the older wood turntables.

THE ERA OF PROSPERITY IN HALIFAX.

AS EVIDENCED BY THE "HUM" AT RICHMOND.

What the National Policy has
done, and is doing, for
our Port.

"OFFICIAL" FACTS AND FIGURES
THAT ARE "UNANSWERABLE."

Comparative Statements of Ar-
rivals of Ocean Steamers
and Vessels.

WHAT IS DOING AT THE RICHMOND
CAR AND ENGINE SHOPS.

The "Boom" Still on the Increase.

From the Evening Mail.

Those who have any doubts about the
extent of the era of prosperity that we
are now enjoying should spend half an
hour at Richmond, when all their doubts
would be removed. Seeing, in that
case, would be most convincing. Five
years ago Richmond Depot was a dis-
grace to the Intercolonial railroad, and
to the city which was its terminus.
Then it comprised, besides the car and
engine shops, a dirty, tumble-down,
shed, used for a passenger station, and
another shed equally dirty and rickety
used for a freight depot; a couple of
sillings and one wharf. The presence
of thirty or forty freight cars in the
yard was then the sign of "a rushing"
business. Now Richmond has become

THE BIGGEST SHED IN HALIFAX.

The passenger and freight depots have
been removed into North street, but
yet ten times more business is being
done at Richmond to-day than when
the old passenger and freight depots
were located there. Now it is practi-
cally Canada's winter port. It is the
depot for shipping cattle, deals, coal,
etc., during the winter months. Now,
instead of one wharf there are three,
with a fourth in course of construction.
These are covered with warehouses and
trestle work, laid with railway tracks,
crowded with freight cars, surrounded
by steamers and vessels, and employ-
ment afforded to hundreds of men. Now
there are eight tracks, besides the main
line, embracing

FIFTEEN MILES OF SIDINGS.

crowded by hundreds of cars shunting
to and from, loading and unloading rich
cargoes of freight for Europe from
Canada, or for Canada from Europe.
To give some idea of the business we
give a list of freight cars standing in
the yard and on the wharves on the
30th of March:

COMPARATIVE FREIGHT BUSINESS FOR ONE WEEK.

Following is a comparative statement
of Intercolonial freight business for the
last weeks of March, 1881 and 1879, re-
spectively:

	Inwards.	Outwards.	Total.
1881	613	359	1002
1879	339	269	568
1881 Increase..	284	150	434

COMPARATIVE FREIGHT BUSINESS FOR SIX MONTHS.

Comparative statement of Intercolo-
nial freight shipments, inwards and
outwards, for six months, week end-
ing March, 1881, with correspond-
ing period, 1879:

	Inwards.	Outwards.	Total.
1881	8,906	4,352	13,348
1879	6,558	3,615	10,173
1881 Increase..	2,438	737	3,175

THE PRINCIPAL ITEMS OF SHIPMENTS AND RECEIPTS

were in following proportions, the
balance being made up of miscellaneous
goods:

	1879.	1881.	Increase.
Inwards.			
Flour	813	513	—
Coal	2,691	4,088	1,397
Hay	252	270	218
Cattle	148	379	131
Timber, deals, &c.	175	642	476
Outwards.			
English Goods	1,882	1,448	—
Sugar	2	890	878
Molasses	31	63	32
Fish	26	136	110

WHAT THE NATIONAL POLICY HAS DONE FOR THE INTERCOLONIAL.

The only items in which there has
been a decrease has been in the shipment
of English goods—a consequence of the
Allans' attempt to divert the Canadian
trade to Boston in the early part of
the season; and the receipts of flour—
caused principally by the greatly in-
creased home production. The increase
in the receipts of coal, hay, cattle,
deals, timber, &c. shows the prosperity
that has overtaken those lines of busi-
ness. In the shipments outwards the
figures show that the export to the Upper
Provinces of molasses has doubled,
and fish more than trebled; while the
quantity of sugar has reached from 2
to 890 cars—or nearly 13,000 hogsheads
in six months. This is what the
National Policy has done in the sugar
trade alone for the Intercolonial. Each
cargo of sugar discharged from the
vessel and loaded in cars at Richmond,
gives employment to from 30 to 40 hands
at the wharf—not to speak of the extra
work to railroad men, to car and engine
builders, increased consumption of coal
(each engine consumes 6 tons of coal,
per day, on an average) or the other
direct and indirect benefits to Halifax.
The "hum" at Richmond furnishes
work for between 300 and 400 men,
and this number will be greatly in-
creased when the refinery is put in
operation.

INCREASE IN OUR SHIPPING.

WHAT THE STATISTICS FOR FIVE MONTHS
SHOW.

The following statement, for which we
are indebted to Hon. W. Ross, of arri-
vals of steamers and sailing vessels (most

crowded by hundreds of cars shunting to and from, loading and unloading rich cargoes of freight for Europe from Canada, or for Canada from Europe. To give some idea of the business we give a list of freight cars standing in the yard and on the wharves on the 30th of March:

200 coal hoppers to be discharged.
18 large coal cars to be discharged.
14 foreign freight cars discharging.
36 flat cars discharging timber and deals.
48 cars cattle to be discharged.
41 box cars loading sugar and molasses.
8 cars hay discharging.
40 cars loading with English goods.
117 empty cars to be loaded with English goods and sugar.

ON THIS SINGLE DAY

there were no less than 617 cars loading and unloading or to load freight. Work is being carried on night and day, and employment given to some 175 to 200 hands. In the beginning of the week 2,000 tons of freight were discharged from the steamers *Columbia* and *Edmore*, loaded in 115 cars, and despatched between six o'clock Monday morning and Tuesday night. But notwithstanding the despatch given to freight by the authorities, and the increased accommodation provided by the Government, the capacity is not half equal to that required. Grave complaints are made that

GREAT LOSS IS INCURRED

by vessels being compelled to wait days before their turn comes to discharge. The wharf accommodation is inadequate, and the rolling stock is altogether inadequate to carry the rapidly increasing traffic. The complaints made by Pictou Colliery managers about the want of cars, are re-echoed by almost every man doing business with the road. But this will soon be remedied by Sir Charles Tupper, who has placed \$200,000 in the estimates for new engines, cars and station accommodation.

THE OLD WHARF

is principally used for loading coal, deals, timber, etc. It is laid with four tracks and fitted with trestle work for loading steamers with coal. The long wharf—built two years ago, is 900 feet in length. Three warehouses are built on it, 450, 300 and 220 feet long by 32 feet wide, respectively. Tracks are laid along each side of the warehouses, so that goods are transhipped from the vessel right into the cars or vice versa. This wharf is principally used for loading cattle, and discharging sugar, molasses, English goods, etc., etc. The new wharf, on which double tracks are laid, is used for shipping deals, timber, etc. Twenty-five trains passed Richmond Depot on Tuesday last, or one every half hour; and that is the average all through the week. To best illustrate

THE ENORMOUS INCREASE OF BUSINESS

at Richmond, we print below comparative statements (1) of the shipping discharging and loading at the railway wharves during the last week of March, 1879,—the first month of the National Policy—and the last week of March, 1881, after that policy had been in operation two years; (2) comparative statement of number of cars of freight received and shipped from Richmond for the six months ending March, 1881, with the six months ending March, 1879. These facts are submitted to the honest

increased when the ferry is put in operation.

INCREASE IN OUR SHIPPING.

WHAT THE STATISTICS FOR FIVE MONTHS SHOW.

The following statement, for which we are indebted to Hon. W. Ross, of arrivals of steamers and sailing vessels (most of them loading and discharging at Richmond) from November 1st to March 31st, with corresponding period last year, is from the closing of navigation in the St. Lawrence, and refers only to vessels coming from foreign ports. This shows a very gratifying increase both in arrivals and tonnage, which, if it continues at the same ratio throughout the year, will make the showing at the close one of which Halifax need not be ashamed:

STEAMERS.			
	1879-1880		1880-1881
Month	Arrivals.	Tons.	Arrivals. Tons.
November	29	42,280	30 36,776
December	25	34,318	35 45,887
January	14	42,752	35 50,988
February	22	32,842	30 42,705
March	30	48,395	38 52,990
	131	201,287	168 229,406
		Increase	34 28,119

SAILING VESSELS.			
	1879-80		1880-81 Increase.
Ships	1	1	
Barques	14	12	
Brigs	3	3	
Brigantines	78	93	15
Schooners	117	131	14

TOTAL TONNAGE 32,022 35,160 3,138

TOTAL VESSELS AND STEAMERS.			
1st Nov. to 31st Mar.	Number.	Tonnage.	
1880-81	408	264,566	
1879-80	341	233,309	

Increase, 1880-81—67 31,257

WORK AT THE REPAIR SHOPS.

"NINETY MEN KEPT BUSY—A TALK WITH MR. JOHNSON, WHO WAS 'NEVER SO HARD WORKED BEFORE.'"

"Never was so busy before," said Mr. Johnson, the Superintendent of the Engine and Car Works, in reply to the Mail reporter's enquiries. The traffic on the road surpasses anything that I could have imagined. No one ever anticipated such a "boom." Engines and cars are doing double work; they are running night and day, and, of course, are subject to twice the wear that they would be under ordinary circumstances, and consequently furnish twice the work for the repair shops. Ninety men are now employed at these shops frequently working over time. Their wages range from \$1.25 to \$2.00 per day. We handle all the way from 50 to 80 cars per week. There are three engines now in the repair shop and seven or eight cars. A great deal of the work consists of changing and replacing wheels under cars and engines. We have done more at that during the past three months than ever was done before—having fitted some 400 pairs. In January we put in 139 pairs; in February 150 pairs, and this month will go 110 or 120. These wheels are cast at the Londonderry mines. I can't give the quantities of iron, bolts, spikes, nails, castings, lumber, etc., used, but it is a pretty large item. There is a great scarcity of engines. An ordinary days work for an engine is 100 miles. After performing that journey she should be thoroughly washed and cleaned, which should take

April 6
1881

loading steamers with coal. The long wharf—built two years ago, is 900 feet in length. The warehouses are built on it, 450, 300 and 220 feet long by 32 feet wide, respectively. Tracks are laid along each side of the warehouses, so that goods are transhipped from the vessel right into the cars or vice versa. This wharf is principally used for loading cattle, and discharging sugar, molasses, English goods, etc., etc. The new wharf, on which double tracks are laid, is used for shipping deals, timber, etc. Twenty-five trains passed Richmond Depot on Tuesday last, or one every half hour; and that is the average all through the week. To best illustrate,

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Vessel.	Cargo.
S. S. Sardinian, discharged	English freight.
S. S. Dominion, discharged	English freight.
S. S. Manitoba, discharged	English freight.
S. S. Quebec, loaded	176 head cattle.
S. S. Devonian, discharged	English freight.
Barque Peter Creger, loaded	deals.
FOR THE WEEK ENDING SATURDAY, APRIL 2ND, 1881:	
S. S. Ranzani, loaded	500 tons coal.
S. S. Pulverian, discharged	1240 tons English freight.
S. S. Columbia, discharged	700 tons English freight and loaded 200 tons coal.
S. S. European, loaded	757 head cattle.
S. S. Scotia, loaded	100 head cattle and 200 tons coal.
S. S. Acadian, loaded	1,100 tons coal.
S. S. Grecian, discharged	Glasgow freight.
S. S. Keroula, loaded	coal.
S. S. Camden, loaded	coal.
Barque Gift, loading	deals.
Barque Prince Arthur, loading	deals.
Barque Terential, loading	deals.
Brig Laura, discharging	600 hhds sugar and loading coal.
Brig Fleetwing, discharging	240 hhds sugar.
Brig Dart, discharging	440 hhds sugar.
Brig Catharina, discharging	5000 bags sugar.
Brig Victoria Amelia, loading	120 tons hay.
Brig Eliza, discharging	sugar.
Schr. William Hayes, loading	200 tons coal.
Schr. G. E. Baird, loading	200 tons coal.
Waddell's Lighter, discharging	200 hhds sugar.

In 1879 there were 4 steamers discharging English goods, and 1 steamer and 1 barque loading cattle and deals. In 1881 there were 3 steamers discharging English goods, 2 steamers loading cattle, 4 steamers loading coal, 3 barques loading deals, 6 barques, brigantines and a lighter discharging sugar, 1 brigantine loading hay and 2 schooners loading coal. In 1879 there were six vessels at Richmond; in 1881 there were twenty-two vessels.

on the road surpasses anything that I could have imagined. No one ever anticipated such a "boom." Engines and cars are doing double work; they are running night and day, and, of course, are subject to twice the wear that they would be under ordinary circumstances, and consequently furnish twice the work for the repair shops. Ninety men are now employed at these shops frequently working over time. Their wages range from \$1.25 to \$2.00 per day. We handle all the way from 50 to 80 cars per week. There are three engines now in the repair shop and seven or eight cars. A great deal of the work consists of changing and replacing wheels under cars and engines. We have done more at that during the past three months than ever was done before—having fitted some 400 pairs. In January we put in 139 pairs; in February 150 pairs, and this month will go 110 or 120. These wheels are cast at the Londonderry mines. I can't give the quantities of iron, bolts, spikes, nails, castings, lumber, etc., used, but it is a pretty large item. There is a great scarcity of engines. An ordinary day's work for an engine is 100 miles. After performing that journey she should be thoroughly wiped and cleaned, which should take 12 hours. But now engines are made to do extraordinary work. For instance engine 84 made a continuous run this week of some 500 miles. She left Moncton in the morning, run to Stellarton; brought back a freight train to Halifax; left again immediately with another freight train for Truro; came back with a special freight train, and was immediately rushed off again with a special train of English freight for Moncton—all this you might say was done without stopping; and that is pretty much the case with every engine and car on the road. The men, too, are all working extra time. There are usually, and are supposed to be always, two or three spare engines at Richmond; now there are none, and engines have frequently to be brought down from Truro to take out freight trains. Four engines are now employed at the Richmond yard shunting, where there only used to be two. An engine consumes about six tons of coal per day. As busy as Mr. Johnson and his staff of 90 men now are, there is every indication that they will have a great deal more work in the future than they have even now.

THE HUM ALL ALONG THE LINE.

THE TRAFFIC AND RECEIPTS DOUBLED AT MONCTON.

But this increased and rapidly increasing business is not confined to the Halifax terminal. The same good news comes from every station along the line, and, if anything, Truro, Pictou and Londonderry make better returns than Halifax. The Moncton Times reports a great rush of freight over the road this month. During the past week, in four days, ninety trains of 1100 cars were reported inwards at Moncton station, and nearly the same number outwards. There is a great increase in local traffic. The following are the freight receipts at Moncton for the month of February,

April 6
1881

1881

45 Victoria, No. 8, 1882

New iron turntables installed at Sussex and Stellarton. Sterarton also received a new enginehouse after the old engine-house was destroyed by a sleet storm last winter.

New coal sheds installed with inclined planes to dump coal directly into the locomotive tenders were put up at Newcastle, Campbellton, Ste Flavie and Riviere du Loup. A high level coal shed installed at Chaudierre.

Seven new stations for Lake road, Ste Helene, St Denis, St Pierre, St Francois, At Charles and St Henri.

New flag stations for St Andre, Elgin Road and St Jean Chrystome.

1883

47 Victoria, No. 10. 1884

St Charles Branch, Quebec

The Intercolonial started construction of a short and direct route from St Charles north and west where the railway could descend directly to river level on the St Lawrence River to a point at Levis that was directly opposite the City of Quebec. The construction of the branch was undertaken by Mr M.J. Hogan so far as the grading, bridging and track-laying was concerned. The extensive cribwork along the river in the town of Levis this was under contract to a Mr LaChance. By June 1883 track had been laid on the whole length of the St Charles Branch but the considerable filling that was required delayed completion.

February 10, 1883 the railway's General Offices at Moncton were destroyed by a fire.

1883

47 Victoria, No. 10, 1884

New stations for Delbert, East Minas, Springhill, Bloomfield, and Model Farm.

A new brick station for Ste Alexandre replacing a station destroyed by fire.

A new station and trainshed for St John, New Brunswick

1884

48 Victoria, No. 11 1885

The new large station and train shed opened at St John, New Brunswick on June 6, 1884

A cast iron 46 foot turntable was provided to Pointe au Chene to replace the last wooden turntable.

New Branch Lines

Riviere du Loup Branch a contract for grading of this branch was entered into with Mssrs, Theriault and Deschen of Riviere du Loup on September 17th, 1883. The grading had not been completed.

Dalhousie Branch. A contract for the grading of this seven mile branch was entered into with Mssrs. Warren Taylor and Company of Salisbury, New Brunswick, on July 25th, 1883. The grading was not completed until June. The branch was opened for traffic on June 23rd, 1884.

Dartmouth Branch. The most expensive work in connection with the Dartmouth Branch is the bridging of the Narrows at Richmond. The channel is six hundred feet wide and from sixty to seventy feet deep.

Indiantown Branch. A location was made for the Indiantown Branch from Derby up the southwest Branch of the Miramichi River fourteen miles to Indiantown.

A combined passenger and freight station was built at Dalhousie town. Also an engine-house coal shed and a freight house on the wharf extension.

The Eastern Extension Railway

A railway running from New Glasgow to Port Mulgave eighty miles and at one time known as the Halifax and Cape Breton Railway, and then as the Nova Scotia Railway came under the control of the Dominion Government on January 9th, 1884.

1885

49 Victoria, No. 13, 1886

The St Charles Branch to the St Lawrence River at Levis was opened July 21st, 1884.

Track had been laid on the Riviere du Loup Branch.

Dartmouth Branch: The bridge at the Narrows was completed in December, 1884.

Indiantown Branch: there are to be two stations at Indiantown and Millerton.

The high level coal shed and trestle was removed from Chaudiere Junction and was moved to St Charles.

The Eastern extension was operated as a separate entity from that of the Intercolonial railway in the absence of legislation to authorize the ICR to operate that railway as part of the Intercolonial.

New fifty foot turntables for Riviere du Loup and Campbellton to replace forty-six foot turntables.

1886

50 Victoria, No. 13, 1887

The Dartmouth Branch five miles long was opened for traffic on January 6th, 1886.

The Indiantown Branch was completed with two stations at Indiantown and Millerton.

The Riviere du Loup Branch had been completed to the public wharf on the St Lawrence river.

The Pictou Town Branch fourteen miles had been put under contract and work to start in the early summer of 1886.

A high level coal shed, 30 by 300 feet was put up at Newcastle.

1887

51 Victoria, No. 6 1888

The Indiantown Branch of the Intercolonial Railway fourteen miles long was opened for traffic on December 1st, 1886.

In the spring of 1886 construction had started on the Pictou Town Branch.

The great cantilever bridge across the St John River at St John, New Brunswick was opened.

Coal Branches: The Intercolonial Railway purchased three miles of track from Stellarton to Westville from the Acadia Coal Company. Two miles from Westville to Middle River were purchased from the Nova Scotia Coal Company. The balance from Middle river to Pictou was built new.

New stations were erected at Stellarton, Westville, Sylvesters, Lock Broom, Pictou. New brick stations for Dorchester, Dalhousie and St Joseph (Lauzon).

New enginehouses and turntables for Stellarton and Pictou.

1888

52 Victoria, No. 10, 1889

The Pictou Town Branch fourteen miles was opened on November 28th, 1887.

Oxford Junction to Brown Point Junction on the Pictou Town Branch 67.6 miles and a branch 4.75 miles to the harbour of Pugwash.

Fifty-five foot wrought iron turntables were installed at Pictou and stellarton.

The Riviere du Loup yard was expanded due to the construction and opening of the Temiscouta railway to Edmunston.

A new station for Berniers Siding.

1889

53 Victoria, No. 19, 1890

On June 3rd, 1889 the Canadian Pacific Railway opened its Short Line from Montreal to St John, New Brunswick across the State of Maine. The Canadian Pacific had obtained running rights for its fast express passenger trains to run over the Intercolonial Railway from St John to Halifax as solid trains. The CPR train left Halifax at 5:50 in the afternoon and arrived at Montreal at 8:35 the next morning.

Stellarton the old station was moved across the track and was converted into a double tenement residence.

New stations for Glouchester Junction (destroyed by fire) and Millstream.

The second floor of the Levis station had been converted into a restaurant.

Cast iron turntables for Bathhurst and Causapschal.

The ICR obtained two rotary snowploughs along with three ordinary wedge ploughs.

An Act of Parliament was passed consolidating the lines operated by the Dominion of Canada on the mainline under the name The Intercolonial Railway.

The section Oxford Junction to Browns Point Junction and to Pugwash 72.5 miles was opened to traffic on July 15th, 1890.

The rolling stock of the Eastern Extension, Oxford and New glasford and Cape Breton Railways were consolidated with the Intercolonial railway. Twenty –six locomotives, 1013 cars and four ploughs and flangers.

The section from Port Tupper to the Grand Narrows on Cape Breton Island 46 miles was opened to traffic January 1st, 1891. The section from the Grand Narrows to Sydney and North Sydney, along with a loop connecting the Intercolonial with the International Coal Company railway for a total of 52.5 miles, was opened on November 24th, 1890.

At Moncton an engine-house and erecting shop was under construction.

A wye was installed at Truro.

The long trestle that spans the “Narrows” between Halifax and Dartmouth was carried away in a large storm.

The Kent Junction station was destroyed by fire.

increase the quantity and improve the quality of the product under a deeper feeling of personal interest. By his diligence, care and economy he can actually create an additional profit, which is to be used in supplementing regular wages. Profit sharing includes the payment of the best wages current, and promises a bonus beyond this, which experience shows the interested workman can invariably produce in good times. Profit sharing, as a principle, may be applied in a large variety of ways; and it can readily be adapted to the great majority of productive and distributive enterprises. Why not form such an association in Canada?

THE CANADIAN SOCIETY OF CIVIL ENGINEERS.

The first well-directed effort to found a society of civil engineers dates from 1880, when a circular was issued under the pseudonym X. Y. by E. W. Plunkett. The anonymous nature of the circular prevented its receiving proper recognition. In the next year a bill was introduced into the Ontario Legislature, no one seems to know by whom, which proposed to confer extraordinary privileges on a few engineers to the detriment of the profession. From a variety of reasons the bill never reached a committee. The next effort was made in January, 1886, by Alan Macdougall, who tested the profession by issuing a circular over his own signature, to which so many favorable answers were received that he held meetings in Toronto, Montreal and Ottawa in the next two months, at which the society was fairly launched. A provisional committee was appointed of which Mr. Macdougall was elected secretary. The success attending their labors was such that the first general meeting for the formation of the society was held in Montreal on 24th February, 1887, when 288 members of all classes stood on the roll. A charter of incorporation was obtained on the 23rd June, 1887. The progress of the society has been satisfactory and solid. The membership includes nearly every engineer in the Dominion, as well as several in the United States and Europe. As an illustration of the wanderings of engineers, many members have found their way to South America, Mexico, India, Burmah and Australia. The membership at present includes hon. members 7, members 283, associate members 133, associates 60, students 150. Total, 633.

The society pays special attention to its youngest members, the Students, and encourages them to hold meetings and read papers, which are published by the society. The society was extremely fortunate in enlisting the sympathies of Messrs. T. C. Keefer, the late S. Keefer, the late John Page, and Sir C. S. Gzowski, all of whom passed the presidential chair, and among the younger men, of Messrs. John Kennedy, E. P. Hannaford and P. Alex. Peterson, who is the present president. The society owes much to the generosity of C. S. Gzowski, who, among other gifts, has presented a medal to be given annually for a paper. Prof. Bovey, the first secretary, was indefatigable in his exertions; he has an able successor in Prof. McLeod. Herbert Wallis, the first treasurer, resigned at the last annual meeting and was succeeded by Kenneth W. Blackwell.

The officers for this year are:—P. Alex. Peterson, president; Alan Macdougall, P. W. St. George and H. Wallis, vice-presidents; Prof. C. H. McLeod, secretary; W. M. Blackwell, treasurer; W. McNab, librarian.

Bovey, O. Chanute, G. C. Cunningham, H. Donkin, G. H. Duggan, J. Galbraith, G. H. Garden, W. Haskins, H. A. F. MacLeod, H. Peters, H. N. Ruttan, L. A. Vallee. There are, besides, four past-presidents, Sir C. S. Gzowski, T. C. Keefer, J. Kennedy, E. P. Hannaford. We present with this issue a supplement containing portraits of all the officers but one.

For THE CANADIAN ENGINEER.

OLD-RAIL OVERHEAD BRIDGES ON I. C. R.

BY P. S. ARCHIBALD, CHIEF ENGINEER, I. C. R.

The overhead bridges of the Intercolonial Railway were originally built of wood, supported by trestle bents resting upon low stone walls on each side of the track. These walls, being near the side ditches, were subjected to the action of frost from the front and to the pressure from the sliding slopes at the back, the result being that the masonry required to be rebuilt by the time the wooden bridges required renewal. In fifteen years the slopes of one-and-a-half to one had flattened down to about two to one.

For the renewal of these bridges, the most stable and economical structure seemed to be a single iron span, resting on stone or concrete abutments, at the top, or beyond the top of the cutting; in which position the abutments would be simply ordinary retaining walls, and not surcharged walls, as they originally were at the toe of the slope. The stones from the old walls were hoisted to the top of the slope and built into the new abutments with cement mortar. Stone drains were laid down the slopes, and since 1879 none of these abutments have shown signs of failure.

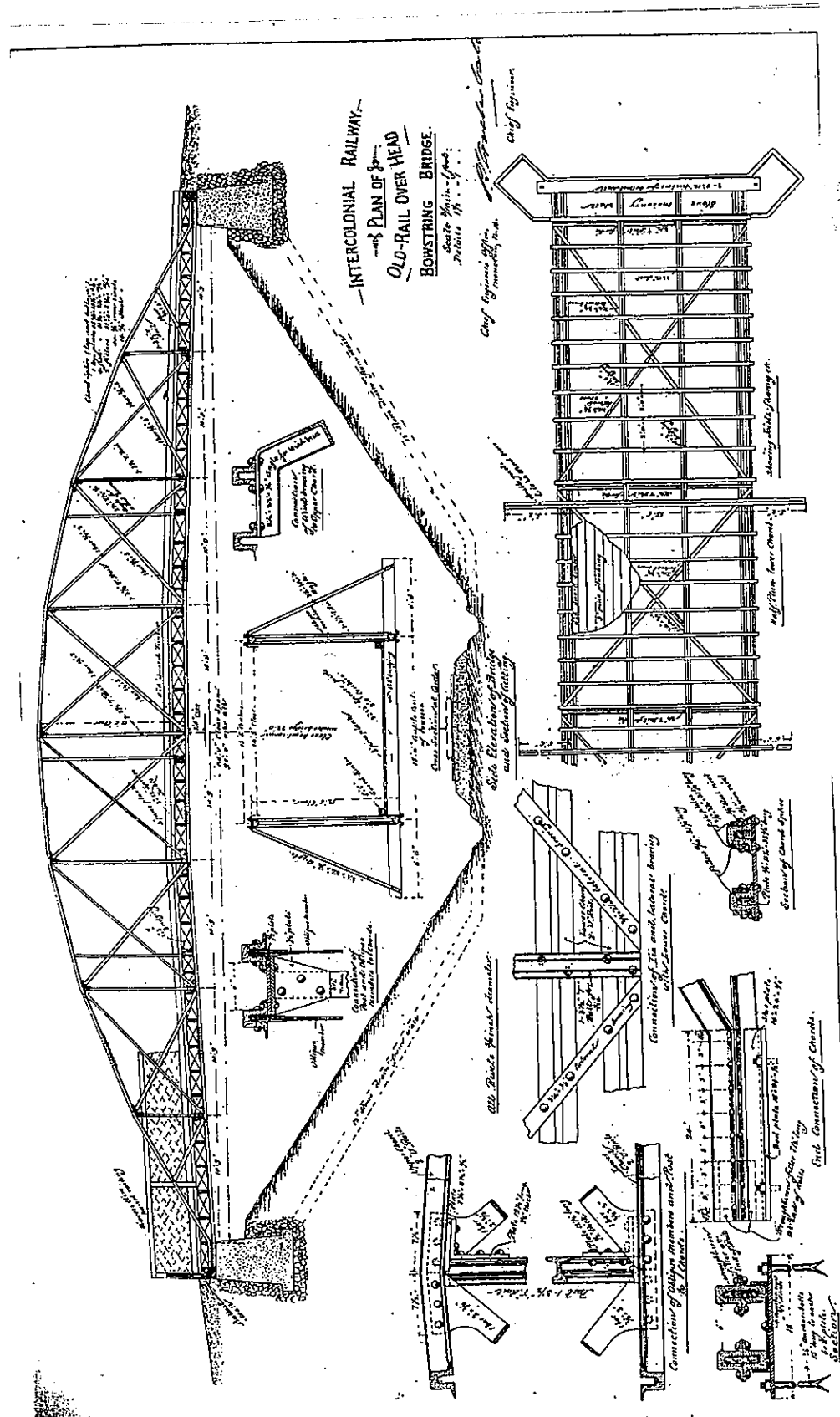
Fifteen years ago old U-iron scrap rails were worth one cent per pound when new iron was four cents per pound. These U rails were placed in the chords of the iron superstructure, the stresses in which were made practically uniform throughout by using the bow-string type of truss. In later bridges, where the headroom was limited, the lower chords were raised in the centre, making the grades on the bridges one in twenty both ways from the centre panel. This changed the truss to the crescent or sickle-shaped type, increasing slightly the stresses in the verticals and lower chords. The verticals are made of one tee-rail, to resist compression from a partial load. The diagonals are bars of flat iron, upset at the ends and fastened into the U of the chord rails with $\frac{3}{4}$ in. rivets. The wooden joists are doubled and extended outwards at every second panel-point, to take an angle-iron or light rail brace. The lateral bracing is of flat iron riveted to the chords.

These bridges are figured for 80 pounds per square foot live load. The cost for spans of 70 to 90 feet; erected, is about \$11.40 per lineal foot, exclusive of masonry. Girder bridges on trestle bents cost about \$7.50 per lineal foot, erected, exclusive of masonry, old rails being figured at one cent per pound.

Twenty-one bridges of the type illustrated have been built, also two old tee-rail girder bridges on bents, besides many small tee-rail girders over open culverts, from 5 to 20 feet spans.

Tee-rails are also used for covers of box culverts, for protecting piers from running ice, and also in combination with concrete in foundations.

One or two rectangular trusses and plate-girders have been built of tee-rails, by making the chords or flanges of two rails with the broad flanges placed vertically, and the web plate riveted between. A plan of



1893

57 Victoria, No. 10, 1894

Station and sidings were erected at Eureka Junction. There were large iron smelting works built at a place called Ferrona. A branch line was constructed by the New Glasgow Coal Company.

A branch line was built from Campbellton to Mowatts Wharf that provided a connection with navigable water.

New stations; for Ferrona Junction, Acadieville, a brick station for New Glasgow was opened October 1892, the flag station at Gerrias was moved half mile east to a new point called Monastery.

Two of the long car-shops at St John were acquired from James Harris.

1894

58 Victoria, No. 10, 1895

The transfer ferry between Mulgave and Port Tupper was completed and was placed in operation.

A new turntable for Pictou Landing.

1895

59 Victoria

1895

The section of the Dartmouth Branch between Tuft's Cove and the Richmond; crossing the "Narrows" of the Halifax Harbour was abandoned and with a new route the branch was being extended to connect with the main-line at Windsor Junction.

There was a large fire at the Riviere du Loup roundhouse on October 20th, 1894. This was a large brick building with a turntable in the centre. There were eleven locomotives in the roundhouse at the time of the fire, three were saved, but eight were burned. There were rebuilt.

1896

60 Victoria, No. 10, 1897

The Dartmouth Branch; a new route, from Windsor Junction, ten and a half miles, contracts were let in early 1895 and the work was completed by November 15th, 1895. The new route ran from Tuft's Cove through Dartmouth and went on a further four miles to the Woodside Sugar Refinery.

New stations for Beaver Brook and the Eureka flag station.

1897

61 Victoria, No. 10, 1898

The Dartmouth branch was opened for traffic on June 22nd, 1896.

The railway purchased a sluice at Etchimin between Levis and Charny this was an aqueduct that a part of the Etchmin River over the railway.

Large washout at Metapedia April 27 and 28, 1897.

New station Lakeside.

1898

62 Victoria, No. 10, 1899

On March 1st 1898 Intercolonial Railway operations were extended to Montreal by the takeover of the Drummond County Railway from Chaudiere to St Rosalie Junction, and running rights over the Grand Trunk Railway from St Rosalie Junction, Quebec to Bonaventure Station, Montreal.

Repairs had to be made to the Richmond engine house after a boiler explosion.

A new flag station for Princess Lodge.

At Springhill Junction an additional engine-house 21 x70 feet erected.

Contract awarded for a new Moncton station.

1899

63 Victoria, 1900

An extension to deep water at North Sydney).60 miles long built to a wharf.

1900

64 Victoria, 1901

Stations were destroyed by fires; Salt Spring May 26, 1900, and Coal Branch, June 21, 1900.

Work started on the steel plant at Sydney, Nova Scotia.

Plans were being made to install three offices on the second floor of the Levis station.

1901

1 Edward, No. 20, 1902

Dominion Iron and Steel Company started their blast furnace February 2nd, 1901 at Sydney.

Engine-house and turntable at Sussex burnt down October 5, 1900.

February 5th, 1901 fire at the Trois Pistoles station.

Coal plant fire Ste Flavie on February 10, 1901.

The freight house burnt down at Chaudiere Junction along with forty-six cars on June 14th, 1901.

The old station at St Romuald was moved to St Jean Chrysostome.

At Hadlow, Quebec the coal shed was lengthened and a new coal chute erected.

Wye built at Mulgrave.

In connection with the new car ferry service at Canso, part of the existing Port Tupper engine-house, two stalls were removed from the south-west side, and an addition of five stalls to the north-west side.

Plans to extend the ICR to the Copper crown Works at Pictou.

Steel bridge erected at Etchmin River, Quebec.

1901

1 Edward, No. 20, 1903

Stellarton an 18 stall roundhouse was tendered and work now nearing completion.

At Campbellton, twelve stalls of the roundhouse were lengthened and a sixty-five foot turntable installed.

At Moncton the old turntable was replaced by a seventy-five foot turntable. The old fifty-five foot turntable was put in at the Richmond engine turntable.

The old fifty-two foot turntable from Campbellton was sent to and erected at Saybec.

New wyes were installed at North Sydney Junction and Newcastle.

A new station for St Romuald, 24 x40 feet.

New combined stations, 26 x40 feet, for Maddington Falls, St Cyrille, St Germaine, St Eugene and Bagot.

1902

2-3 Edward

1903

New stations for Coal Branch and Trois Pistoles.

St Anaclet station fire, September 28th, 1901.

Princess Pier fire at Levis Quebec on October 7, 1901.

Fire at the covered turntable at Springhill Junction on October 17th, 1901.

The engine-house at Dartmouth was destroyed by fire on December 29th, 1901.

High tide affected the Dartmouth Branch on November 25th, 1901.

1902

2-3 Edward, 1903

A coal shed and trestle was put up at St Henri Junction; at the freight interchange point with the Quebec Central Railway.

The new ferry "Scotia" reached Mulgrave on September 28th, 1901. It was built by Sir W. G. Armstrong, Whitworth and Company of Newcastle on the Tyne, England. It ran out of fuel after crossing the Atlantic and had to be towed into Halifax harbour.

Stations had been built at Barnaby River, Red Pine and St Wenceslas.

The Moncton roundhouse built in 1889 was enlarged.

The Stellarton eighteen stall roundhouse with a new seventy foot turntable was completed. The same for the Sydney engine terminal.

1903

3-4 Edward, 1904

On June 22, 1903 the Riviere Ouelle Branchline, six and a quarter miles long from Riviere Oudell Station to the St Denis Wharf opened for traffic. The purpose of this branch was that St Denis Wharf was on the opposite side of the St Lawrence River from the resort of Murray Bay and other major summer resorts. A small steam ferry was placed in this operation.

May 1903 forest fires destroyed all the buildings at Moosepark, Forestdale and Aston Junction on the Montreal section.

Contracts were let to double track Windsor Junction to Halifax.

A new station for Levis Quebec.

A new station for Nicolet, Quebec.

Part of the old roundhouse at Moncton became the tin and coppersmith's shops.

1904

4-5 Edward, 1905

November 1903 a station fire at Mitchell.

May 1904 the old coal shed at Riviere du Loup, Quebec caught fire.

An 28 stall roundhouse had been built at Chaudiere Junction.

Stations had been built at St Denis wharf, and Letellier.

An enginehouse for the Riviere Ouelle station on the new Riviere Ouell Branch.

At Levis part of the freight shed was moved and attached with the old station all of which will be used for freight service.

1905

5-6 Edward, 1906

On October 1st. 1904 the Intercolonial purchased the Canada eastern Railway that ran from Gibson near Fredericton to Loggieville 123 miles and by surrender on April 19th, 1905 the short 1.33 mile Fredericton and St Mary bridge Company. The price was \$800,000.00.

There was a fire at the McIntyres station May 1905.

New stations for; Bayfield Road, Salmon Lake, Windsor, Amqui and Stellarton, and Pictou.

New roundhouses for Riviere du Loup (24 stalls), and Chaudiere Junction (18 stalls). Ste flavie got a smaller twelve stall roundhouse and turntable.

An extension to Sydney Mines was started.

A spur line to Powers Mill near the St Pacome station 1.27 miles long was well advanced and was put into use in December.

1905

The spur from Trois Pistoles bridge to the Princes Mills was under construction but not completed.

When the Intercolonial Railway took over the Canada Eastern Railway, it received 7 locomotives, four second class passenger cars, 46 flatcars and all considered in poor repair.

1906

6-7 Edward

On February 24th, 1906 There was a major fire at the Intercolonial shops at Moncton. The paint shop, the car repair shop, the boiler house, stores and the boiler repair shops were all destroyed. Thirteen passenger cars; consisting of one official car, one sleeping car, one dining car, five passenger cars, one postal and two baggage-express cars, forty-one freight cars, two steam shovels were also destroyed.

There are plans for a nine stall roundhouse for Pictou.

The Belmont station was destroyed by fire August 29th, 1905.

Work was started on a new 75 foot turntable and a 30 stall roundhouse for Truro.

New brick stations for Drummondville and Antigonish.

The spur line to the Powers Mill near St Pacome station was completed and in operation.

New stations; Woodburn, Maccan (brick), McKays Siding, Union station, Chancellor and Lorne.

An extension to Sydney Mines the grading and tracklaying is nearly completed for 2.7 miles.

1907

7-8 Edward, No. 20, 1908

The St Leonard Diversion in southern Quebec was opened for traffic on December 16th, 1906. The old Drummondville station was moved and converted into a freight shed.

A 30 stall roundhouse at Truro was completed and put into operation, as well as 9 stall engine-house at Pictou.

The double tracking of the railway from Richmond to Windsor Junction was completed.

Ice houses were built at Truro, Campbellton, Gibson, Chaudiere Junction, Mulgrave, Sydney and Levis.

1908

8-9 Edward, 1909

October 31, 1907 there was a fire at the Campbellton freight house.

A stone station was built at Sackville.

A contract was let for a four stall engine-house for Ste Rosalie, Quebec.

Plans were drawn for a large 36 stall roundhouse for Kempt (Halifax).

A wye was built at Pugwash Junction.

At Truro the old engine-house was torn down and new sidings were laid on the site.

A new large round-house was being built at Riviere du Loup.

New seventy-five foot turntables for Sussex and Loggieville and a seventy foot one for Newcastle. A seventy-five foot table delivered to Halifax was instead erected at Sussex.

Intercolonial Railway Shops.

The new I.C.R. shops at Moncton, N.B., have been completed, the whole force of employees have been removed there from the old shops, and the machinery of the latter has also been transferred. The new shops, which were commenced in Sept., 1908, contained a very complete account of the new shops by C. F. Stud. Can. Soc., C.E., which dealt with considerable detail with the layout, and of construction, etc. Now that the new shops are in operation it may be of interest to reproduce some portions of an article, particularly referring to the layout. Those who wish to have full details of the construction are referred to Sept., 1908, issue.

The new shops are located about a mile from Moncton station, on the main line of the I.C.R. The site is on a hill, about 60' above sea level, and is nearly flat, slopes gently to the east in the direction of a small stream. As shown on the accompanying plan, the two main sidings, with numerous branches and spurs, facilitate shunting and ready access to all buildings and tracks. The two passenger car shops are long and narrow, and so designed that they may be placed transversely in the main line. These buildings are parallel

ment provides greater facilities for stripping and repairing engines.

THE FREIGHT CAR SHOP is 134' 8" by 362'. Two rows of columns divide the shop into three bays, each 44 ft. wide, and each containing two tracks through the entire length of the shop. In each end are 6 doors, 12 ft. wide by 16 ft. high. In addition to these there are several narrow gauge tracks for small trucks.

THE PLANING MILL is 81 ft. 10 in. by 202 ft. 8 in., and is constructed practically the same as the freight car repair shop.

THE PASSENGER CAR AND PAINT SHOPS are each 361 ft. 8 in. by 100 ft. The cabinet shop is elevated half a story in one end of the passenger car shop, on what is termed the mezzanine floor. In the car paint shop, on a similar floor, are the upholstery and varnish rooms.

STORES AND OFFICE BUILDING. The first floor and basement of the stores and office contains the local and general stores department, and the second story, over the western half, is devoted to the offices of the stores department, the Superintendent of Motive Power and staffs.

THE LOCOMOTIVE PLANT includes five shops, viz.: the machine shop, 131 ft. 6 in. by 408 ft. by 36 ft. high, divided into two bays by a centre line of columns, each bay being served with an overhead electric travelling crane of ten tons capacity. This shop has an annex 44 ft. by 408 ft. The smith shop, at right angles to the machine shop, is 75 ft. x 375 ft. x 37 ft. high. Water gas is used for the different furnaces. Jib cranes are placed conveniently near the several fires and furnaces, while a track through the centre of the shop permits the handling of heavy work by means of trucks. The engine erecting shop, separated from the smith shop by a partition, is 80 ft. x 375 ft. x 50 ft. high. Two 60-ton electric travelling cranes are installed for moving and placing locomotives. Through the centre runs a surface track with a shallow concrete pit. On each side of this central track are eight side tracks with pits arranged herring-bone style. These side tracks are designed to accommodate engines requiring heavy repairs, and this form of layout provides ample space for overhauling. This leaves the central track free for light repair work, and obviates the necessity of lifting one engine over another. Between the engine erecting house and boiler shop walls is a space 25 ft. wide, which permits of additional side lights. The boiler shop is 100 ft. x 375 ft., divided into two bays by a row of columns down the centre. The bay for boiler erection is 44 ft. high, and the west end of it contains the riveting tower, 25 ft. long by 75 ft. high. A 35-ton electric travelling crane is installed in this bay, and a 30-ton crane in the riveting tower to serve the bull rivetter. The tool bay is served by means of a 10-ton electric travelling crane, which traverses the entire length of the shop. In addition to this, jib cranes are placed convenient to the different tools.

THE POWER HOUSE is built on the same principle as the planing mill. The engine room and boiler room are each 60 ft. x 100 ft., and separated by a reinforced concrete wall. The boiler equipment consists of four Babcock & Wilcox water tube boilers of 250 h.p. each, arranged in two batteries, while the necessary space is reserved for a third battery. Fuel economizers, and a feed water heater and pump, are installed to take care of the feed water. An induced draft plant forms part of the equipment, also a 1,000-gallon u.w. pump. In this room, a fan, direct connected to an auxiliary engine, circulates the hot air from the

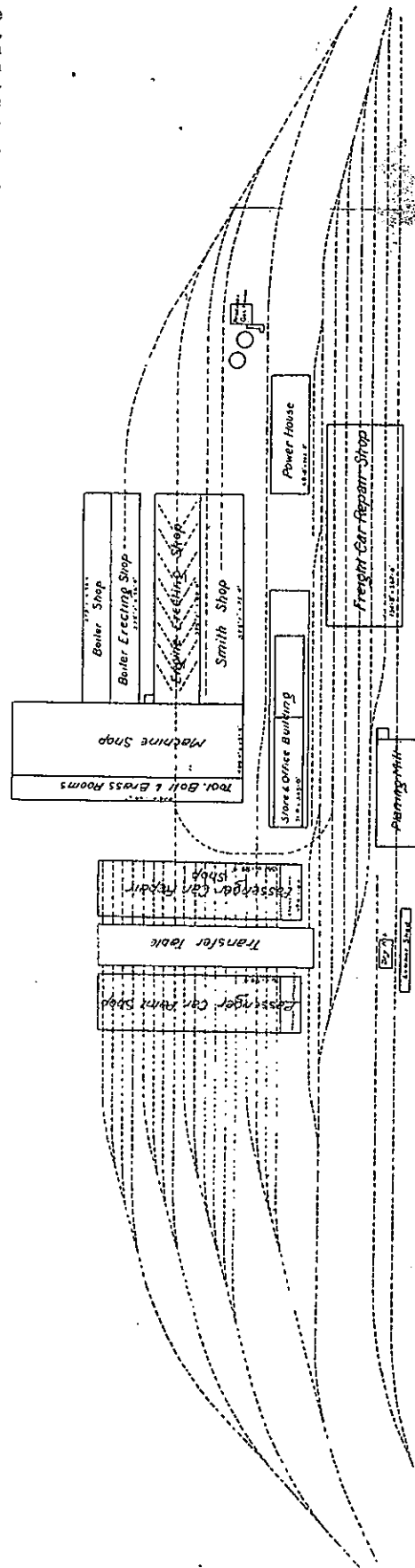


H. D. MACKENZIE,

General Foreman, Locomotive Shops, I.C.R.

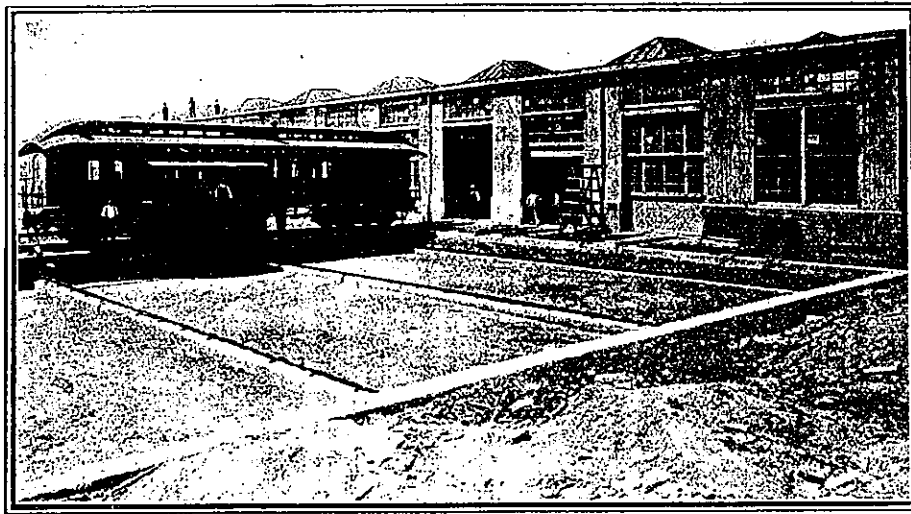
other and at right angles to the main line, with 18 tracks in each. Cars are readily transferred from any one shop to any track in the main line. The locomotive shops comprise machine shop and annex, boiler erecting shop, engine erecting shop, and smith shop, all under one roof. The four latter shops are parallel to the main line, and are served by means of the electric transfer between the two shops. The stores and office building, power house, planing shed, and dry kiln are all parallel to the main line of the I.C.R. and are all served by side tracks. The planing mill is situated convenient to the passenger car shop and freight car shop, but at right angles to the main line.

A notable feature in connection with the engine erecting shop is the arrangement of the pits. The main pit runs the entire length of the shop, while the side pits are continued across the machine



in waterlegs, and near locomotives which are tubes, it will, in many cases, which is from throat to a high point of the carry and deposit scale to the top of the fire-box to be held by the stay-bolts until the fire-boxes overheated at the top, to what is rightly termed. This seam then leaks and is chipped and caulked, without having the removed, therefore great taken by those in charge to see that no sediment main on top of the fire-box cause trouble. A large e and sediment is also the bottom of door sheet back ends of side water water is more liable to favorable to the settlement so find the tubes become with scale close to the et. This is undoubtedly evaporation of the water d the close formation of es being very favorable nurities deposited from adheres strongly to the as hard scale. We must ally along the side water per portion of the ogee, staybolts are irregular, space becomes decidedly y large pieces of scale the crown or broken of sides, may become bolts and collect sedi- till there is a solid block-sheets which will cause

these several points to ched in locomotive buil- mean that other parts of t become subject to the scale and sediment, but ut all available parts of ler should be thoroughly suitable light after hav- d out, to ascertain that een properly done, and ment is left in the boiler moved. Taking into con-



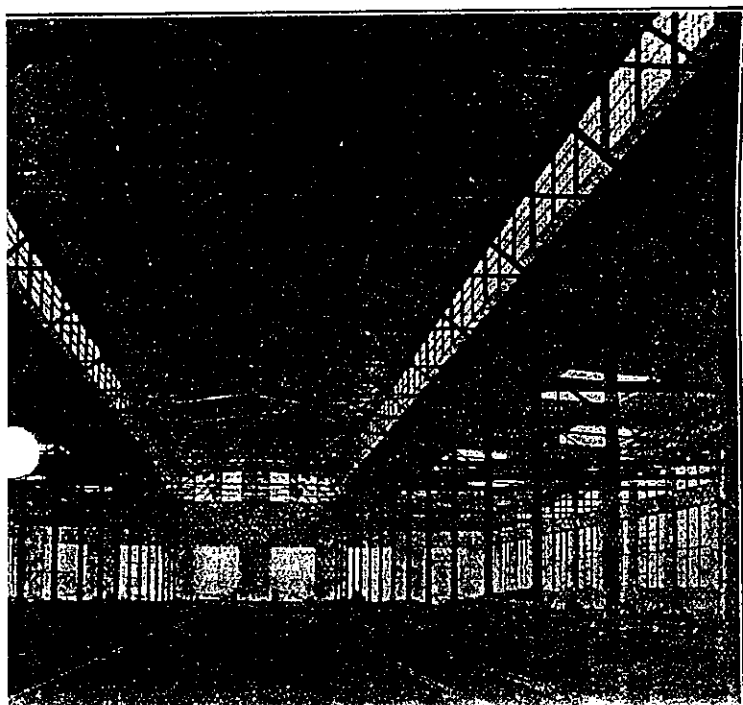
TRANSFER TABLE BETWEEN PASSENGER CAR AND PAINT SHOPS, I.C.R., MONTON.

sideration the disposition of washout holes and means of access to the interior of the boiler for the purpose of washing out, we find it advisable to have several holes on each side of saddle sheet, to wash down the sediment from off the crown sheet, also to turn the water down on to the high part of side water legs, and to break up and remove any scale which may have become lodged amongst the bolts at these high parts; several holes are also required in back head to enable streams of water, and use of cleansing rods in various directions along crown sheet, also to wash down the back water space. Also several washout holes are required in side water legs, and at bottom of each corner. With simple engines there are holes wanted in bottom of front end tube sheet, to enable bottom of barrel being cleaned out, whereas, with the crossover or two cylinder compound locomotives, we find that washout holes in bottom of front end tube sheet cannot well be used to advantage, therefore it is necessary to have washout holes in the bottom of the barrel, there being

usually two on each side of the boiler at points where they can be used to the best advantage, and do the best service. These holes are also finding favor, and are being put into boilers of simple locomotives.

In washing a locomotive boiler it is advisable to first allow the steam pressure to blow off by blow-off lines from the locomotive, through car-heating steam hose to overhead pipes, which pipes are run from each pit in the locomotive house, to hot water well, where it acts as a heater to the water in the well at that time. This process is to be followed until the pressure in the boiler is reduced to about 10 lbs. gauge pressure, when hose connections from the blow-off cock of boiler to the blow-off pipes in pit can be made, and the hot water allowed to run from the boiler, and into the hot well or settling basin, until the boiler is quite empty, at which time all plugs may be removed from washout holes, and boiler be allowed to cool until a person can barely hold his hand upon the plates of same, or to about 100 degrees, at which time the boiler will be in a condition to be washed out with the water taken from the hot well for washout purposes, which well is kept at a lower temperature than the feed water well; but if this water is too hot for handling by men washing out the boilers, it may be tempered with cold water, by opening the cold water valve to pump, and combining the cold and hot water as required, directly before entering the pump, or the cold water may be turned on directly into the hot water well, until brought to the temperature required, about 130 degrees, for washout purposes, and be pumped from there direct to those washing out the boilers.

In this matter of cooling and washing there is little possibility of the so-called baking process, of turning settling sediment from the water into scale on sheets, when blowing off the water and preparing for washing out; also by washing out with hot water, the plates of the boiler are kept heated, and are thereby in a good condition to receive the hot feed water. This feed water is clean water which has overflowed from the washout hot well, which is, in turn, water that has passed through the settling basin, and over into the hot well for washout purposes, thus ensuring clean water for refilling boilers. But when washing the boilers it is necessary to start at the wash out holes on either side of the saddle sheet, and to clean every-



1909

9-10 Edward, No.20, 1910

Between July 12th to 14th, 1908 there were major forest fires in the Drummond section; Carmel, Lavergne and Daveluyville stations were destroyed.

On July 30th, 1908 the old station house at Sackville burnt down.

A stone station was built at Amherst, Nova Scotia.

A spur track was constructed by day labour from Petit Rocher station to a wharf 1.35 miles.

The four stall engine-house at Ste Rosalie, Quebec was completed.

Work was started on double-tracking the section between Moncton and Painsec Junction.

A new double-track line on a low grade line to avoid the Dorchester Summit was located on the ground between Dorchester and Sackville.

New stations for Cedar Hill, Doaktown and Upper Blackwell.

Halifax received a new seventy-five foot turntable.

1910

9-10 Edward, No.20, 1911

The double track between Moncton and Painsec Junction 7.2 miles were completed.

The new shops at Moncton were occupied and the locomotive repair formerly done at Halifax was transferred to the new Moncton shop.

August 3, 1909 the coal shed at Richmond was destroyed by fire.

There was major flooding over the tracks between Gibson and Blackwell, April 15th to April 23rd.

1911

`George 2, No.20, 1912

July 11, 1910 the town of Campbellton was destroyed by a major fire. The Intercolonial Railway lost the station, the freight shed, the baggage building, the engine-house, the watertank, and the ice house. Seven locomotives were badly damaged in the fire. Work started on a new 28 stall engine-house.

Fire at the Sacre Coeur February 2, 1911.

Fire destroyed the Sydney station on March 1st, 1911.

A contract was let for a diversion of the track from near Georges river station to Sydney Mines via the shore of Little Bras D'Or Lake a distance of 9.09 miles.

Another contract for a track diversion was given from Nelson station through Chatham.

A new station for Beau Rivage.

Six more stalls added to the Riviere du Loop roundhouse.

A gate-mans tower and crossing gates were erected at the front of the Levis station.

1912

3 George, No. 20, 1913

During September of 1911 the Intercolonial acquired a branch line from Ferrona Junction to Sunny Brae.

The branch line from New Glasgow to Thorburn owed by the Acadia Coal Company was operated by the Intercolonial Railway with a tri-weekly service from September 12th to October 14th, 1911.

At Fredericton a new brick and stone station was built.

The diversion 8.38 miles near Chatham has been completed.

A new station for Lourdes.

onal Railway Roundhouse at Campbellton

disastrous fire which destroyed
y the whole of Campbellton,
July, 1910, the I.C.R. round-
s ed out. Steps were im-
ed to restore the engine
illnes at this point, the actual
construction being commenced
13, 1910, and finished complete,
in the accompanying illustra-
ly in January of this year. The
is laid out for 28 engine stalls,
the actual capacity is reduced
gines because of the space of
being allotted to an entrance
west, and the space equivalent
alls at the end of the building
voted to the foreman's office,
oms and a machine and forge

thus of the inner circle is 39 ft.
o the centre of the inside wall
and the distance between the
d the outside walls is 85 ft. 8
roof is straight with a slope
of 1/2 in. to the foot and is
between walls by three con-
ows of 10 by 10 in. wooden
set in cast iron shoes on con-
ings. The foundations of both
the linings of the engine pits
lse of concrete.
achine shop occupies the space
rner of the building, is approxi-
ly 43 ft. in size, and is equip-
such forge and machine shop
are necessary to properly han-
ling repairs at isolated points.
e adjacent to the machine shop
into a locker room, the fore-
office and a larger room well
for use as a stock and tool
n the second floor, above these

quarters, are stored heavy repair parts,
these being handled by means of a hand-
operated elevator. An industrial track
runs around the building just inside the
outer wall, greatly facilitating the han-
dling of materials and parts between the
pits and the shop and store room. The
engine wheel drop-pits are located ad-
jacent to the shop. The car and tender
wheel drop-pit is to be changed from
the location shown in the plan, next to
the engine wheel pits, to pit 28 at the
opposite end of the building. A turn-
table in the industrial track is provided
opposite this pit, so as to allow of a
closer approach with the industrial
trucks.

The power house is a 40 by 51 ft.
structure connected to the roundhouse
proper by an enclosed passageway which
is under the same roof with the gen-
eral lavatory. The boiler room occupa-
s a space 24 by 27 ft. in size, opposite
which is the coal storage, 10 by 26 ft.
in size. A chimney 4 1/2 by 4 1/2 ft. in-
side and 100 ft. high is erected on its
own foundation, convenient to the boiler
room, to which it is connected by means
of an underground passage. The engine
room is 38 by 22 ft. in size. The power
house equipment consists of three one-
hundred h.p. Robb-Mumford boilers, one
10 by 16 by 9 by 12 in. compound du-
plex steam pump for the main water
supply and for fire protection, one 12 by
7 by 12 in. duplex end packed plunger
pump for the boiler washout system,
one 8 by 4 by 6 in. duplex end packed
boiler feed pump, one air compressor
unit supplemented by a small emergen-
cy compressor, and one 60 k.w. 250-volt
Crocker Wheeler d.c. generator directly
driven by a Robb Engineering Co.'s en-
gine, for general lighting purposes.

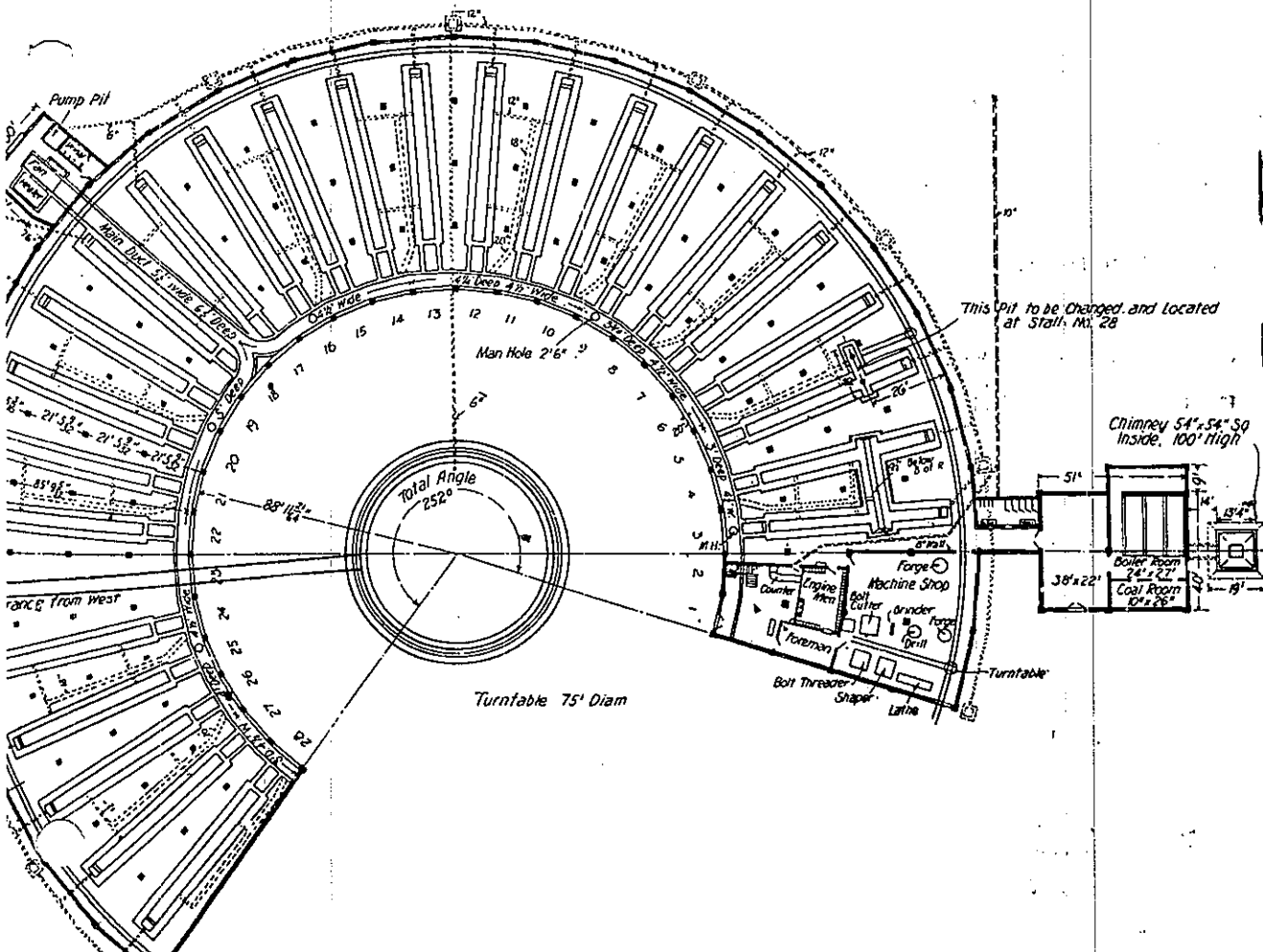
Lighting is effected by means of in-

candescent tungsten and arc lamps, the
circuits for which are arranged in four
divisions and are placed in conduits.
Each of the four groups may be con-
trolled from junction boxes located on
the walls, so that, in case of derange-
ment in any one group, repairs may be
made without shutting off the entire sys-
tem. Each line of columns carries three
drop lights in addition to a hand lamp
on an extension cord to be taken at will
into and around the engines standing on
the pits.

A hot-air heating system is provided,
the main distributing duct being of con-
crete and located just inside the inner
wall of the building, the foundation of
the wall, in fact, forming one side of
the duct. The fan room is about 30 ft.
square and is located in a lean-to out-
side the building opposite pit 18. A
main air duct, of concrete, 6 1/2 by 6 1/2 ft.
in size, joins the fan room with the dis-
tributing duct previously mentioned. The
branches from the distributing duct to
the pits are made of 20 and 12 in. terra
cotta pipe, each pit having two air out-
lets. Manholes are provided at intervals
to permit access to the main duct for
cleaning purposes. Drainage is provided
for by means of a sewer laid just out-
side the building, into which a 6 in. con-
nection from the end of each of the pits
is made. An independent 10 in. drain is
provided for the lavatories, both systems
discharging into lower ground some dis-
tance away.

Ventilation is had through the smoke
jacks and through four 4 by 4 ft. louver
ventilators on the roof near the inside
wall. The smoke jacks are of cast iron.
A 75 ft. turntable operated by a com-
pressed air tractor is installed.

A boiler washout system has been in-
stalled involving the use of a 12 by 7 by



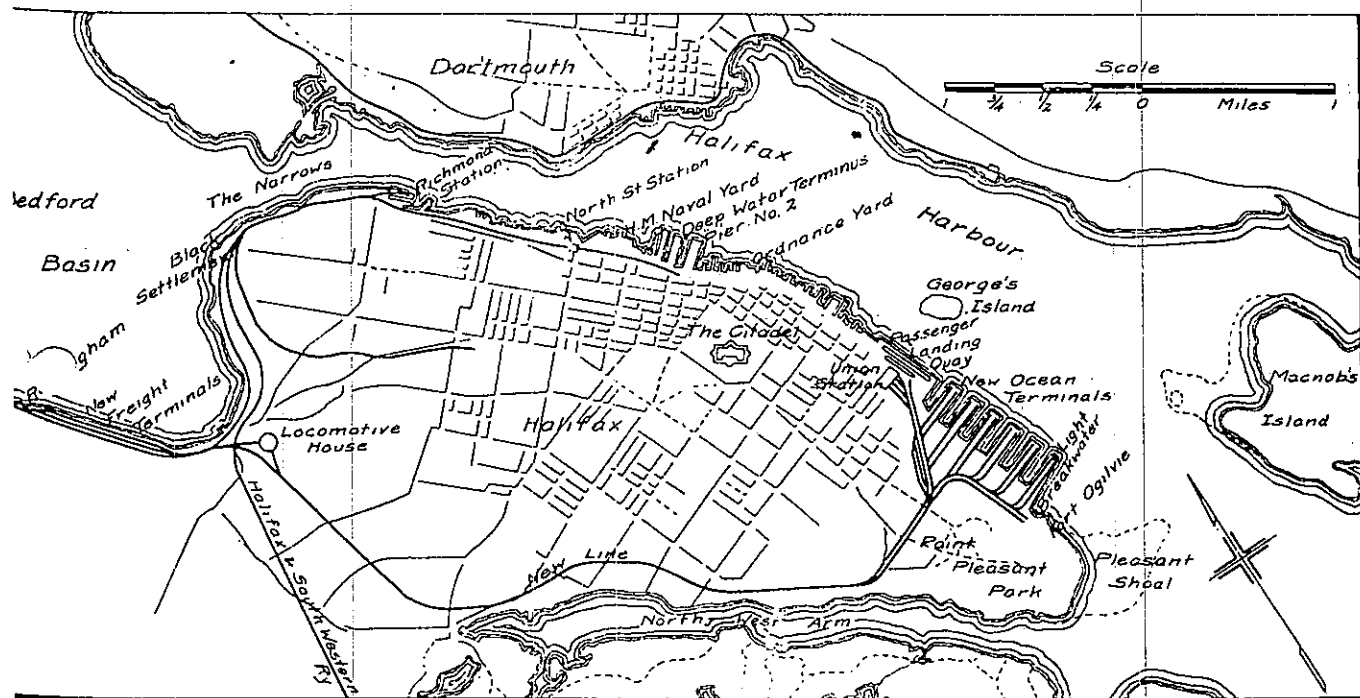
Halifax Ocean Terminals, Intercolonial Railway.

Canadian Railway and Marine World Jan., 1912, contained an illustrated plan of the deep water terminals to be built at Halifax, N.S., for the Intercolonial Ry., work on which is still in progress. It, however, became apparent a few months ago that these terminals would be altogether inadequate for the rapidly growing trade, and the Minister of Railways instructed F. P. Hus, M. Can. Soc. C. E., who has been appointed General Manager, Canadian Government Railways, and F. Cowie, M. Can. Soc. C. E., Chief Engineer, Montreal Harbor Commission, to prepare a scheme for more comprehensive terminals, which was adopted. Present Halifax has the Richmond Basin and the "deep water" terminal at the former at Richmond, in the northern extremity of the city, the latter quite centrally in the city, off the St. It has been decided to place

storage and shunting of cars; the construction of an elevator which will permit of grain being loaded into ships at each of the 32 berths; a locomotive house for the cars of passenger locomotives and switch engines, and a breakwater from Point Pleasant Park to the Reid rock buoy.

The first unit will consist of a bulkhead pier, the freight and immigration sheds, passenger station, one ship and one freight pier equipped with sheds and tracks together with the necessary accessories, which will provide accommodation for eight of the largest ocean steamships. As soon as business warrants it, two more piers will be constructed, giving an additional capacity for eight such steamships; and in five or six years, or sooner if necessary, upon the opening of the Quebec bridge, provision will be made for a further accommodation of eight such steamships. As

will be no grade crossings, the railway being carried under the Halifax and South Western Ry., and in all cases either under or over all streets and routes by means of bridges, the designs for which will be made to harmonize with their surroundings. The railway has been designed for high speed passenger and heavy freight trains. The maximum curvature will be 4°, and all curves will be laid out with suitable easement curves. The maximum gradient will be 0.6%, compensated 0.04% per degree of curvature. To preserve the appearance of the residential sections of Halifax along the Northwest Arm and in the vicinity of Point Pleasant Park, the railway will be constructed from Quinpool Road to Young Ave. in a cutting of sufficient depth to give clearance for the railway under the overhead bridges, which will carry the streets and roads over the railway. The railway will be double tracked throughout, with additional lead tracks at the yards and terminals. The bridges, culverts and



Site of Halifax Ocean Terminals and Union Passenger Station, with Double Track Railway to be Built from Main Line at Rockingham.

new ocean terminals considerably further out in the harbor at Georges Island Bay near the ocean end of the peninsula on which the city is situated. The terminals, which are intended to be the best equipped on the Atlantic coast, will consist of a passenger landing stage or bulkhead wharf 2,000 ft. long with 45 ft. depth of water at low water of spring tides at which three of the largest ocean vessels can dock in safety without tug assistance; a wharf extending the whole length of the bulkhead pier; the first floor of which will be for freight and the second floor for passengers, customs and immigration offices. Passenger and freight tracks will run alongside the ships. The whole will be laid out so as to give the most convenient and economical arrangements for the transfer of passengers, baggage, mails and freight from ship to rail and vice versa. This scheme of development provides for the construction of six freight piers 1,250 ft. long each, and a passenger pier 2,000 ft. long.

business develops and the demands of trade necessitate, the two southerly piers will be constructed, thus completing the scheme. Tenders for the landing quay and the first pier are to be called for at an early date.

The union passenger station, which will be built near the corner of Pleasant and South Sts., will be a handsome and substantial structure, and will be provided with all modern conveniences and facilities for passengers and the handling of baggage, mails, express, etc. The passenger car yard will be situated immediately southwest of and adjoining the union station, and will be of ample capacity and equipped with all necessary supply buildings and up to date facilities.

The ocean terminals will be reached by a branch railway to be built from Rockingham, on the I.R.C., four miles from the North St. station, Halifax, about five miles from the present deep water terminals, and about six miles from the new terminals, which will be

structures will be of permanent construction throughout. The excavations for the railway, which will greatly exceed the embankments, will consist mostly of rock, but there will be no wasting of material. The surplus excavations from the northern end of the railway will fill in and reclaim from Bedford Basin a large and comparatively shallow arm, which will be used for the new freight terminal yard. A suitable site for this yard would otherwise be very difficult to provide, on account of the very hilly nature of the peninsula and surrounding country. This new terminal yard will be open ended and will have standing room for 1,000 cars on body tracks 4,000 ft. long, and it can be readily extended. It will take care of all freight to and from both the old and new terminals, transfer or switching engines only being used between the new yard and the city and harbor terminals. The excess materials from the railway cuttings at the southern end will be used for filling behind the quays and piers

1913

4 George, No. 20, 1914

The Sydney Mines Diversion was completed.

The Chatham diversion was completed and was opened to traffic November 28th, 1912. New stations; Chatham, Sayabec.

Contract let for a seventy-five foot turntable and ten stall addition to the Port Tupper engine terminal.

1914

5 George, 1915

A contract was let for a diversion from Nelson on the Loggieville Subdivision to the south-west Miramichi bridge on the Moncton subdivision 2.69 mile to replace the existing lines 5.55 miles. Contract let for line Leitches Creek to North Sydney 4.3 miles.

August 21, 1913 the Sydney Mines Diversion, 9.53 miles was put into operation as part of the North Sydney Subdivision. This is the length of track connecting Sydney Mines on the North Sydney Subdivision with the Sydney Subdivision at Georges River and the work that was involved consisted of extensions and additions to the sidings at Sydney Mines connection with the Nova Scotia Steel and Coal Company mines at Florence.

A contract was let to double track between St Romuald and the Chaudiere Curve, Quebec a distance of 3.75 miles. Work started in October 1913.

A spur line 6050 feet long across the Pugwash harbour to give a rail connection to the plant of the Nova Scotia Clay Works. A pile bridge 392 feet long was being built across the harbour. A swing bridge to be built.

At a distance of about 2.25 miles from Moncton a connection has been made between the Intercolonial Railway and the National

Transcontinental Railway which will now allow traffic to leave Moncton over the NTR low grade line avoiding the heavy one per cent gradient on the Intercolonial mainline and by so doing away with assisting trains out of the Moncton yard.

The Bathurst station burnt down April 5, 1913.

New brick stations; Ste Flavie, Bathurst, College Bridge, Sussex, Port Tupper, and Florence .

1915

6 George 1916

The double track work was completed between St Romuald and Chaudiere Curve 3.75 miles.

The diversion of the track on the line between Nelson on the Loggieville Subdivision to Derby Junction at the south-west Mirimiche bridge on the Moncton Subdivision 2.61 miles long to replace 5.55 miles was opened on January 10, 1915. The old line Nelson to Chatham 5.55 miles were abandoned.

The diversion from Leithes Creek 4.26 miles to North Sydney was put in operation on January 10th, 1915. This eliminated a stretch of grade.

The Intercolonial Railway took over the New Brunswick and Prince Edward Island Railway on August 31, 1914 and would be used to form a link between the ICR mainline and the new carferry between Cape Toumentine and Carleton Point. It was 35.79 miles long. The Intercolonial moved and repaired the engine-house and replaced the wooden sixty-five foot turntable with a seventy-five foot turntable that it brought from St John.

The Intercolonial Railway also took over the International Railway on August 1, 1914 that was 111.3 miles running between Campbellford and St Leonards.

1915

6 George

November 24th, 1914 At 11:30 in the morning a fire started in the baggage and 3express rooms of the Intercolonial Railway station at Levis, Quebec. The large station burnt down. A temporary 40 x 60 foot replacement was built then the old station that had been converted into the Levis freight station in 1902 was again converted into the Levis passenger station.

The Chaudiere Junction water tank caught fire November 26th, 1914 and a 40,000 gallon replacement was soon constructed.

The Riviere Ouelle Junction, Quebec's one stall engine house was destroyed in a fire April 9, 1915.

With the acquisition of the International railway the ICR repaired the st Leonard turntable and took the Campbellton turntable up and shipped it to Gagetown, New Brunswick.

1916

7 George, 1917

A new Levis freight house was built on the site of the station destroyed in 1914. It was 40 x 400 feet long and was completed on January 1st, 1916. Levis was also chosen a a site for a large coal handling plant. Coal was brought in by ships and unloaded at the facility. It could supply coal to the railway from Riviere du Loup to Drummondville.

There was a fire at Boisdale January 7th, 1916.

1917

8 George,

The Vale Railway running from New Glasgow to Thorton, Nova Scotia 5.35 miles was leased May 31st, 1916 from the Acadia coal Company at an annual rental of \$1200.00. It became the Vale Subdivision.

On January 1, 1916 the Dartmouth and Deans railway from Woodside to Upper Musquodoboit 67.10 miles was taken over for operation by the Intercolonial Railway.

A new turntable was installed at Boiestown.

1919

10 George, No. 20, 1920

At Moncton 12 stalls were built at the Moncton roundhouse and 17 stalls were enlarged.

At Springhill Junction and Stellarton 200 ton coal plants were built. At Dartmouth a seventy foot turntable serviced a two stall engine-house. Six stalls of the Sydney roundhouse were extended.

The Intercolonial-Canadian Government Railways took over June 1st, 1918 five Maritime railways.

Moncton and Buctouche Railway	29.93 miles
Salisbury and Albert Railway	44.77 miles.
Elgin and Havelock	26.11 miles.
St Martins Railway	28.73 miles.
York and Carleton Railway	6.25 miles.

At Moncton and Sydney new eighty-five foot turntables were installed. Fifty-five foot turntables were installed at Buctouche and Havelock.

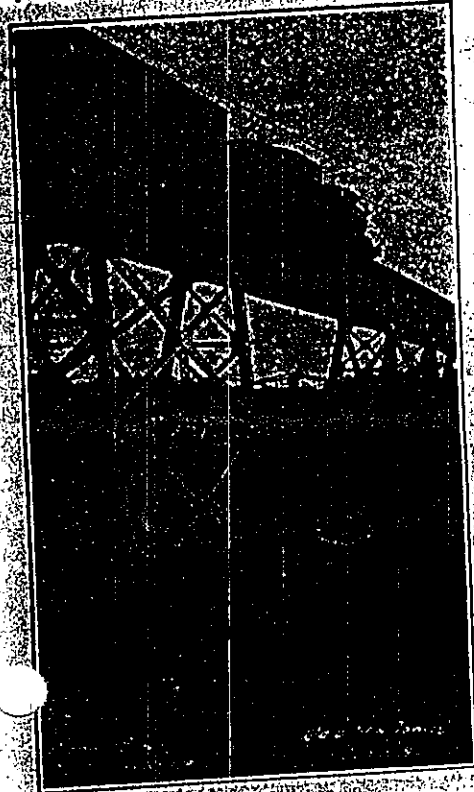
Steel Bridge Replacements on Sydney Subdivision, Canadian Government Railways.

By A. H. Jones, Assistant Engineer, Canadian Government Railways, Moncton, N.B., formerly Resident Engineer, District 4, New Glasgow, N.S.

take care of the heavy power which the management desired to operate on the Sydney Subdivision, C.G.R., the work of replacing 16 steel bridges and viaducts on the line between Point Tupper and Sydney was undertaken by the engineer-

The most interesting part of this work was perhaps the replacing of the old spans of Grand Narrows bridge with heavier ones. This bridge, which is across the narrows between the Big Bras d'Or and Little Bras d'Or Lakes, is one of the

of this bridge were replaced with heavier ones during the winter of 1915-16, by the Dominion Bridge Co., which company built the old bridge in 1888. The new swing span is operated by a 4-cylinder, 4-cycle marine engine, located in a cabin



Ottawa Brook Steel Viaduct, showing new steel work in place, and old partly taken down.



McDonald's Gulch, showing construction of rail concrete culvert, before filling commenced.



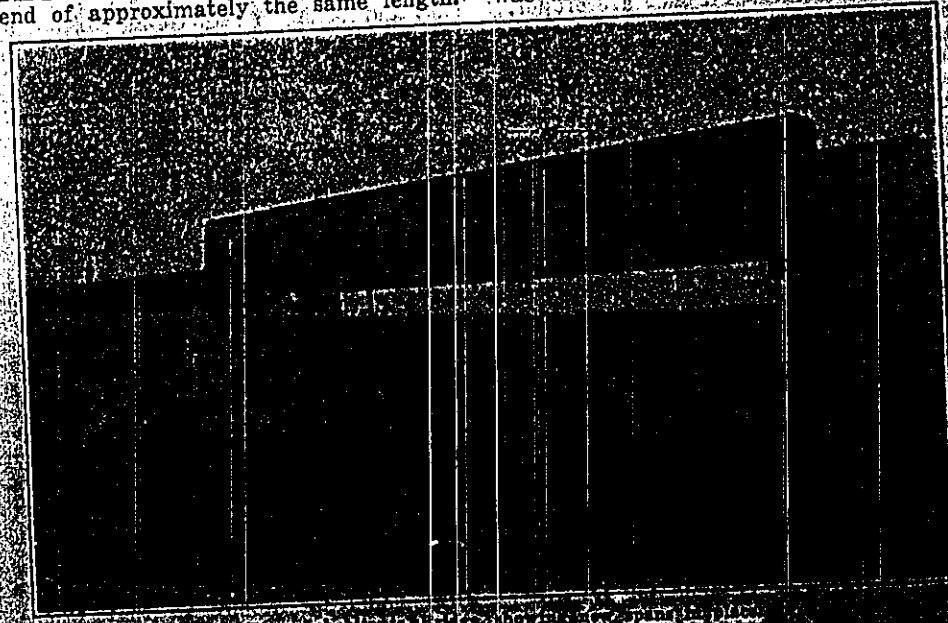
River Inhabitants Bridge, showing new concrete bridge seats.

ing department in 1915, and is now completed. This section of the Intercolonial Ry. was built in 1887, and consequently the bridges are of a lighter design than the present day requirements, and are not strong enough to carry the heavy locomotives which it is now necessary to operate, in order to economically handle the great amount of freight going to and from the Sydneys in connection with the large steel works, coal mines and other industries, located at these points, and also for trans-shipment by vessel to Newfoundland and other places. It has consequently been necessary for some years past to place speed restrictions on nearly all the steel bridges on this subdivision, resulting in a slow schedule and a loss of much valuable time.

It would be impossible to give anything here but a very brief description of the more important portions of this work. Eight steel bridges were replaced with heavier spans during 1916, including the big bridge at Grand Narrows, necessitating in most cases quite extensive alterations to the old masonry abutments and piers. Two steel viaducts have been entirely replaced with steel work of a heavier design on new concrete pedestals and abutments, viz., Ottawa Brook and Walker's Gulch, and 5 steel viaducts have been replaced. This extensive bridge-replacement work involving an outlay of approximately \$750,000, has made it possible to remove the speed restrictions from all these bridges, and during 1916 removed the restriction from 10

objects of special interest to tourists on this section of the C.G.R. It is 1,697 ft. long, or nearly a third of a mile, and consists of 6 through truss spans, each 242 ft. long, and a swing span at the east end of approximately the same length.

overhead in the center of the span, which will open or close the bridge in one minute. The method of replacing these heavy spans—the new ones weighing almost 400 tons each—was as follows: Falsework was driven near the shore, at the east



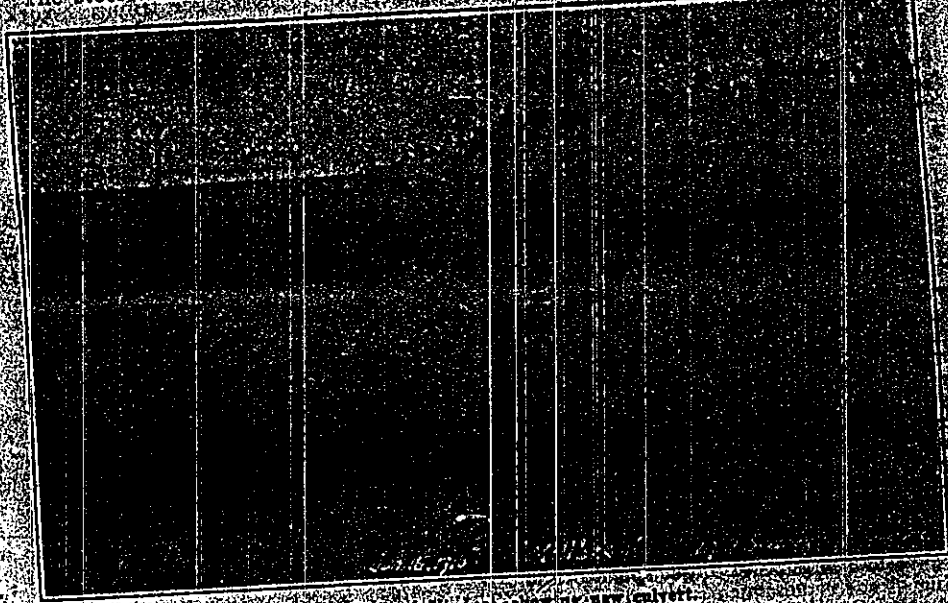
The piers are of stone masonry, and the highest ones are over 30 ft. above the bottom of the lake. The water is very deep, coming up to within 6 ft. of the top of the piers at high water. All the spans

end of the bridge, and the main span, are of the same design. The main span is a swing span, and is operated by a 4-cylinder, 4-cycle marine engine, located in a cabin to go in, and containing water to

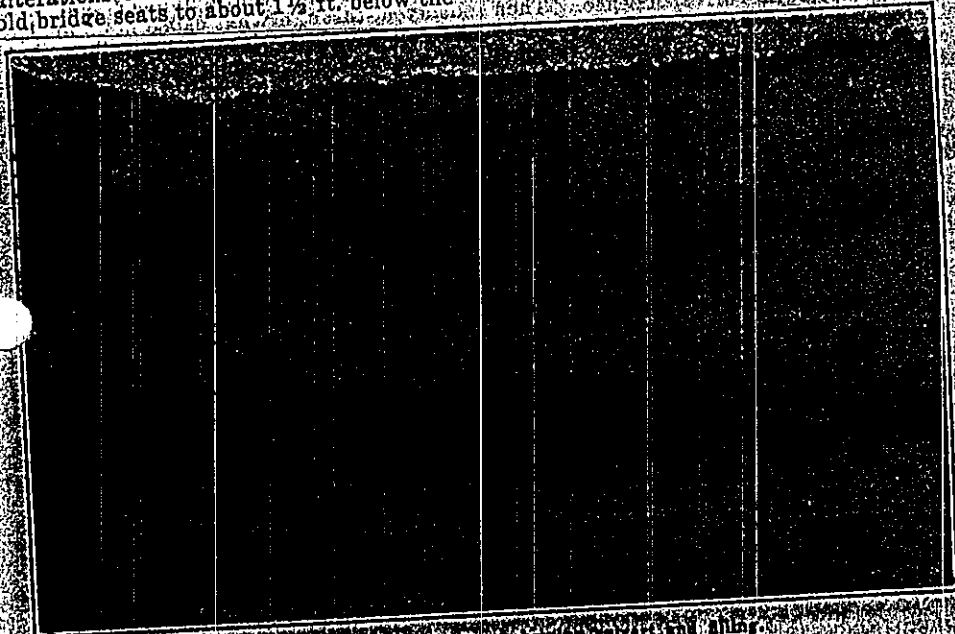
ere floated under the span to be re-
 moved sufficient water was pumped out of
 the scow to allow them to raise the span
 from its seats. It was then towed the scow
 and the old span away to the erection
 where it was deposited on falsework.
 Pumping water into the scows. The
 new span was then raised and floated into
 its place on the old piers in a similar
 manner. The work of replacing the spans
 could only be done under favorable condi-
 tions of wind and tide, which conditions
 are somewhat rare at this place, and it
 took from the early part of November
 to the end of March to replace the 7
 spans.

In connection with the new steel bridges
 put in at Sydney River, River Denys,
 River Inhabitant, Jamesville Road,
 Leitches Creek and Ball's Creek, consid-
 erable alterations were necessary to the
 old masonry abutments and piers, on ac-
 count of the different design of the new
 bridges. The old bridges, with the ex-
 ception of Jamesville Road, were of the
 through pier-connected truss design, and
 the new bridges are of standard through,
 or deck plate, guide spans. The masonry
 alterations consisted of cutting down the
 old bridge seats to about 1 1/2 ft. below the

The Dominion Bridge Co.
 The steel viaducts at Jamesville, Ont.



Millbrook Steel Viaduct, showing new culvert.



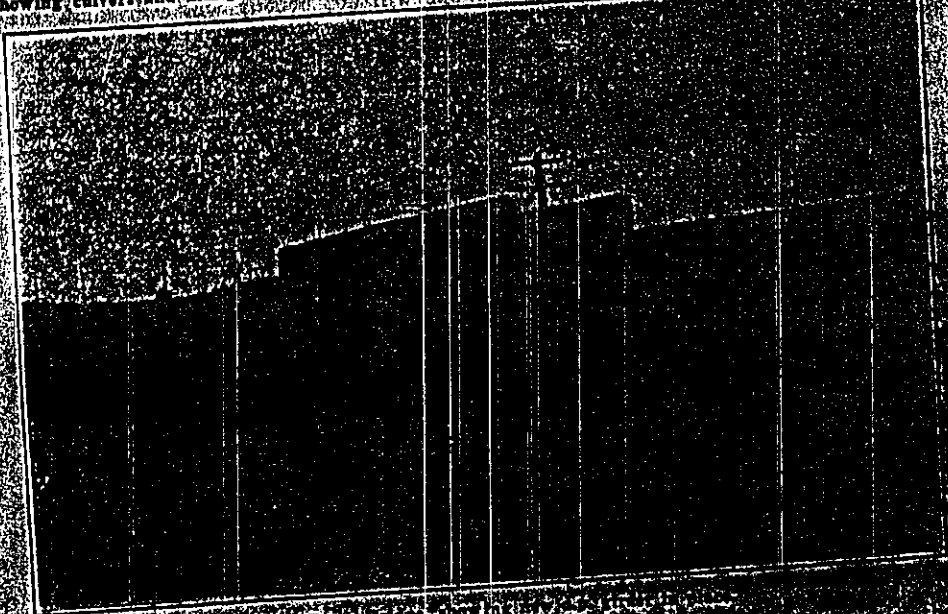
Dowling's Gulch Steel Viaduct, showing culvert and abutment.

elevation of the new bridge seat, or to
 the masonry course nearest to this, and
 building up a new bridge seat of concrete.
 The part of the bridge seats immediately
 under the pier members consisted of con-
 crete blocks, which were cast during the
 winter of 1915-16 in the locomotive house
 at Point Tupper, and were afterwards
 taken and required to the bridge site and
 swung into place with a small crane.
 Later concrete was run in between the
 blocks and the bridge seats completed.
 Thirty-two of these concrete blocks were
 required in all and each weighed approx-
 imately 2 tons. The masonry alterations
 were made by the bridge and building
 department, and the new steelwork was
 furnished and placed by the Canadian
 Bridge Co. and the Hamilton Bridge Co.
 Ottawa, B. C. and Walker's Gulch steel
 viaducts were entirely replaced with new
 steelwork. The new design and new con-
 crete pedestals and abutments were put
 in at Ottawa Brook viaduct (1550 ft. long)
 and Ottawa Brook viaduct (1550 ft. long)
 and Ottawa Brook viaduct (1550 ft. long).
 Both viaducts were supported on steel towers. The concrete abut-
 ments and piers were constructed by contract to Jones
 and various contractors at Ottawa, the

was done by contract
 completed and ballast put on by the rail-

way forces in 1917. It was necessary in
 connection with the filling in of these via-
 ducts to construct concrete culverts to
 take care of the water courses, and some
 of the culverts were of considerable
 length on account of the height of the fill,
 the one at McDonald's Gulch being 280
 ft. long and containing 3,000 cu. yd. of
 concrete. To avoid damaging the steel
 towers during the filling by boulders
 striking them, aprons made of spruce
 poles from the adjacent woods were con-
 structed along the ends of the ties over
 the towers to throw the filling clear of
 the structure. Owing to the nature of
 the material used for filling at McDon-
 ald's Gulch and the great height (85 ft.)
 of this structure, considerable trouble was
 experienced from time to time by the
 material sliding out, and on one occasion
 the fill slid out beyond the ends of the
 culvert, breaking off parts of the wing
 walls and filling up the waterway beyond
 the ends of the culvert.

Although the filling was carried out as
 uniformly as possible on either side of
 the trestle and from one end to the other,



Sydney River Bridge, showing the new steel work. The
 brook, Dowling's Gulch and McDonald's. Considerable amount of ballast
 Gulch were filled in. Most of this work trestle and an arched bridge were

Canadian Railway and Marine World

December, 1921

Canadian National Railways' New Locomotive Terminal at Moncton

The importance of the locomotive terminal in relation to the whole scheme of railway operation is realized more fully now than at any time in the past. While the investment in locomotive terminal facilities is small, as compared to the total investment in road and equipment, yet on the investment in these facilities, and on the manner in which it is expended, depends to a large extent the character of the transportation service rendered, and the return on the total investment. A locomotive terminal should be such that all locomotives working out of, or turning at, the point where it is located, can be handled with the maximum of economy and dispatch, and such that a continuing high degree of locomotive maintenance between shoppings is effected. Experience indicates that the two functions are interdependent, in that at a terminal where the turning and handling facilities are thoroughly adequate,

trains are using this track for the time being, the station and yard connections being shown. The new locomotive facilities are being constructed north of the temporary St. John Subdivision main line, the reason for moving the old main line being to permit of their re-location. The permanent main tracks for the St. John Subdivision will be located to the north of the new locomotive house, as indicated. A westerly extension to the existing yard will be possible, and will be undertaken as business requires, when the present locomotive handling facilities, shown in fig. 1 at A and B are removed, which will be done on completion of the new facilities. Yard capacity will ultimately be extended by constructing a new yard to the south and west of the new locomotive house, when increase in business warrants, so that eventually the terminal will have east and west yards, with adequate track connection between.

to, in connection with each other, in order to show the location of the locomotive handling tracks in relation to the terminal layout as a whole. The facility in movement of locomotives to passenger trains at the station from the new house is evident, no reverse movement being required. The location of the old locomotive houses involved considerable reverse movement to get locomotives to port to that probability. The location of coaling plant, sandhouse, water columns and ash pit in the new layout indicates that locomotives will be handled with the minimum of lost motion and reverse movement, while the fact of there being two inbound and two outbound tracks to and from the turntable gives further support to that probability. The locations of the machine shop, power house and stores building are also shown in fig. 2. The facilities provided by the locomotive houses which have been used up to the

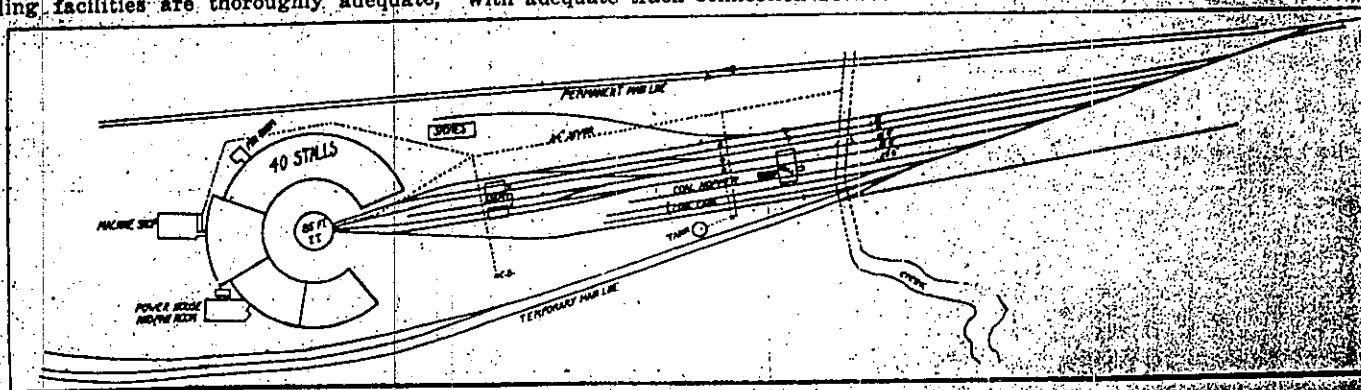


Fig. 1. General layout, Canadian National Railways Locomotive Terminal, etc., Moncton, N.B.

the running repairs are generally of a high order; conversely, when fire cleaning, coaling, watering and other facilities are inadequate, and locomotives remain bunched on the shop tracks awaiting their turn to get into the house, it will generally be found that the running repairs are made on a "one more trip" basis.

In line with a policy of providing necessary and adequate facilities as business demands, the Canadian National Ry. are constructing new facilities for locomotive handling and running repairs at Moncton, N.B. Fig. 1 is a plan of the terminal layout, showing some of the principal tracks and buildings. As is evident, the location of the new locomotive terminal facilities carries with it the possibility of greatly extending the yard facilities, although it is not contemplated that this latter work will be done in the near future. The present yard tracks extend about east and west, south of the Y at the entrance to the terminal from the north, while the old 12-stall locomotive house, indicated by A on the plan, and a 24-stall house immediately adjoining, indicated by B, are located south of the yard, toward the west end. The old main line of the St. John Subdivision, shown in its original position in fig. 1, has been moved south as also shown. St. John Subdivision

Passenger trains from Montreal, which run into Moncton over the Campbellton Division, have hitherto entered from the north, passing over the east leg of the Y to the station, and continuing on their way to Truro and Halifax as shown. A cutoff has been built which will bring the Campbellton Division trains in from the west, over the St. John Subdivision main line, the cutoff leaving the Campbellton Division about 3 miles west of the station and reaching the St. John Subdivision track about 2 miles west of the station. The Moncton railway shops are located as shown by the inset sketch map, fig. 1, the Campbellton Division trains passing near them. This inset also shows the location of the cutoff. The track between the terminal and the point where the cutoff leaves the Campbellton Division will be retained. Originally Intercolonial tracks entered from the north and later the National Transcontinental also came in from the north, closely parallel, but the Intercolonial track was taken up, and all movements to and from the terminal in this direction are now made over the N.T.R. rails.

Fig. 2 shows the layout of the new locomotive facilities. The system of tracks leading from the locomotive house as shown in fig. 2, connect the new track, the switches being shown at E, E, E, E, in fig. 1, the two figures being referred

present, as shown in fig. 1 at A and B, are not adequate to handle the locomotives required for the present business. A is a 12-stall house, of wood construction; B, a 24-stall house, of brick, was such that, since its construction, additions had to be built on the stalls to accommodate the larger power now being operated. The freight car repair yard and building, shown in fig. 1, are entirely modern and adequate, and will be retained in their present position in the new terminal scheme.

The new locomotive house will be of brick, on concrete foundations, with tar and gravel roof. There will be 40 stalls altogether, 33 being 100 ft. long, while 7 (nos. 20 to 28 inclusive) will be 120 ft. long. The long stalls are to be equipped with drop pits for driving, engine truck and tender truck wheels. Fig. 3 shows a cross section through one of the long stalls. The locomotive house will be connected by passageways to the machine shop and power house, the passage to the machine shop being between stalls 22 and 23, and that to the power house between stalls 28 and 29. All pits will be of concrete, with slope and drain facilities so arranged that there will be no possibility of water accumulation in them. The turntable to be used will be the 85-ft. one formerly in use at the old 24-stall house, but it will be moved to the

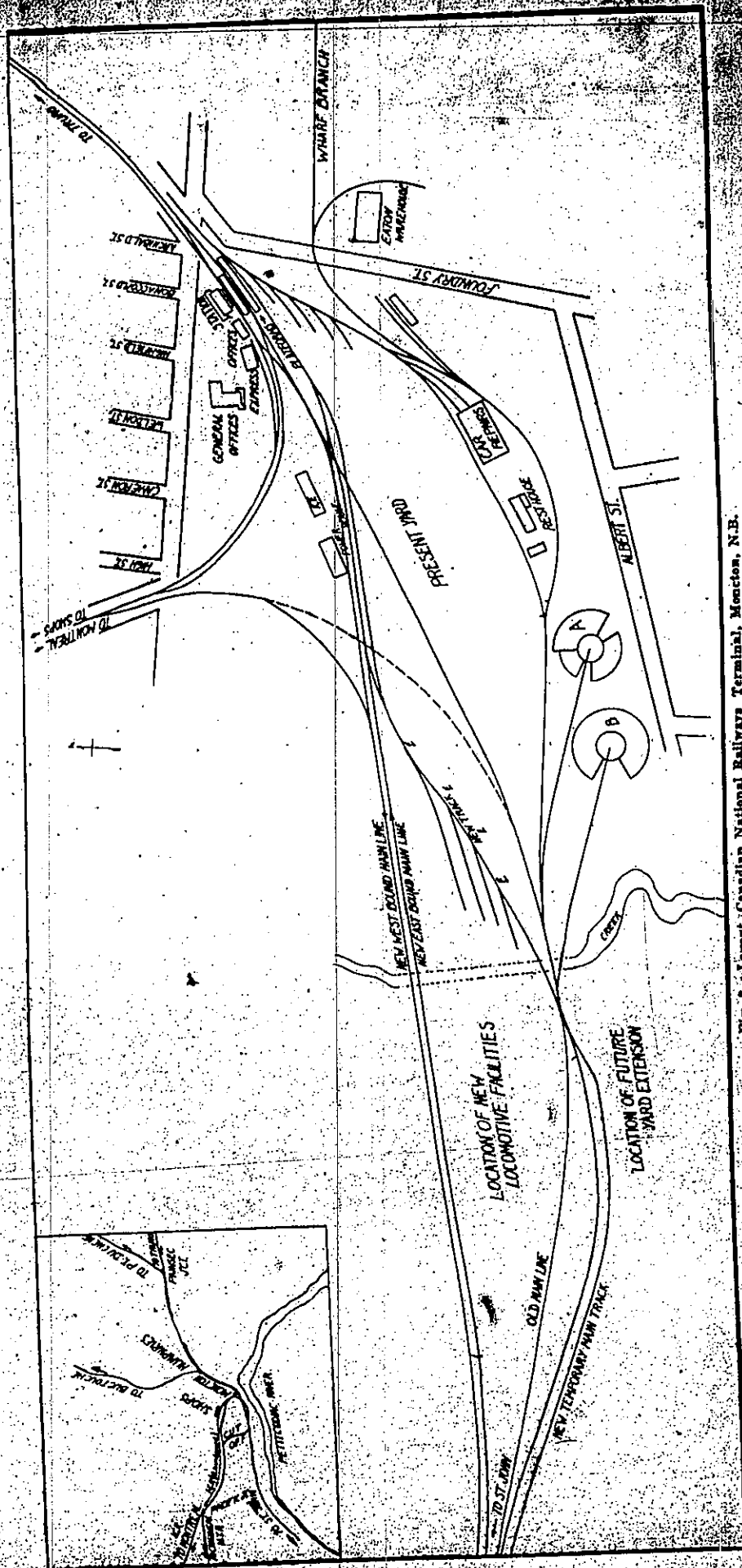


Fig. 2. Layout, Canadian National Railways Terminal, Moncton, N.B.

motor. Sample window space will provide good natural lighting, while artificial lighting will be by electricity generated at the main shop north of the terminal and carried over railway wires to the terminal facilities. Heating will be by mechanical hot air system installed in the power house, the heating ducts being shown in fig. 3. One of the main connections with the heating system will be adjacent to the power house, the other being in a fan room at the other side of the long stalls of the house. The house is to be equipped with a most complete system of piping for water, steam and compressed air, and it is the intention to install a hot well to receive blow-off steam and water from locomotives, and exhaust steam from the power house for use in connection with the washing out of locomotive boilers. The smokestack will be of wood.

The machine shop, 83 ft. 10 in. by 68 ft. 4 in., of brick, on concrete foundations, with tar and gravel roofing, is adjacent to the locomotive house, and connected thereto, as shown in figs. 2 and 4. The height from floor to underside of roof at side will be 25 ft. 8 in., the roof sloping gently to both sides from the center. The floor will be of 8-inch plank laid on cedar sills, placed 4 ft. center to center. Good natural lighting will be provided by numerous large windows, and artificial lighting by electricity generated at the main shops. The machine shop is to be heated by the same system as the locomotive house, heating ducts carrying hot air from the mechanical hot air plant in the power house. Lavatory facilities will be installed, and a notable addition will be the first aid room in the northeast corner of the building, to be fitted with complete equipment for emergency surgical work. The usual machinery incidental to the equipment of a locomotive terminal machine shop, including lathes, shapers, drills, etc., will be installed, some of this being obtained from the machine shop in connection with the locomotive house used previously. The machines will be motor driven, current coming from the main shops. Handy jib cranes will be installed. It is not the intention to fit the machine shop with the tools and machines necessary for locomotive repairs classed as heavy, but simply to equip it for taking care of current running repairs efficiently. While it may be necessary to equip the machine shop of a locomotive terminal located far from a back shop, with equipment enabling it to make repairs somewhat more extensive than the usual class of running repairs, the close proximity of the large Moncton shops precludes the necessity of so equipping the machine shop for the new locomotive house.

The power house, 87 ft. 4 in. by 45 ft., also of brick, on concrete foundations, with tar and gravel roof, is adjacent to the locomotive house, as shown by fig. 2. The boiler room, at the west end of the building, is to be equipped with two 250-hp. boilers, stoker-fired. The coal storage space will be located conveniently to the boilers, a trestle on which coal cars are to be run, and a hopper of large capacity being constructed on the south side of the building, at the west end. A brick wall with a 3 ft. door opening will divide the boiler room from the machinery room. A complete equipment of pumps, air compressors, etc., will be installed in the machinery section of the power house, which will have a concrete floor, and thick, will be heated by the same hot air

system which heats the locomotive house and machine shop, and will have sufficient window area to ensure adequate natural lighting. The fan room will be at the east end of the building, adjacent to the locomotive house. Air will be drawn in among steam pipes, arranged in coils, and driven through ducts leading to the locomotive house, machine shop, and other portions of the power

indicated by fig. 5. The offices are to be at the west end of the building, and will consist of separate rooms for the locomotive foreman, clerk, timekeeper and storekeeper respectively. A locker room for locomotive crews, equipped with modern lockers for clothes and personal effects, will be a feature of the arrangement, while a separate room for the posting of bulletins, and for crews to regis-

hopper at the south side of the coaling plant, and elevated by a motor driven bucket conveyor system.

The sand house, adjacent to the coaling plant, will be equipped to serve the same tracks. The sand will be dried by special stoves located on the ground floor of the sand house, and elevated to the storage bin by compressed air.

The water tank, of steel construction,

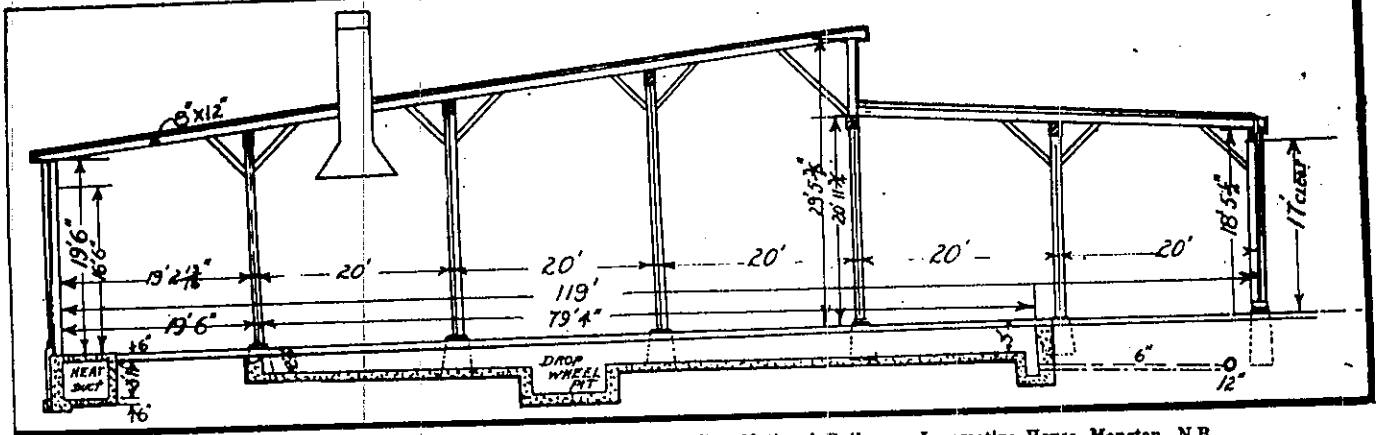


Fig. 3. Cross section through drop wheel pit stall, Canadian National Railways, Locomotive House, Moncton, N.B.

house. Some of the power house equipment will be obtained from the old locomotive terminal power house.

The stores building is located between the new main line of the St. John Subdivision and the tracks leading to the new locomotive house, as shown by fig. 2. Fig. 5 shows the floor plan of this building. It will be 99 ft. 4 in. long by 32

feet in and out, will also be included in the layout. These two latter rooms, and the offices, are to have hardwood floors. The oil room, in the central part of the building, is to be equipped with a set of measuring pumps. The east end of the building will be equipped with eight racks of shelving, each 10 ft. long, 10 ft. high and 4 ft. wide, for storage of miscel-

laneous supplies, leaving a space of about 14 ft. for the storage of heavier supplies and parts. The building will be heated by steam coils, the steam being piped from the boiler room in the power house.

The coaling plant, a 350-ton installation, located as shown in fig. 2, is to be of wood, and arranged to serve three tracks. The coal will be unloaded in the

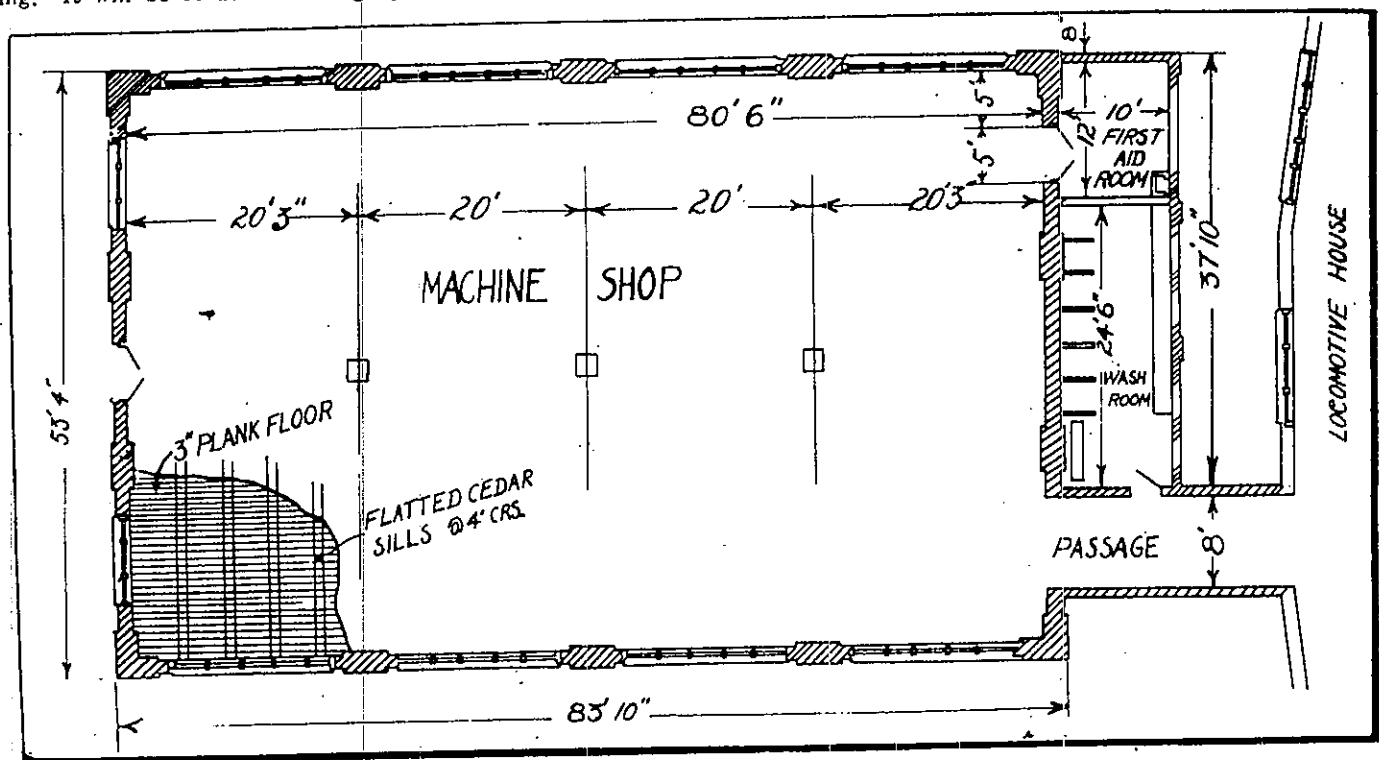


Fig. 4. Plan of Machine Shop, Canadian National Railways Locomotive Terminal, Moncton, N.B.

ft. 8 in. wide, of similar construction to the other buildings, and will be served by a track connecting to the most northerly of the locomotive house tracks, and running to the north side of the building. Platforms, the dimensions of which are given in fig. 5, are to be provided at both sides and at the stores end of the building, with ramps on both sides at that end. The interior arrangement is

located so that cars on it will not interfere with movements to and from the turntable, is provided for handling cinder cars. The firebrick lined pits will be much deeper than usual, and with a good slope to the sides. A self propelling small clamshell crane, used in connection with the handling of coal at the terminal, will be used in filling cinder cars from the ash pits, operating on the track

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The new locomotive terminal will take care of the locomotives operating between Truro and Moncton, Springhill Subdivision, 124.75 miles; between Point du Chene and Moncton, Point du Chene Subdivision, Moncton Division, 19.11 miles; between Moncton and St. John, St. John Subdivision, Moncton Division, 89.31 miles; between Moncton and Buctouche, Buctouche Subdivision, Moncton Division, 32.4 miles; between Moncton and Napadogan, the western terminus of Chipman Subdivision, Edmundston Division, 106.67 miles west of Pacific Jct. and 117.49 miles west of Moncton, on the N.T.R., and between Moncton and Campbellton, Harcourt and Bathurst Subdivisions, Campbellton Division, 185.57 miles; a total of 568.63 miles.

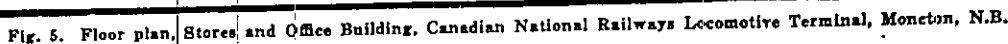
"254. (4). Wherever the railway passes through any locality in which the lands on either side of the railway are not inclosed and either settled or improved, the company shall not be required to erect and maintain such fences, gates and cattle guards unless the Board otherwise orders or directs."

The acts of 1911, chap. 22, repealed sec. 9, subsec. (4) of sec. 254 and enacted the following in lieu thereof:—

"4. The Board may, upon application made to it by the company, relieve the company, temporarily or otherwise, from erecting and maintaining such fences, gates and cattle guards where the railway passes through any locality in which, in the opinion of the Board, such works

ing an affirmative vote. the proposition as restated was as follows:—"On house cars (other than refrigerator cars) with steel underframes or steel center sills having a center sill area of not less than 24 sq. in., when an end requires repairs consisting of new posts and braces, the ends shall be replaced with ends specified for new cars, this to be done by or under the direction of the car owners."

The total number of memberships represented in the Mechanical Division on car matter is 349, and the cars owned and controlled by these members 2,683-274. Votes for car standards are on the basis of one vote for each 1,000 cars owned or controlled. The majority requisite for approval is two-thirds of the votes cast. The vote on the foregoing proposition was as follows:—Voting Yes,



The design and construction of the buildings are being carried on under the supervision of A. F. Stewart, Chief Engineer, Canadian Government Rys. and National Transcontinental Ry. east of Armstrong, Ont.; H. J. Crudge, Assistant Engineer of Buildings, and R. G. Gage, Signal and Electrical Engineer, have charge of the buildings and mechanical equipment, respectively. The work in the field is under the direct supervision of S. B. Wass, Construction Engineer. H. L. Currie and E. R. Evans, Assistant Engineers, are in charge respectively of the buildings and grading. Work was begun on the new facilities in May, and it is expected that they will be in operation early in the winter.

The Board of Railway Commissioners has issued the following circular: Numerous complaints are being made to the Board as to inefficient fencing by railway companies along their right of way, and it appears to the Board that, in many cases, these complaints are being viewed from the wrong standpoint. For many years prior to 1911, the Railway Act contained a provision that, in some cases, fencing was not required unless specifically so ordered by the Board. This is

and structures are unnecessary."

This is in the present Railway Act as sec. 274, subsec. (4). It will thus be seen that it is the duty of every railway company to fence every portion of its right of way, unless specifically relieved from so doing by an order of the Board, and, in the future, the Board is of opinion that, whenever an application is made for fencing, it should go as a matter of right, unless the railway company can show valid reasons why it should be brought under the provisions of the present act, sec. 274, subsec. (4).

The American Railway Association Mechanical Division committee on car construction's report, submitted at the annual meeting at Atlantic City, N.J., June, 1920, contained a proposed rule, which was submitted to letter ballot, requiring that when ends of cars are broken they should be replaced with ends specified for new cars. This letter ballot failed to receive sufficient votes for adoption. The matter was considered by the general committee, and, owing to the evident misunderstanding of the purport of the recommendation, that committee ordered a special letter ballot to be taken restating the proposition and recommend-

208 memberships, representing 1,935,188 cars owned or controlled, 1,923 votes. Voting No, 103 memberships, representing 700,000 cars owned or controlled, 688 votes. Not voting, 38 memberships, representing 48,085 cars owned or controlled, 51 votes. The foregoing proposition has been approved by the Mechanical Division's general committee, and by the American Railway Association's directors.

Therefore, that the proposition to adopt a rule for replacing ends of cars when broken out, in effect as of the effective date of the Rules of Interchange for 1921, is approved, the word "shall" in the fourth line to be changed to "should."

An Authority on Age.—A Toronto subscriber writes: "I was talking with a friend the other day, who told me of a case in which biographical data published in Canadian Railway and Marine World had been used in proving the age of a person for insurance purposes, so that I can see its value in addition to that of current interest."

Edmonton Track Connections. — The Board of Railway Commissioners passed order 31,693, Oct 21, authorizing the Canadian Pacific, the Edmonton, Dunvegan & British Columbia, and the Canadian National Railways to operate over connecting tracks at Edmonton, Alta.

Difficult Problems in Construction of Train-Ferry Landings

Transportation Facilities at Port Mulgrave and Point Tupper, N.S.

By D. B. ARMSTRONG, Erection Engineer, Dominion Bridge Co. Ltd.,
and W. CHASE THOMSON, Designer, Dominion Bridge Co. Ltd.

RAILWAY traffic between the mainland of Nova Scotia and the island of Cape Breton has been maintained regularly throughout the year since 1901, when a ferry service was provided, capable of transporting an entire train with locomotive engine across the Strait of Canso, a distance of about one mile. The ferry boats are of special construction, having three parallel tracks on the deck, spaced 11 feet 6 inches centre to centre and 260 feet long.

The landings at Port Mulgrave on the mainland, and Point Tupper on the island, form an essential feature of this ferry service. Their geographical position and the lay-out of the yards are shown in Figs. 2 and 4. These landings must accommodate the list of the boat when being loaded or unloaded, which is about one in ten; variations of light and full draft; and a range in tide of some 7 feet. The original design, which contained many interesting and unique

features, was conceived by G. H. Duggan, at that time chief engineer of the Dominion Bridge Company, and was worked up under his direction, in consultation with John Forbes, of the engineering staff of the Intercolonial Railway.

The original structures had for some 30 years been subject to many adverse conditions, including the corrosive action of salt air and sea water, constant racking under heavy traffic, together with the ramming and listing of the ferry boats. Moreover, during the winter season, they had been hampered by floating ice in the slips and by heavy deposits of snow and sleet on the moving structural parts and on the machinery. But they had served their purpose during all these years, without causing serious trouble or delay. Therefore, when the demands of heavier and greatly increased traffic required their renewal, it was decided to follow the old design as closely as possible, making only such changes in detail as seemed to be warranted by past experience, together with increased sections due to heavier loadings. The

Based on paper read before the Engineering Institute of Canada at its annual meeting.

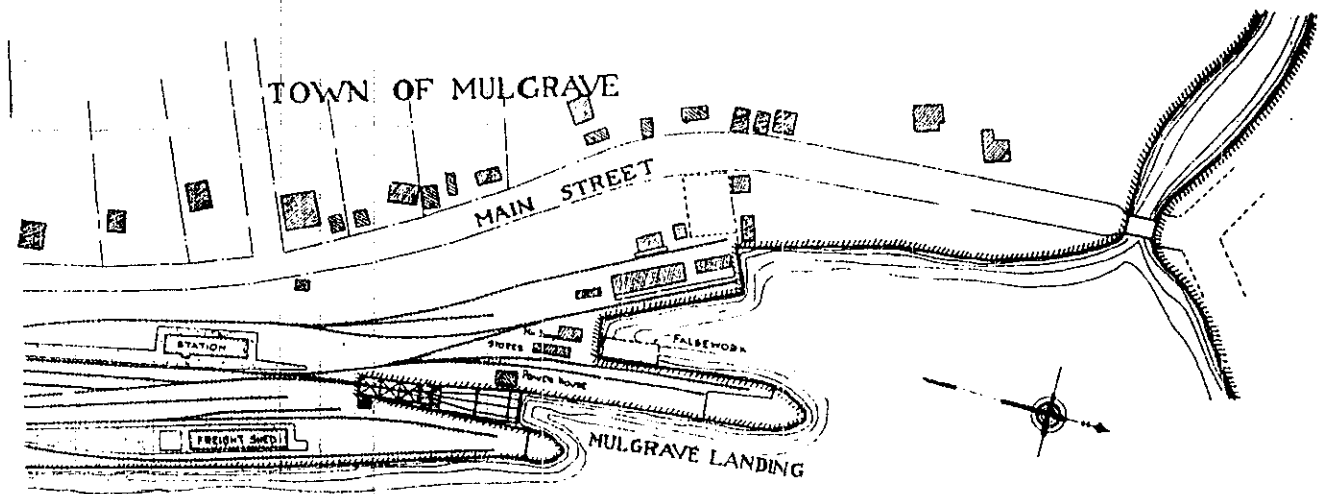


Fig. 1—Location of railway yards at Port Mulgrave, N.S.

new ferry landings have been built under the supervision of C. S. G. Rogers, Bridge Engineer, Canadian National Railways, Maritime Division. Mr. Rogers had carefully studied the condition and behaviour of the old structures; and the modifications and improvements in the new are mostly due to his suggestions. The renewals were carried out by the Dominion Bridge Company during the year 1930.

General Description

An elevation and a plan of one of the new structures are shown in Fig. 4, and transverse sections in Fig. 5. The structure consists essentially of three hinged leaves, supported at the inner or land end on a fixed abutment, and, at other points, by transverse girders, the latter being suspended from gantry frames. At the inner end there is one central track only; from which there are right and left turnouts to 10-degree reverse curves thus providing three tracks at the outer or sea end, corresponding to those on the ferry boat. Only one of these tracks, however, can be loaded at a time. The spreading of the tracks from a point on the structure, instead of providing for three tracks throughout, greatly complicated construction; but this was done in the original design principally to insure that only one track could be loaded at a time. In the new design, there was no option, because the cost of revising the layout of the approach tracks would have been prohibitive.

The ferry landing, which serves as a docking and mooring structure for the vessel, is subject to severe shocks, which must be absorbed by or transmitted through the steelwork to the extreme inner end. In the original structure, the outer longitudinal girders of the apron and the main longitudinal girders of the intermediate and inner leaves were not in continuous lines, but had separate hinged bearings, side by side,

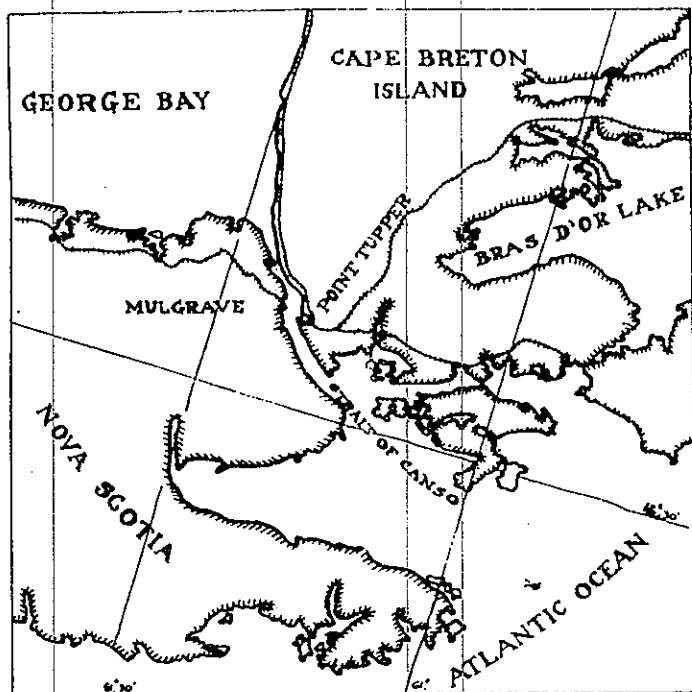


Fig. 2—Geographical position of Port Mulgrave and Point Tupper.

on lifting girders E and I. The inner longitudinal girders of the apron and the end stringers of the in-

vessel, which could be applied to either one of the outer longitudinal girders of the apron, or to all four of its longitudinal girders, in varying proportions, was transmitted by them to lifting girder E. At this point, it was taken up and transmitted by the long

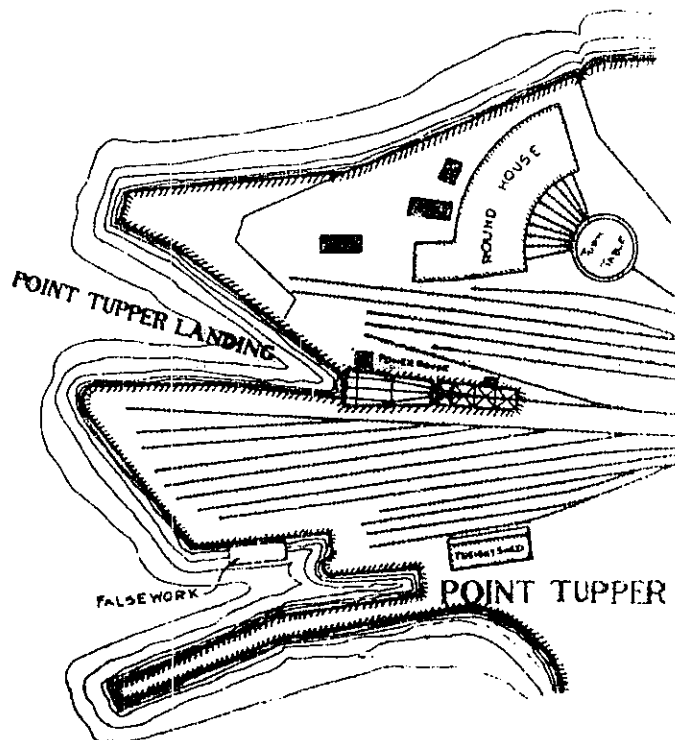


Fig. 3—Location of yards, Point Tupper.

tudinal girders and the stringers of the intermediate leaf to lifting girder I. At girder I, a portion of the impact was received and transmitted by the trusses of the inner leaf to the buffers at the abutment; the remainder was received by the track stringers of the inner leaf, and was delivered by them to the top flange of the floorbeams to which they were attached. The latter, acting as horizontal girders, conveyed the portion of the impact to the trusses; thence it was transmitted to the buffers. Some of the shoes on lifting girders E and I were designed to accommodate girders of adjacent leaves, in which case, the thrust of one of these girders and the resistance of the other tended to twist the shoe about a vertical axis. Other shoes accommodated one member only, in which case, the thrust of the girder or stringer tended to revolve the shoe about a horizontal axis. In consequence, the connections of all the shoes on the lifting girders had become loosened and had partially failed. Furthermore, on the inner leaf, where the stringers were supported on the top flange of the floorbeams and connected thereto by only two rivets, these rivets had been loosened by the impact from the vessel, and permitted sufficient motion between the bearing surfaces to cause serious wear. In some instances, this wear, in combination with the corrosive action of salt water, had practically extended through the bottom flange of the stringers.

In the new structure, the outer longitudinal girder of the apron and the main girders of the intermediate and inner leaves are in continuous lines; for, at lifting girders E and I, they meet concentrically and are braced by a pin common to both, thus providing de-

porting shoes on the lifting girders. Owing to the comparative rigidity of these paths of resistance, any thrust on the stringers of the inner leaf should be reduced to a minimum.

Inner Leaf

The inner leaf is a pony-truss span of 100 feet, having two parallel trusses 21 feet 6 inches centre to centre. It has a single track only to a point near its centre, where there is a three-way switch for the right and left turnouts. The track rails are laid on timber ties, supported by longitudinal stringers, the latter being 8 feet centres under the single track, but spread at the turnouts, where supplementary stringers are also provided. The floorbeams are 12 feet 6 inches centre to centre. The inner end of this leaf is swung by short links inside of steel box ped-

lifting girder E. Its connections are shown in Figs. 7 and 8. At I and E respectively, these girders meet concentrically the trusses of the inner leaf and the outer girders of the apron, in shoes and on pins common to both. To facilitate erection, the pin bearings at both ends of these girders are constructed in the form of a hook. It was thus possible to drop the girders into place without disturbing the pins supporting the adjacent leaves. The intermediate leaf carries three tracks, and the rails are laid on timber ties, supported by stringers immediately under the rails. Additional support for the ties is provided by shelf angles on the web of the main girders. The stringers on this leaf are connected to the web of the floorbeams, which latter are 12 feet 6 inches centre to centre. The main girders are unusually shallow at their ends; but adequate provision has

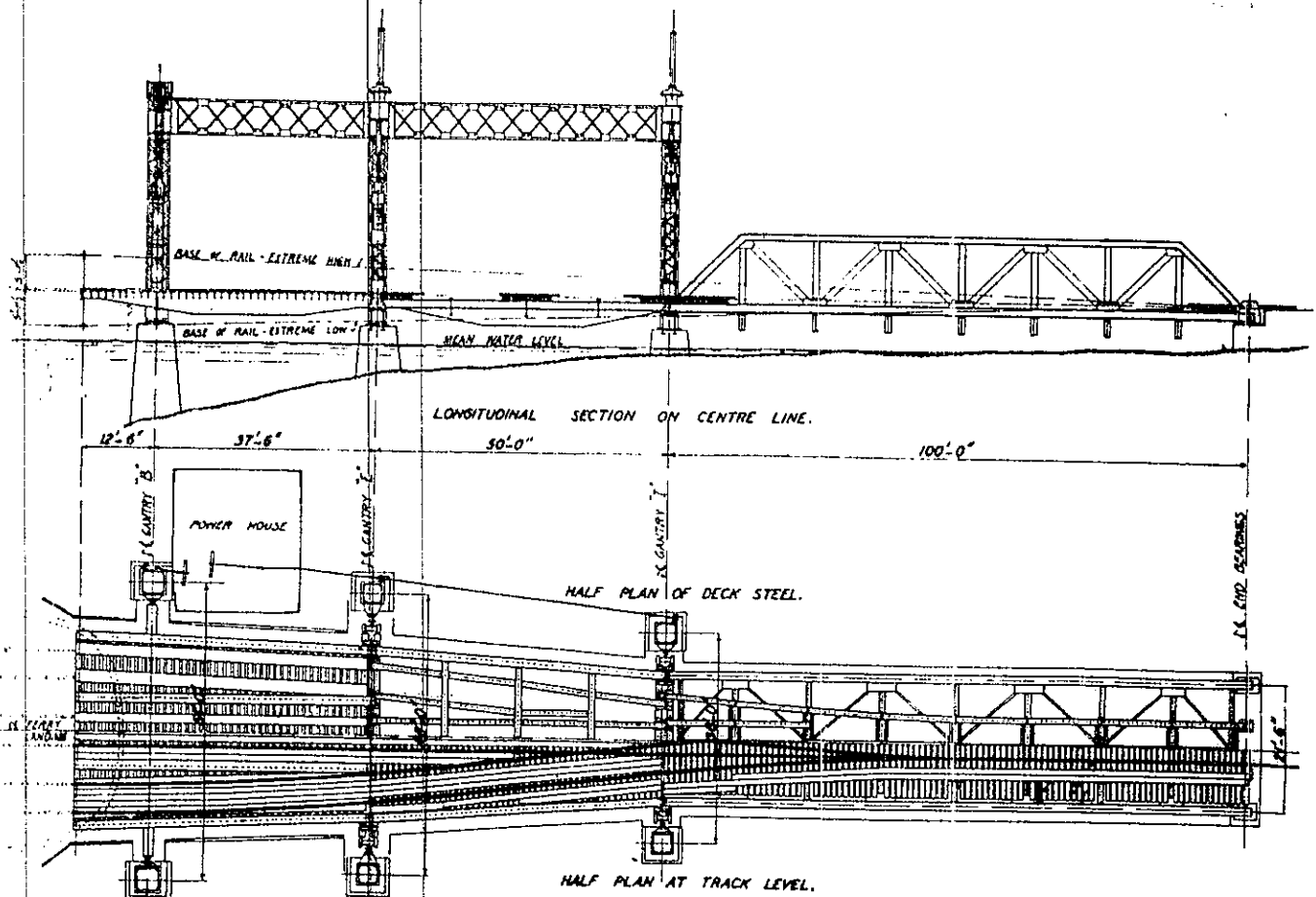


Fig. 4—Plan and longitudinal section through ferry landing.

made in which are incorporated steel-spring buffers, to absorb shock from the ferry. A detail of these pedestals is shown in Fig. 6. The other end is hinged in shoes, common to this and the intermediate leaf, on lifting girder I. The stringers are supported on the top flange of the floorbeams, as in the original structure; but, to guard against slip from any cause, gusset plates are inserted between the stringers and the floorbeams, and securely riveted. Except for gusset sections, no other improvement of importance has been made to this leaf.

Intermediate Leaf

been made for both vertical and horizontal shear by outside reinforcing plates, covering the vertical leg of the flange angles, and giving to each flange rivet the value of double shear plus bearing on the web. These outside plates were extended towards the centre of the span far enough to splice the web plate.

Apron

The outer leaf, or apron, is 50 feet long and carries three tracks. It has four longitudinal girders, the two inner being parallel and 11 feet 6 inches centre to centre. At center E, the two outer girders are

Nation's Work

By F. R. SAYER

CANADIAN NATIONAL MAGAZINE

February 1940

TRADE is the life-blood of a nation. Railways are the arteries through which that blood-stream flows. Without the railways there would be no free-flowing channel through which the products of Canada's industries could pass in the great business of world trade or in the internal commerce of the Dominion.

It is not a mere coincidence that Canada with a population of some eleven millions of people should rank sixth in world trade. Coupled with her vast natural resources are two of the world's greatest transportation systems that enable the products of those resources to reach the markets of the interior and the seaboard for shipment to other countries, in addition to transporting the imports from other nations, for a nation must buy as well as sell. Just what this means in transport is shown by figures for revenue carloadings on Canadian railways which average around 209,000 a month in normal times or something like a total of 2,508,000 carloads a year. These include products of the farm, the forest, the mines, the fisheries, and the manufactures. The leading Canadian export in point of value is newsprint of which 63,815,792 cwt. was exported during the fiscal year 1937-38.

Canada has two main seabords, one on the Atlantic and one on the Pacific. Another is in the north, on Hudson Bay. The Atlantic is the greatest, with Montreal the chief port. During the closed season on the St. Lawrence River, Halifax in Nova Scotia and Saint John in New Brunswick form the chief Canadian ports on the Atlantic seaboard, these being all-year-round ocean ports. Sydney, in Cape Breton, Nova Scotia, is also a year-round port and forms an important outlet.

Both Halifax and Saint John, as with Sydney, are served by the Canadian National Railways System, being comprised within what is known as the Atlantic Region. The Atlantic Region embraces all the rail lines of the Canadian National from Riviere du Loup and Monk in Quebec, where the Central Region begins, east to the Atlantic seaboard, comprising some three thousand miles of railway within which is included Prince Edward Island, connecting with the lines on the mainland by one of the world's largest car ferries operating across the strait of Northumberland between Cape Tormentine in New Brunswick, and Borden on Prince Edward Island, a distance of approximately nine miles.

Have you ever stopped to wonder just how this vast railway traffic flows so freely? It is all a matter of organization, team-work and dependability, every employee doing his job to the best of his ability. To the section forces falls the job of seeing that track and roadbed are maintained at the highest point of efficiency to ensure the economical and safe movement of trains over the rails at the fast speeds demanded in this modern age. Then there are the various mechanical staffs who see that the locomotives, cars and other equipment are kept in good condition; the employees in the roundhouses and shops; the various inspecting forces and so on. In addition there are the engine and train crews which operate the trains over the rails; the dispatchers who direct the movements of trains over the road from terminal to terminal like a vast checkerboard; operators at the stations who receive the train orders from the dispatchers and deliver them to the train crews. At terminals and stations are the various staffs,—administrative, station, freight shed and dock workers, etc., all forming a vast organization and totalling an army of some 75,000 on the Canadian National System, with an annual payroll of more than \$116,000,000.

Since September last Canada with the rest of the



TOP, The signals say: "Proceed." SECOND: Dispatcher L. C. Powell, Moncton, N.B., directs train movements. THIRD: Night Dispatching Staff, Moncton. Left to right: G. Olty Thompson, Boyce A. Atkinson, L. C. Powell, A. I. Adair, Night Chief Dispatcher. LEFT—Engineer A. S. Geddes on Locomotive 3440, leading the double-header.



LEFT: Truro Roundhouse Crew. Left to right: G. A. Feetham, helper; E. C. Mosher, Roundhouse Foreman; Fred Hoar, Machinist; A. D. MacKenzie, Boiler maker.



Empire has been at war. This, obviously, has thrown a much greater load on the railways. It speaks volumes for the efficiency of the administration of the railways that this vast additional traffic is being handled smoothly and without interference with the regular movement of traffic.

The Atlantic Region of the Canadian National is a vital factor in the movement of munitions and supplies overseas. These flow in a steady stream to seaboard for loading into ships which later become part of a fleet of freighters under convoy en route to Britain and France.

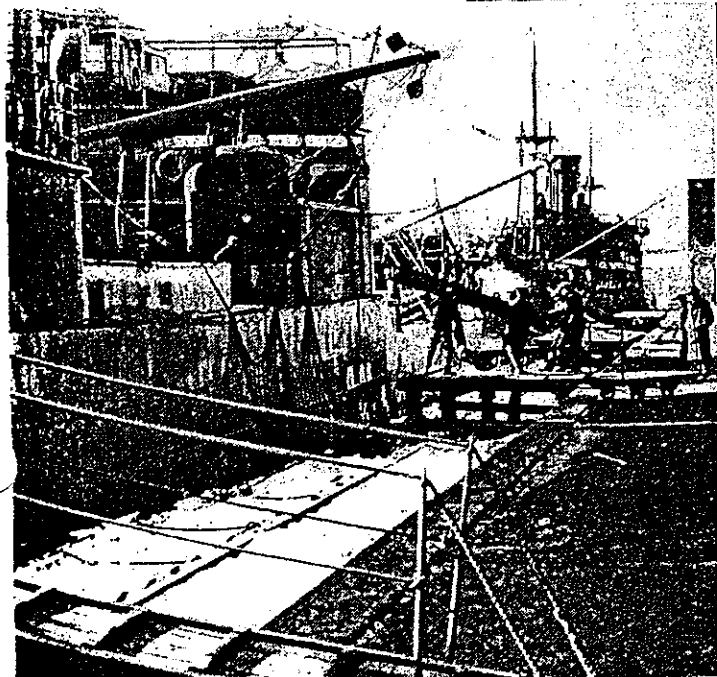
It is a glowing tribute to the might of the British navy that the trade of the Empire goes on apace, notwithstanding that the Empire is engaged in a deadly struggle with enemy forces. This trade is vital to the successful conduct of the conflict for it materially assists in providing what has been termed the sinews of war, money, without which it would be difficult, if not impossible, to carry on the struggle. Money is needed for purchasing supplies and munitions to enable the armed forces to overcome the resistance of the enemy, and trade supplies this money, principally in the form of exchange.

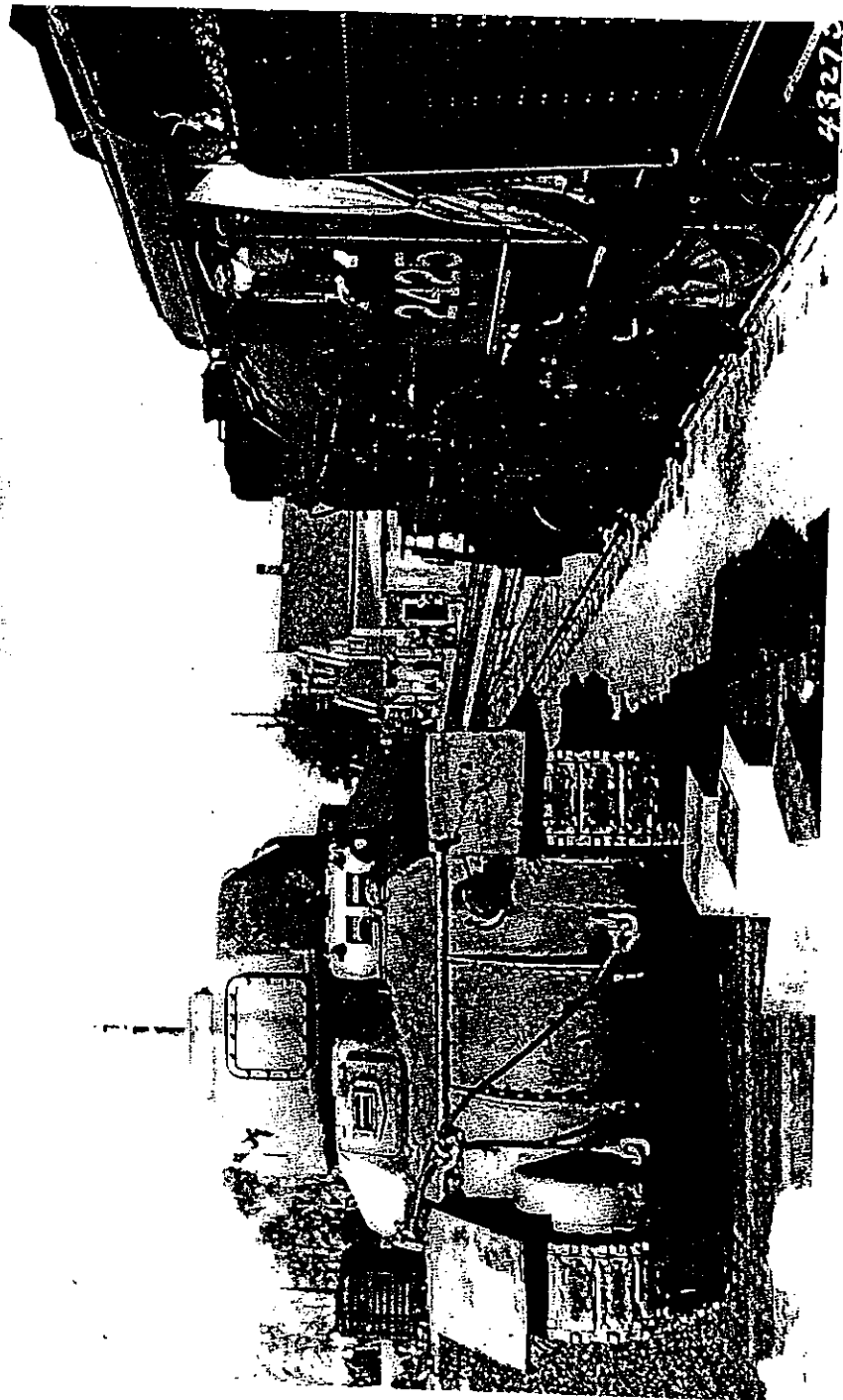
So it will be seen what an important part the railway plays in the present struggle, in transporting the necessary war supplies and also in maintaining the even flow of Canada's external and internal commerce.

Other pictures on Page 6



TOP: Freight Conductor F. F. Hoar (right) and Rear-end brakeman Lloyd Rushion. MIDDLE: The double-header leaves Moncton yards with seaboard freight. BOTTOM, LEFT: Canada-Bermuda-British West Indies steamships await their cargoes. RIGHT: Canadian newsprint and automobile tires for export.





Canadian Transportation

April 1941
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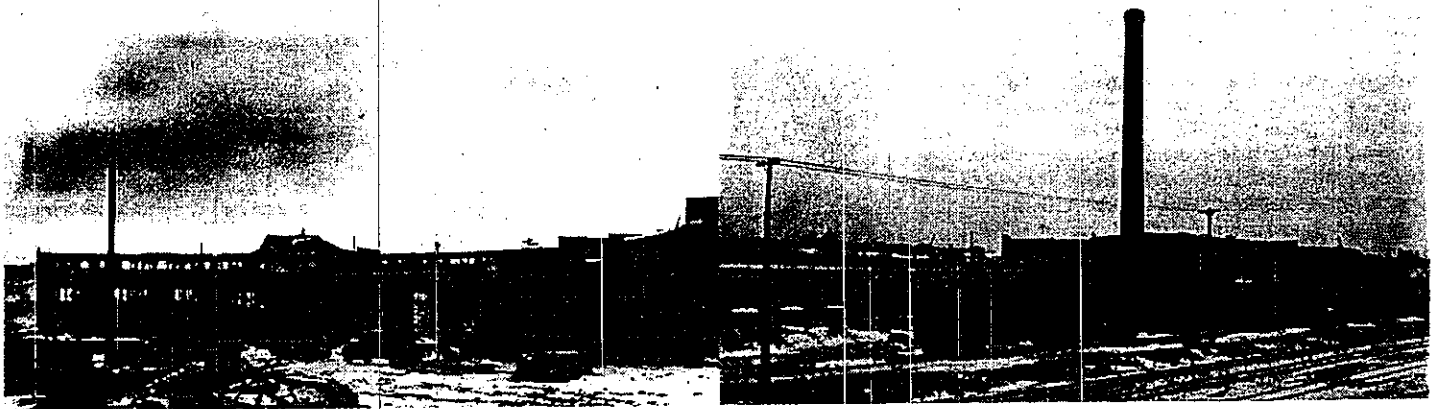
C.N.R. Atlantic Region New Locomotive Facilities

A new erecting shop at Moncton, to be finished in June, and a new 18-stall locomotive house at Fairview, near Halifax, now nearing completion, are the two chief items in a programme of plant enlargement.

EVER since the beginning of the war, traffic on the C.N.R. Atlantic Region has been increasing by leaps and bounds, and expenditure of considerable money has been necessitated to enlarge existing facilities and to provide new facilities. A comparison of the traffic moving to the Canadian Atlantic seaboard during this war to date, and during the 1914-18 war, shows that a much heavier traffic is now being moved. For instance, in

expand Atlantic Region facilities. Passing track capacity was enlarged at various points, and yard capacity on the Region has been increased by a total of 1,808 cars. The terminal yards in and around Halifax have had their trackage increased to take care of an additional 515 cars, and the yards at Moncton have been enlarged to take care of an additional 952 cars. The Truro yard has been increased to look after an additional

the shop now being built is a 20-pit one. It will take the place of the present 16 pit one, and will be one of the most modern in North America. The present shop will be used, following completion of the new one, for handling the tenders and work equipment maintenance and repair work. The new shop will have an area of over 80,000 sq. ft. It will be 543 ft. long by 154 ft. wide and 63 ft high. Its equipment will include a 200



Views of the New Locomotive Terminal Facilities at Fairview, N.S.

1915, overseas freight moved by Canadian Government Rys. to Atlantic ports totalled 122,619 tons, not counting 35,606 tons of steel forgings moved from Nova Scotia steel mills to points within Canada. But, during the past year, freight to a total of 250,824 carloads moved over the Atlantic Region, an increase of 57,726 carloads over the movement of the preceding year. These 250,824 carloads were equivalent to about 7,500,000 tons of freight; included in the movement were 15,000 carloads of coal hauled from Sydney to Quebec and Ontario points. To the end of August, 1939, freight to a total of 120,757 carloads was handled over the Atlantic Region from Jan. 1, compared with a total of 162,552 carloads in the same 1940 period. Freight train mileage in 1940 was 43.9% greater than in 1939; passenger train mileage increased by 10.7% and net ton mileage increased by 87.2%.

With traffic increases of this magnitude, it is easily understood that more intensive use of facilities has been the rule, and much of the railway plant has been taxed nearly to capacity. To meet the situation, the C.N.R. management appropriated the necessary funds to

341 cars. Now the Halifax yards have a total capacity of 5,722 cars; Moncton, 2,954, and Truro, 1,470. The Saint John yard capacity totals 1,891. Altogether, the yard and siding capacity on the Region has been increased to the extent of 12.87 miles of extension and 28 miles of new sidings.

Accompanying the enlargement in track capacity there is proceeding a notable extension in locomotive handling facilities, including the provision of a new locomotive erecting shop at Moncton, a new locomotive terminal at Fairview, just outside of Halifax, a 250-ton coaling plant at Campbellton, a 6-stall extension to the locomotive house at Edmundston, a 100-ton coaling plant at Chipman, together with provision of a locomotive crane for handling ashes, etc., and a double track ash pit. To provide the finances for the track extension work and the provision of the locomotive facilities listed, an appropriation exceeding two and a half millions of dollars was required.

Moncton Erecting Shop

Heretofore there has been a 16-pit locomotive erecting shop at Moncton;

ton crane, two 15-ton cranes and one 10-ton crane.

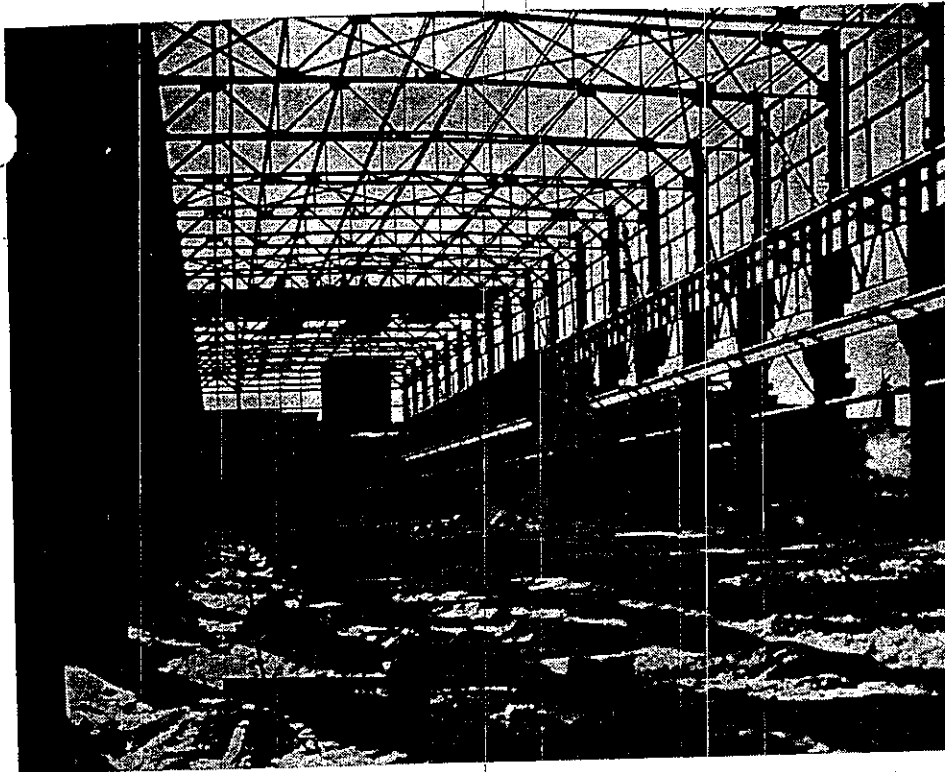
This shop, which is expected to be completed around the beginning of June, is being built with steel framework, with brick and concrete walls and mill type roof. A 20 ft. concrete roadway will encircle the shop, and a track will partly encircle it. The L. G. Ogilvie Co., Ltd., Montreal, is the contractor for the grading, ditching, backfilling, water and sewer systems, roadways and fencing, and also for the foundation work, including locomotive pits. The contract for the steel work was awarded Canadian Bridge Co., Ltd., Walkerville, Ont. One of the accompanying illustrations shows the new locomotive erecting shop under construction.

Fairview Locomotive Terminal

Heretofore, there has been a light locomotive movement of approximately three miles to and from the locomotive house at Halifax, but with the completion of the new 18-stall locomotive house at Fairview, just outside Halifax, this waste movement is being terminated. The locomotive house in use heretofore was built before there were

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The New Locomotive Erecting Shop at Moncton, under Construction.

any South Terminals on the waterfront, before Rockingham yard came into existence, and when the station was located at North Street. The new locomotive terminal at Fairview is one of the most modern and efficient to be found anywhere, and in addition to the 18-stall structure there are a 100 ft. turntable, a machine shop, a power house, stores and office building, two-track ashpit, sand house and sewerage and water supply systems. The Fundy Construction Co., Halifax, was the contractor for all of the work with the exception of the grading and installation of the sewer and water mains, the latter work having been done under contract by M. H. McManus, Ltd., of Halifax.

Two views of the new terminal appear herewith; the one on the right is from a photograph taken from a point across the main line tracks from the new terminal; it shows the rear of the locomotive house, together with the new power house and machine shop, and the chimney, a feature of the new facility, appears prominently in the center of the view. This chimney is an outstanding landmark of the new terminal; it is a product of the Custodis Company, of New York, a firm which specializes in this form of construction. This chimney, 100 ft. high, has diameter of 10 ft. 2 in. at the base and 6 ft. 2 in. at the top.

Outstanding in the movement of the traffic referred to in earlier paragraphs is the National Transcontinental Division. This railway, with its low grades, has been of paramount importance in the handling of traffic during the present conflict. In effect, it provides a double track railway with the Intercolonial from Levis to Moncton. Comparing last year's

is an increase of approximately 63.6 per cent.

In comparing these carloading figures, it must be borne in mind that, in addition, empty cars have to be moved and placed for loading. On top of all this freight movement there is a greatly accelerated passenger traffic, including military specials with troops moving to seaboard to embark for overseas and to the various military camps throughout Canada. Approximately 100,000 members of the armed forces moved over the Atlantic Region during the past year.

All this increased traffic has naturally cast a greater burden upon the Region, yet its capacity and facilities are capable of taking care of a greater volume. The wisdom of maintaining the track and roadbed to a high standard during the depression years has been amply justified in the light of succeeding events.

Prince Edward Island National Park

The Lands, Parks and Forests Branch of the Dominion Department of Mines and Resources has issued a new general information folder, descriptive of Prince Edward Island National Park, and containing maps and much available information as to this park. The folder contains also a complete list of the National Parks of Canada, with brief descriptive reference to each. The folder specifies the location and furnishes a general description of Prince Edward Island National Park; describes thoroughly the methods of reaching the park; gives details as to park administration, and provides much information as to accom-

Additional Passenger Service, Montreal-Halifax, C.N.R.

Effective with the introduction of new timetable, March 16, an additional passenger train, daily in each direction, was placed in operation between Montreal and Halifax, making three trains in daily operation between the two cities. Accompanying the introduction of the new train, which has been named "The Scotian", the "Ocean Limited" became an exclusively all-sleeping car passenger train. According to announcement by C. W. Johnston, General Passenger Traffic Manager, C.N.R., the increase in train capacity and the accompanying speeding up in schedules are in response to the growing volume of passenger and express traffic between Montreal and Halifax and the important communities en route, occasioned by Canada's war effort. Demand on previously existing train space had become very heavy, and during a considerable time operation of the "Ocean Limited" in extra sections was necessary.

In its new form as an all-sleeping car train with completely air-conditioned equipment, the "Ocean Limited" is now fifty minutes faster between Montreal and Halifax than formerly, while on the westbound run it is one hour and twenty minutes faster. Eastbound, the train now leaves Montreal 7.30 p.m. to arrive Halifax 8.10 p.m. the next night; westbound, it leaves Halifax 8.25 a.m. and arrives Montreal 6.50 a.m. the following morning. This train operates as No. 4 eastbound and No. 3 westbound. This train operates into and out of Bonaventure Station in Montreal. It makes all the important stops, including Debert, the latter to serve the military encampment, but stops at certain communities which were formerly made are not now being made, these stops now being made by "The Scotian", which has taken over the schedule and is making the same stops as the previous "Ocean Limited". "The Scotian", operating as No. 60, leaves Montreal 8 p.m. and arrives Halifax 9.30 p.m.; as No. 59, it leaves Halifax 8.45 a.m. and arrives Montreal 8.30 a.m. The "Ocean Limited" now being an all-sleeping car train, no coaches are included in its make-up, but coaches are included in the equipment of "The Scotian", which also has air-conditioned sleeping cars, colonist car and air-conditioned dining car.

The third train in operation between Montreal and Halifax is the "Maritime Express". It now leaves Montreal twenty-five minutes earlier than previously, leaving there at 12 noon, and arriving Halifax 6.15 p.m. the next day, operating as No. 2. Westbound, as No. 1, it leaves Halifax 3.30 p.m. to arrive Montreal 6.50 p.m. the next day. On Saturdays this train operates to Mont Joli only. This train performs important service for a large number of communities throughout the 841-mile journey between terminals; its earlier departure from Montreal provides for more convenient service throughout the new Brunswick and Nova Scotia areas. All

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Centralized Traffic Control, C.N.R. Atlantic Region

Track Capacity Increased and Train Movements Expedited on Busy 125 Mile Subdivision Between Moncton, N.B., and Truro, N.S.

The Canadian National Terminal at Moncton, N.B., constitutes a converging point for that rail traffic routed from the entire Dominion, and points in the United States, to Canada's important sea coast ports of Halifax, Sydney and Saint John. Likewise, Truro, N.S., acts in the same capacity as a converging point for westward rail traffic from many important industrial centers and seaports in Nova Scotia. In addition, there is the Tormentine Subdivision, providing the only rail connection between Prince Edward Island and the mainland. All this traffic must traverse the one and only line connecting Nova Scotia and Prince Edward Island with the rest of the Dominion, the line from Moncton, N.B., to Truro, N.S. In normal times, before the war, the traffic consisted of 6 passenger trains and a few freight trains. The European war, however, increased the freight and troop traffic to a point which taxed the capacity of the line to its limit.

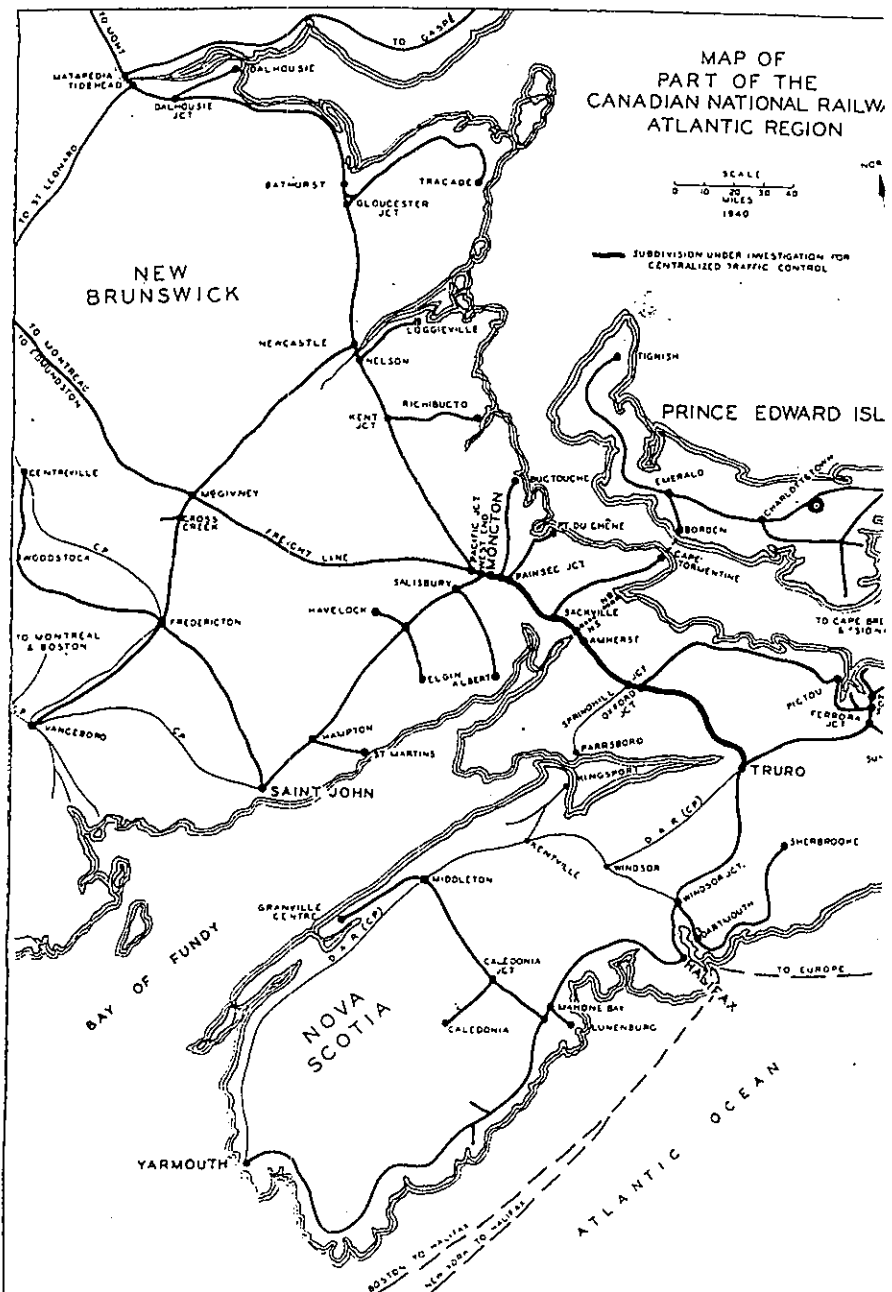
In 1940 and 1941 Halifax handled more overseas traffic than any other North American port. As a result, when navigation on the St. Lawrence River ceased because of winter conditions, the traffic so increased on this line that it was apparent, in view of the probability of having to cope with a constantly increasing volume of business as the United States and Canada intensified their war efforts, that some means should be adopted to increase the capacity of the line and expedite the movement of trains. This meant double tracking that portion of the line which was single track, approximately 100 miles, or adopting some more efficient method of expediting the movement of trains on existing track.

Character of the Line

The line traverses a rolling country, very picturesque at points, passing through rock cuts, over deep fills and many bridges. The line has fairly heavy curvature, mostly 3° or under. The ruling grade is slightly over one per cent. The double track at Moncton is 7.2 miles long. There is also double track extending from Maccan to Springhill Junction, a distance of 9.1 miles, and from Belmont to Truro, a distance of 7.6 miles. Prior to the installation of Centralized Traffic Control, all train movements were directed by the manual block system (time table and train orders). Those familiar with

the manual block system of operation realize the accumulation of delays that can occur, such as trains stopping to operate switches when entering or leaving sidings or at junction points or cross-overs, and the time lost in delayed meets often caused by inter-

rupted contacts with unexpected layed trains. Such was the case on this line. During winter months which are unusually severe in this locality, the delays were intensified. Under the best conditions the manual block system offered to the dispa-



Layout of Railway Lines on Part of the C.N.R. Atlantic Region.

a comparatively slow means of getting his train orders into the hands of the train crews for execution where, in turn, the satisfactory execution depended solely upon the human element. In normal times one dispatcher can handle the territory, but under war conditions an additional dispatcher was necessary.

Taking into consideration these facts, and the growing importance of fast safe transportation in the efficient performance of Canada's war effort, a thorough study of all contributing factors was made. This study, undertaken in the spring of 1940, consisted of the investigation of the existing plant,

The Solution Was Centralized Traffic Control

In contrast to double tracking it was estimated that Centralized Traffic Control could not only handle the expected wartime traffic, but would also pay its way after the war handling the post-war traffic.

The study also revealed that an installation of Centralized Traffic Control would not only save an enormous amount of vital war materials and much needed labor and time, at a period when it could least be spared, but that many valuable benefits would result, such as:—(a) increase the capacity of the line, in trains per day, from

lastly, the method of communication between the Controller and the train crews carries with it the idea of dealing directly with the individual to whom one wants to convey information, in comparison with the former method of relaying through a third person. This method, in which instructions are issued directly to train crews by wayside signals or telephone at the time and place of action, operates to provide better and more complete understanding between all concerned, and results in greater safety and flexibility of operation.

The Installation

The installation was started in April 1941, and the last portion placed into service October 31, 1941. It extends from Moncton, N.B. to Yard A in Truro, N.S. and consists of 124.7 miles of road, 100.8 miles being single track and 23.9 miles of double track. The control machine is located at Moncton.

This Centralized Traffic Control is a system by which trains operate over this territory without using train orders or time-table authority. Instead, they obey only signal indications, which are under the supervisory control of the Controller of the control machine located at Moncton.

The system is basically a series of controlled locations, equivalent to interlocking plants, connected with automatic signaling. Each controlled point consists of a single switch, or crossover, or various combinations of single switches and crossovers with associated signals.

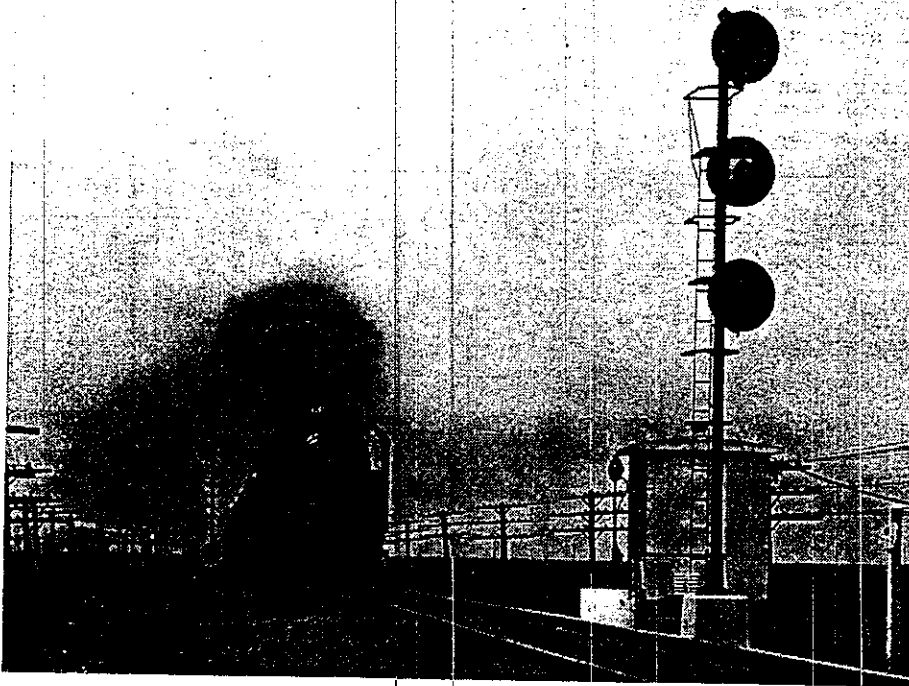
A comparatively few track changes were required. At Macan, where double track begins and runs to Springhill Junction, a distance of 10½ miles, an additional crossover was installed, which resulted in greater flexibility of traffic movement over this double track territory.

Due to a heavy down grade westward at Springhill Junction, it was desirable to rearrange the siding connection to give derail protection to the main track and yard, as heavy coal trains are received from the yards adjacent to the mines.

The Control Machine

The control machine is "U" shaped in design, covering a floor area of 11 feet by 13 feet. It consists of nineteen control and two master sections. The master sections are on the ends of the machine. Each control section contains space for four switch levers, four signal levers and relays.

The advantage of the sectionalized construction permits adding an additional section in the proper location as track changes make such additions necessary. The control machine is electrically divided into two equal parts. The master section on the right, with nine and one-half control sections, is associated with the cTc circuit No. 1 controlling the territory between Springhill Junction West and Truro. The master section, on the left, with nine and one-half control sections, associated with the cTc circuit No. 2 controlling the territory between Mon-



A Typical Control Siding at Moncton.

operating conditions as revealed by the operating records for five selected days, and an analysis of the use of passing sidings.

Double Track Was Not the Solution

Double track was considered, but taking a long range view it probably would have been desirable to retire one track after the war, as postwar traffic would not have justified the expense of the second track. To have provided satisfactory operation under double track, automatic block signals would have been required.

To double track this line from Moncton, N.B., to Truro, N.S., would have required 17,600 tons of 100 pound rail, 758 tons of rail joints, 2,669 tons of tie plates and 507 tons of spikes or a total of 21,534 tons of steel. An estimate on the cost of double tracking at that time (1940) was approximately \$5,000,000.00, based on using 100 pound steel and treated hardwood ties. In addition, much excavation, blasting, and many fills would have been necessary, and numerous bridges would have been required at a time when labor and materials were exceedingly scarce, especially steel.

50 to 70 per cent. as compared with the heaviest test day (December 22, 1939); (b) effect an average saving of running time of two hours; (c) that locomotives being on the road a shorter length of time, some of them could be available for service elsewhere; (d) effect a decided decrease in operating expenses; (e) increase the safety of operation.

The study revealed that the increase in safety of operation would be brought about by:—(a) Protection from broken rails as they are detected, frequently, by the track occupancy lights on the control board, resulting in immediate action to correct the failure; (b) notwithstanding the reduced number of operators, the greater number of conveniently located telephones makes it possible for an employee to inform the Controller of an unsafe condition in roadway or on trains. The net result is a better informed Controller who can, since he has direct control of a large number of signals, stop trains more quickly than by the train order method; (c) track motor cars used by employees will be moved more safely on account of the closer contact, by telephone with the dispatcher.

communication and the train idea of dealing individual to convey information the former a third which instruct to train crews telephone at the on, operates to more complete all concerned, safety and flexi-

tion started in April placed into 41. It extends to Yard A in s of 124.7 miles ing single track ble track. The ted at Moncton. ffic Control is a s operate over; using train- authority. In- signal indica- the supervisory r of the control ction. ally a series of ivalent to inter- ted with auto- controlled point witch, or cross- ations of single er with asso-

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achine is "U" shaped floor area of 11 onists of nine master sections re on the end control section r switch levers relays. he sectionalized dding an addi oper location a such addition ol machine i two equal parts the right, with t sections, i circuit No. 1 tory between est and Truro i the left, with rol sections, i c circuit No. 2 between Monc

Master Panels with an adjoining control panel, and the supplemental track diagram above, which is one of the distinguishing features.

The signal levers, as shown in the illustration, provides a single light in the lever unit. This light will indicate that one of the signals controlled by the lever is clear, the position of the lever indicating which one.

The switch levers are equipped with a single light in the lever unit which is lighted whenever the lever and switch machine are not in correspondence. At all times that the lever and the switch machine are in corresponding positions there is no light showing and the position of the lever indicates the position of the track switch.

The track diagram contains the lights that indicate the occupancy of the track, there being one light for each "OS" track circuit and one for each section of track between "OS" points. The "OS" section, usually the track section in which the power operated switches are located, is that section which operates the recorder to be described later.

In order that the track diagram may present a complete picture, token holes are provided in the sidings where there are no track indications and at several other points to enable the Controller to keep track of trains. In addition to this track diagram there is a supplemental track diagram above, as shown. This diagram shows the non-controlled main line switches, distances between control points, and location of telephones. It also shows the car capacities of the sidings, which is very important.

The electric automatic train recorder is located in the center of the desk as an integral part of the control machine. The recordings are automatically made on a constantly moving chart, visible through a transparent cover in the desk top. The speed of the chart is two inches per hour. Horizontal lines on the chart represent the passage of time, the smallest division being 1/15 in., representing two

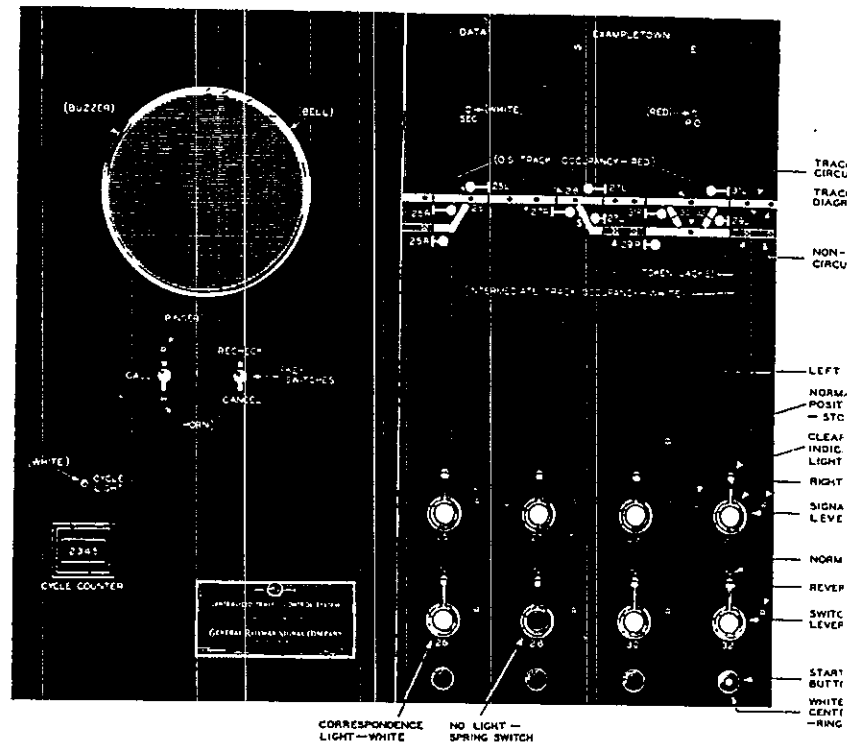
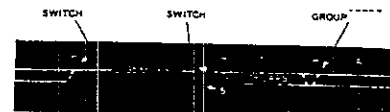
minutes of time. There are 34 vertical lines spaced 1/2 in. apart, which serve as guide lines for facilitating ready identification of the actual points represented by the recordings as shown on the track diagram of the recorder.

Each time a train passes an "OS" point, a mark is automatically made on the chart adjacent to the vertical line identifying that "OS" point. For

the completing of a continuous graph, the Controller, at his convenience, connects with pencil lines all "OS" marks made by one train. He may also insert any necessary information such as train numbers, etc. The chart record is removed each day attached to a heading sheet which contains information other than usually found on a train dispat

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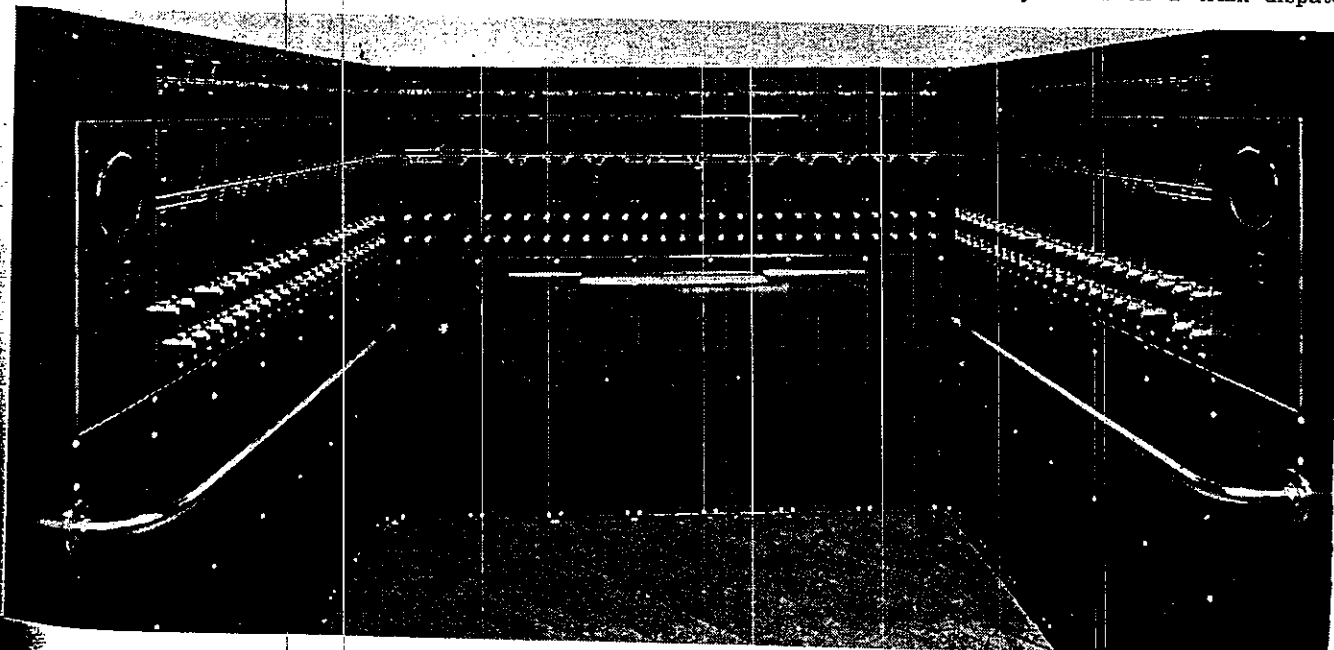
SUPPLEMENTAL TRACK DIAGRAM



MASTER PANEL

CONTROL PANEL

The Master Panel and Control Panel in the Control Machine at Moncton.



The Control Machine, Located at Moncton, N.B.



SPEEDS WAR TRAFFIC

"Railway Age" of New York has devoted its feature article to the Central Traffic Control of the Canadian National Railways. Through the courtesy of the publishers of that magazine, we are permitted to reproduce this article. The first section is presented here, and the second and concluding part of the article will appear in the December issue.

This saving in train time is due in part to power switch machines, and in part to the use of signals rather than timetables and train orders to authorize train movements. For example,

Prior to the completion of this installation, a dispatcher would issue from 45 to 65 train orders in eight hours on the 65 miles between Moncton and Springhill Junction. In some instances, he could not issue orders fast enough, and, as a result, trains would be forced to wait for orders. On some occasions when superior trains were running late, freight trains would wait for an hour to two hours on sidings because orders could not be issued and delivered. On the other hand, with C.T.C., in one instance there were 22 "trains on the board" between Moncton and Amherst East, 48.3 miles, an average spacing of 2.2 miles to the train. Nevertheless, by careful manipulation, these trains were all kept moving, with no delays on sidings. Any other means of increasing track capacity, such as the construction of second track, would have taken years, even if the materials could have been secured. However, the centralized traffic control was installed in five months on the entire Moncton-Truro territory.

ONLY ONE RAILROAD TO HALIFAX

The line between Moncton and Truro is the only railroad traversing the isthmus which connects Nova Scotia with the continent proper. Near Moncton, three railroad lines converge. One line, extending north-west via Bathurst and Riverview to Montreal, handles through passenger and local freight trains. The

extending from Moncton to McEglin, N.B., and from McEglin to Montreal, N.B., is the through freight. From Moncton extending to Saint John, N.B., handles local as well as through business and from Boston, Mass., to points in the United States. From Moncton, 124 miles east of Moncton, the principal main line extends to Halifax, and a secondary line extends north and east to Sydney, N.S. Thus the territory between Moncton and Truro is a bottleneck.

From the standpoint of the traffic but also because of curves, long heavy grades, and the fall, the 124-mile section between Moncton and Truro is the most difficult for train operation on the Canadian National. In spite of these physical difficulties the benefits effected by the traffic control are all the more important. The long grades and the rise and fall result from the fact that the track is only 25 to 30 feet above tide water at several places between these points it

passes over ridges varying from 225 to 615 ft. above sea level. Between East Mines and Folly Lake, 11.1 miles, the line ascends from 200 ft. to 615 ft., with grades ranging up to 1.47 per cent, this being the ruling grade westward on the eastern half of the territory, with a tonnage rating of 1,930 tons. From Folly Lake the line then descends westward for about 23 miles to an elevation of 100 ft. at Oxford Junction. In this section the ruling ascending grade eastward varies from 0.8 to 1.11 per cent for 2 miles through and just east of Westchester. The tonnage rating fixed by this grade is 2,420 tons.

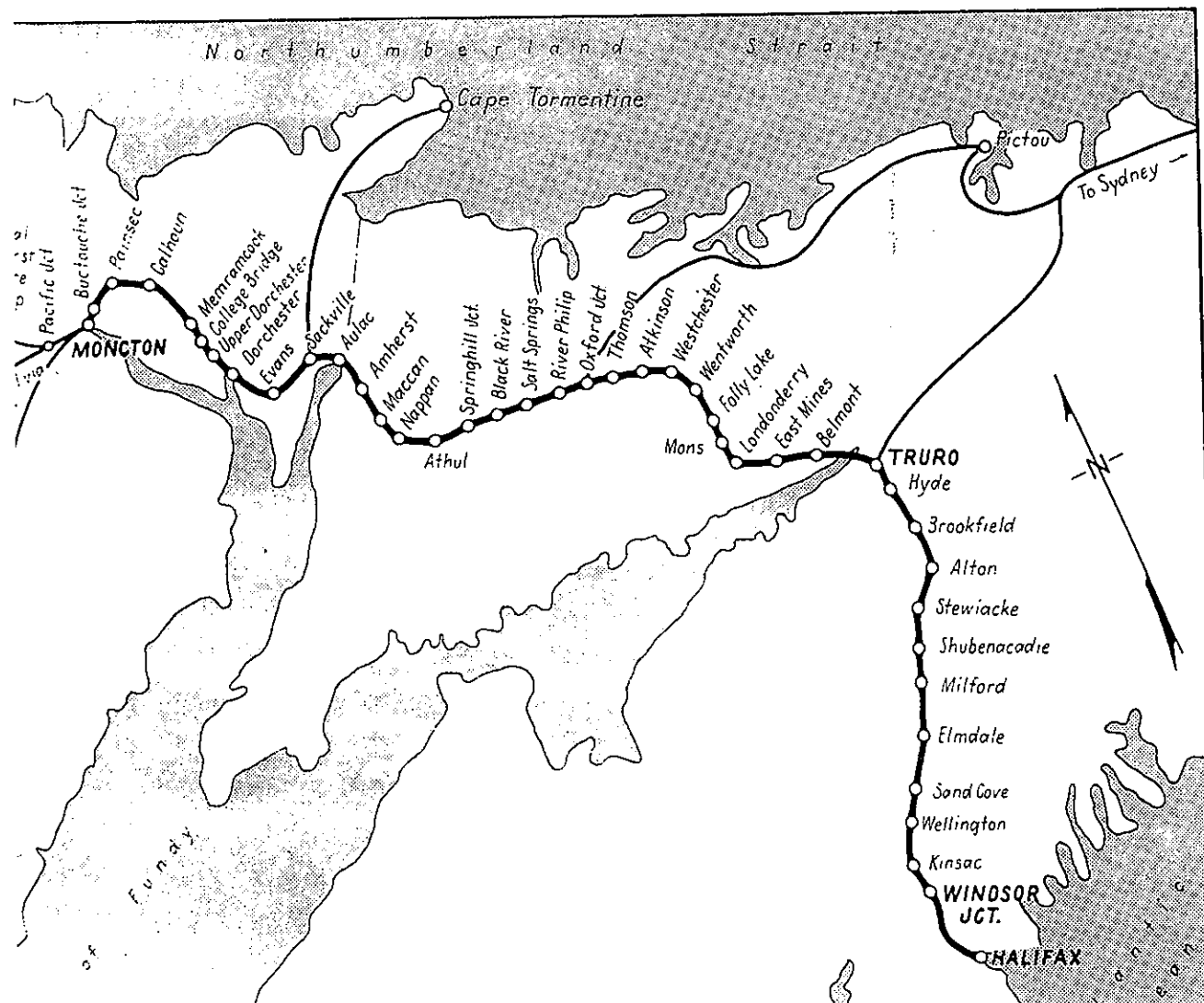
Between Oxford Junction and Springhill Junction, the line is rolling with short grades ranging up to 1.1 per cent. Beyond the latter point a ruling grade of 0.9 to 1.05 per cent for 2.1 miles against eastward traffic limits the tonnage to 2,300 tons. Starting two miles west of Sackville, the line ascends westward 125 ft. in 3.8 miles, this being a ruling grade westward, on which the rating is 2,260 tons. From Evans to Dorchester the grade descends westward practically all the way for 4.5 miles, and much

of this is from 1.00 per cent to a maximum of 1.25 per cent and the curvature is bad. This section is the ruling grade eastward on the west half of the Moncton-Truro territory, the tonnage rating being 2,040 tons. For about 10 miles from the east end of Dorchester to a point west of Memramcook, the line is on marsh land in the valley of the Memramcook river at an elevation ranging from 20 ft. to 30 ft.

LARGE VOLUME OF IMPORTANT TRAFFIC

Four scheduled through passenger trains are operated in each direction daily, each consisting of 14 to 16 cars. One passenger train in each direction daily to and from the Tormentine-Prince Edward Island line also uses the C.T.C. territory between Moncton and Sackville. Approximately 15 through freight trains are operated in each direction daily. The local freight trains operate on short runs, but in effect there is a way-freight in each direction daily except Sunday over the entire territory. A switching crew makes a round trip from Truro to Sibert and East Mines daily, and simi-

(Continued on Page 17)



COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers

January 29, 1872

Windsor and Annapolis Express No. 20 ran into a coal train near Richmond.

February 27, 1872

The St John to Halifax train derailed on the Hammond River Bridge.

April 3, 1872 Train No. 2 collided with train No. 7.

October 6, 1875 The No. 3 express train derailed between Glengarry and Hopewell.

July 11, 1877 A ballast train ran into a freight train at Oxford, the engine and nine cars were damaged.

November 9, 1877 A coal train collided with No. 17 freight train. Two engines were badly damaged.

COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers

- January 14, 1880 At L Islet engine No. 16 was struck while standing in front of the station. Engines 13 and 161 were damaged.
- February 10, 1880 At Smelt Brook the engine left the track and went down the embankment.
- March 1, 1880 At Tartaque a train was stuck in the snow and was run into by No.3 . Engines 16 and 108 were damaged.
- March 31, 1880 At Debert Engine 58 left the track in a snow storm on the Debert Bridge and was badly damaged.
- April , 1880 One half mile east of Momramcook a snow plough left the track causing engines 29 and 75 also to leave the track

COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers

September 15, 1880 Engine 72 collided with Conductors Gagnon's ballast train a quarter mile west of the St. Roch ballast pit. Both engines and nine cars were damaged.

February 4, 1881 At Apohoqui station Express train No. 7, engine 73 and 53 left the track and ran down the embankment and turned over.

May 14, 1881 Two Grand Trunk Railway engines came off the track and turned over on their sides owing to a switch being left open at Hadlow near Levis.

September 1, 1882 Engine 40 on the No. 36 Accommodation train and engine No. 49 on an Extra train ran into the No. 32 train.

April 1, 1883 A Special train with engine No. 19 collided with another Extra train near Ste. Flavie.

December 23, 1884 Extra train engine No. 28 was in a collision at Trois Pistoles.

February 26, 1885 An Extra train No. 133 collided with another extra train at East Assemetquaghan.

March 22, 1885 An extra snow plough extra train with three locomotives pushing; Nos. 5, 140 and 153, left the track at East Assemetquaghan.

July 13, 1885 Engine 73 collided with cars standing on the mainline at Coal Branch.

September 4, 1885 Special train engine number 118 was in a collision on the Sackville Bridge.

COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers

May 3, 1886	Engine 171 and 166 collided at New Glasgow.
January 26, 1886	A derailment one mile west of At. Fabien.
January 18, 1887	A side-rod broke on engine No. 31 at Notre Dame du Portage.
September 22, 1887	At Little Metis, Extra train engine 142 was in collision with train No. 42 Engine 107.
December 5, 1887	The boiler on engine 170 exploded at Stellarton.
December 23, 1887	At Union, there was a collision between locomotives 124 and 123.
February 3, 1888	Express train No. 45 with locomotive No.132 derailed at Cap St. Ignace.
January 1, 1889	Freight train No.24, engine 34 collided at Maccan.
March 19, 1889	Express train No. 33, engine 160 and freight extra engine No 146 collided at Rimouski.
October 5, 1889	Engine 91 at Rockland was in collision with No. 34.
January 10, 1890	At Jacquet River engine 147 and engine 30 on a snow-plough extra derauling both locomotives.
December 18, 1890	Major wreck 1.5 miles east of the Levis Station, involving the derailment of the Halifax to Montreal Express. Locomotive No, 151.

INTERCOLONIAL RAILWAY

VOLUME II

COLLISIONS AND DERAILMENTS

Reported in the Canada Sessional Papers

January 30, 1895	Jacquet River. Express train No.34 engine 198.
January 26, 1897	Palmers Pond. Express train No.25, engine 150 derailment at Palmers Pond near Dorchester where many were injured.
February 6, 1897	St Moise. Extra freight engines 174 and 210 derail 6.5 miles west of St Moise.
February 8, 1897	Petit Roche. Express train No. 34 engine No. 156 ran off the tracks 4.5 miles east of Petit Roche.
February 27, 1897	St Apollinaire. A snow-plough extra with three locomotives Nos. 12, 28 and 126 ran off at St Apollinaire.
March 18, 1897	Beau Rivage. Express train 34, engine 152 derailed.
March 19, 1897	Maria. Extra engines 77 and 30 derailed one mile east of Maria, Baie des Chaleurs.
May 2, 1897	Mixed train 48 with engine 205at Kings Siding collided with a light locomotive.
June 30, 1898	Extra train engine 40 ran off the tracks near Valley.
July 5, 1898	Train 15, engine 201 derailed at Maccan.
September 28, 1898	Collision near Acadia Siding, Westville engine 4 and engine 117.

COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers.

October 9, 1898	Engine 177 was derailed at Hodgson's by a tie placed over the track.
January 11, 1899	Express train No, 150 with engine 6 collided with Grand Trunk special near St Hyacinthe.
July 31, 1899	At Moose Park engine 136 collision.
December 13, 1899	At James River engine 49 on Baxter's east-bound freight and the pay train.
March 15, 1900	Express train No. 33 with engine 173 and snow-plough extra train engine 135 at Dalhousie Junction.
May 2, 1900	Express train No. 34 engine 113 train wrecked at Hadlow (Levis) Quebec on account of a landslide.
July 17, 1900	Two miles east of Springhill engine 177 collided with light engine 128.
September 22 nd , 1900	Derailment engine 182 quarter mile west of Bayfield.
October 11, 1900	Engine No. 128 on mixed train No. 85 derailed McIntyres Lake.
December 8, 1900	Extra train engine 77 and 200 left the track half mile west of Cap St Ignace.
January 24, 1901	Special train engine 91 ran off the track due to a washout a quarter mile west of Merigomishe.
August 16, 1901	Express train No. 34 collided with train No. 75 at Assamatquahan.

COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers

September 13, 1903	Ste Madeline. A collision between express train No.33 and No. 76 freight.
October 7, 1903	Engine 63 derailed at Petitcodiac.
January 13, 1904	At Hadlow, Quebec engine 208 was involved in a collision.
February 3, 1904	Express train25 with engine 154 was derailed at Milford.
August 4, 1904	Express train with engine 172 derailed at Drummondville
October 15, 1904	An extra train engine 33 collided with engine174 at McKinnons Siding.
February 27, 1905	Shunter engines 8 and 193 derail at Moncton.
November 22, 1905	Express 153 ran into an extra train at the siding DeLotbiniere, quebec, engines 200, 194, 181 and 166.

COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers

August 6, 1906	At Montreal a collision involving engine 125 with cars fouling the main-line. Engine and four cars derailed.
August 25, 1906	At Montmagny, Quebec Engine No. 300 was in a collision with engine No. 98.
September 4, 1906	Express train in a collision with train No. 50 at St Charles, Quebec.
October 6, 1906	At Pointe Levis ICR engine No. 174 was involved in a fatal collision with a Grand Trunk Railway pilot locomotive.
October 19, 1906	Engine 206 at St Leonard in collision with a freight extra.
January 29, 1907	Train 237 derailed near Windsor Junction.
February 5, 1906	Special work train with engine 225 collided 2.5 miles west of Beaver Brook collided with the Sears west bound special.
February 27, 1906	Express No.9, engine 237 collided with train No. 26 at Brookfield.
March 5, 1906	Extra freight with engine 142, 313 and 25.
March 21, 1906	Engine 170 while running from the shop to the coal shed collided with a shunting engine.
September 25, 1906	At Levis station at 8:15 A.M. freight 47, engine 323 collided with a Quebec Central Railway train on the main-line.

COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers.

- | | |
|----------------|--|
| April 17, 1907 | Extra train, engine 173 backed into train No. 47 at St Philip de Nevi. |
| April 24, 1907 | Mixed train No. 60 with engine 381 ran into a landslide and washout. |
| April 26, 1907 | Express train No. 34 with engines Nos.
345 and 72 ran into an open switch and
collided with a shunting engine at Riviere du
Loup, Quebec. |

COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers

April 10, 1910	An immigrant train, engine 224, ran off the tracks at Campbellton.
December 10, 1910	Express No.146 with engine 116 was involved in a head on collision wit Grand Trunk Railway engine No. 416which was running west on an east-bound track.
January 25, 1911	Way-freight engine 34 was standing at the Bathurst station when it was run into at the back-end by train No. 76.
March 9, 1911	Trains 59 engine 175 and train 59 engine 34engine 347 collided at Derby Junction.
March 13, 1911	In the Ste Flavieyard engine 372collided with engine 408.
January 27, 1911	Freight 304 with engine 174 went over a ten foot embankment at Nelson.
October 31, 1911	Collision Sackville engine 229.
January 16, 1912	Collision of engines 1081 and 821at Willow Park, Halifax.
July 10, 1912	Grand Lake train No.34 engine 406 jumped the track.
July 26, 1912	An extra freight with engines 617 and 604 at Sacre Coeur ran into the rear of train No. 44.
August 6, 1912	Collision at Newcastle yard engine 73.

COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers

August 19, 1912	Train 68 with engine 1083 collision at Richmond.
December 12, 1912	Train 148 with locomotive 87 in a collision at Mitchell.
January 14, 1913	Special freight train with engine 110 and engine 614 collide with engine on the main-line.
March 29, 1913	Extra freight engine 416 and engine 90 in collision at Millstream.
September 23, 1913	Freight trains 231 and 234 involved in head on collision at Sidalls Cut.
November 14, 1913	Engine 20 involved in a collision at Londonderry.
June 17, 1914	Mixed train 304 with engine 1003 derailed and turned over at Goodspeed, New Brunswick.
June 20, 1914	Engine 39 derailed at Green Point, New Brunswick.
January 19, 1915	Passenger train 33 with engine 446 derailed McLeod's Siding near Dalhousie Junction.
February 5, 1915	Train with engine 278 derailed at Millstream, New Brunswick.
September 15, 1915	Engine 1025 running as second No. 147 ran into the rear of a freight train.
January 3, 1916	Engines 625 and 406 running as extra 625 ran into the rear of extra 78 at Thomson.

COLLISIONS AND DERAILMENTS

Reported in Canada Sessional Papers

March 21, 1916

A head-on collision at Val Brilliant involving engines 36, 39, 131, 257.

1881

February 5, 1881

Apohaqui

The train which was known as the Sussex train left the Sussex station at the usual time of 7:05 but when it was nearing the Apohaqui station the rails spread and the engine was precipitated from the track and rolled over one or more times. Engineer Thomas Gammon lost his life.

May 5, 1881

Half the outward freight over the Intercolonial from Halifax last week; 104 cars out of 267 cars, were of raw sugar landed at the Halifax port from the Indies and principally bound for Montreal.

1882

March 31, 1882

Grand Lake

A collision took place on the morning of March 30th, 1882 on the Intercolonial at Grand Lake between two special trains by which Conductor Geldert lost his life. The trains were both on their way to Halifax, Gelbert's a had heavy train composed of 37 coal and boxcars, the latter filled with cattle, had left Truro at 11:40 the Wednesday night. Logan's train left Elmsdale at about an hour and twenty minutes after Geldert running slowly all the way but when coming up the grade at Grand Lake it struck Geldert's train. The time was 5 o'clock in the morning and while the Geldert engine had a good head of steam the rails were very wet and slippery. Conductor Geldert found that he could not get his train up the heavy grade and decided to back his train down some six hundred yards in order to get a good run at the grade. Just as he was starting to go ahead Logan's train came down on him and crashed through six cars, Geldert was in his van and before he could get out of the van he was struck with the locomotive going clear through the van.

1884

November 8, 1884

The storm on the night of November 5th and the morning of the 6th did great damage along the line of the Intercolonial in Quebec. The tracks were washed away in several places.

1885

March 21, 1885

The Northern division of the Intercolonial has a habit of becoming the only section of the line to be blockaded by snow with hundreds of cars of English goods and Springhill coal stored in the Moncton yards until enough train crews on special trains can manage to open the line and can get all the accumulated freight over the line.

July 14, 1885

An accident occurred on the morning of July 14th, 1885 between three and four o'clock. Conductor Davidson was in charge of a special coal train. The engine driver was John McLellan and the fireman was John Gilbert Kidd. Their train left Moncton at 12:07, midnight bound for Campbellton. About one mile east of the Coal branch, 28 miles north of Moncton, they ran into the rear cars of Conductor Brownell's that was running in front of the train. The cars had been in some way detached from the Brownell train and were just standing on the track. The engine of the coal special and several cars were thrown from the track and into the ditch, Engineer McLellan and Fireman Kidd were killed.

1887

September 24, 1887

Little Metis

A serious collision resulted in the loss of life and much property occurred on the Quebec Division of the Intercolonial in the afternoon. The number 43 accommodation train had an order to cross a late bound special or extra train at Little Metis but over ran the station and the two trains collided with frightful force. Engine-driver L. Duncan on the special was killed. The accident was due to the negligence on the part of Conductor Hudson, Conductor of the accommodation train who held the order for a meet.

December 6th, 1887

Stellarton

Intercolonial locomotive number 170 was a mogul built by Fleming in 1886. The locomotive had arrived at the Stellarton station. Engine driver Sproule and Conductor Alexander Grant had just alighted from the locomotive and strolled into the station to get orders to proceed to Westville. Mechanical foreman Alexander Frazer had stayed in the cab of the engine. While section-men Daniel Robertson and William Eastwood had climbed onto the 170's tender. It was 6:30 in the morning. In one second the locomotive exploded. The locomotive and part of the station was torn to pieces. Frazer, Robertson and Eastwood were killed. The cause it was later determined was that there were no regular boiler inspections made by the ICR.

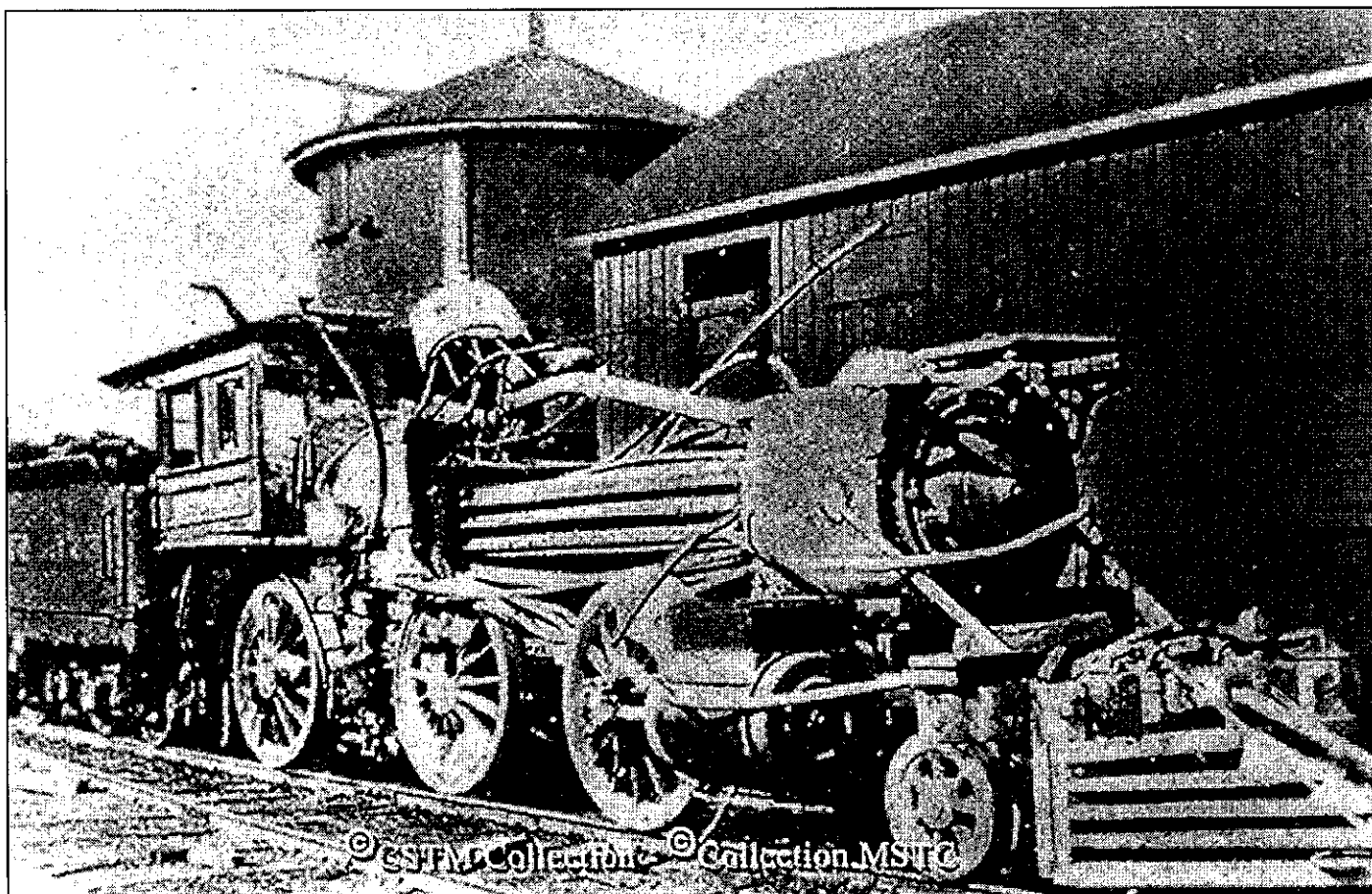


Photo Number: STR04545a
Photographer: unknown
Location: STELLARTON, N.B.
Railway Name: INTERCOLONIAL COAL CO
Date: 1892-00-00
Subject: MOTIVE POWER - STEAM LOCO
Builder Date: 1886-00-00
Model: MOGUL
Class: G-7
Type: 2-6-0
Equipment Number: 173
Drivers: 54
Collection: STR
Cylinders: 18 x 24

1887

December 24, 1887

Six and one half miles from Truro on the Pictou Branch two coal trains collided Christmas eve 1887. One train was laden with coal and the other was empty. Conductor A. McLean had left Truro with a train of empty coal hoppers early in the morning. The engineer was George Footham. They had orders to cross or meet Conductor McElhenry special at Union. After passing the Valley and just entering the heavy rock cutting half way from the Valley to Union, engine driver Footham spied an engine on the same track coming towards them. The train was travelling very slow. Footham whistled down brakes and shouted to his fire-man Kennedy to jump. The collision occurred. McElhenry and his driver Paul Peterson were running on orders it was said to meet McLean's train at the valley. The locomotives involved were ICR numbers 123 and 124, both Fleming 2-6-0 Moguls that had been built in 1881.

1889

January 1, 1889

Maccan

A serious collision occurred on the Intercolonial Railway at Maccan about noon on New Years Day 1889. A special or extra train had just arrived at the Maccan station and had nearly come to a standstill when the regular freight dashed around a sharp curve that hid the special from view and the collision was deemed inevitable. Both locomotives were badly smashed.

March 20, 1889

The Quebec Express dashed into a freight train one mile west of Rimouski, Quebec. The Number 33, Express bound for Quebec while running at full speed collided with an extra freight train running east from Riviere du Loup. The freight had out run their orders and tried to meet the express at Rimouski. Four men were killed in the collision. ICR engine 160, a brand new Dubs (Scotland) built 4-4-0 pulled the Express. Engine ICR 146, second number 146, had been built by Dubs as well in 1888.

Dec 27 1890

THE DOMINION ILLUSTRATED



SCENES AFTER THE FATAL ACCIDENT ON THE RAILROAD AT ST. LOUIS, MO.

1890

December 18, 1890

LEVIS, QUEBEC

The Intercolonial passenger trains switch off the ICR mainline at St Charles Junction to head for the large passenger station at Levis, opposite Quebec City. On December 18th, 1890 westbound passenger train composed of eight cars. It had cleared the quebec Central junction at Harlacka and was approaching the down grade to descend the St Lawrence heights to the seawater passenger terminal. At a point in the town of Lauzon the tracks are carried on a high embankment as part of the decent, than a long bridge over a public highway. This day one of the second class coaches derailed just as the train passed the Lauzon station siding on a curve and it would seem to have dragged the first class coach and the sleeping car with it . As the second class coach derailed, it pulled and caused the baggage and mail cars that preceded it to also also to derail. The three passenger cars then ran diagonally along the embankment for two hundred yards . The second class car struck the abutment of that highway bridge and its front end was smashed. The three passenger cars then turned over on the edge of the embankment. The locomotive and a baggage car were not derailed by these events.

1899

September 26, 1899

St Hyacinthe, Quebec

A collision occurred to a fast Intercolonial passenger train running from Montreal bound east for the Maritimes. A switch in the St Hyacinthe yard had not been closed and the train was quickly diverted to a siding and smashed into a long standing freight train. On board the passenger train was the Honourable Mr Marchand the Premier of the Quebec Government.

1896

January 27, 1896

Dorchester

A terrible accident happened to the express from Halifax which was due at Moncton at one o'clock in the afternoon. As the Express was one mile away approaching Dorchester station and running one and a half hours late, the whole passenger train cars left the rails at a point known as Palmers Pond. While the engine and tender stayed on the rails the cars tumbled down a fifty foot embankment. The cars piled up one on top of another, and reduced almost to kindling wood on the ice of the pond. Two were killed and many were injured.

1898

July 6, 1898

Maccan

As the night freight train No. 15 bound west was nearing Maccan a freight car derailed and it carried two other freight cars off the track and a passenger car, and all went down a steep embankment. The cause was the breaking of the stakes on a car loaded with drain pipes from the Londonderry Iron Company.

1898

March 1, 1898

ST. CROIX, QUEBEC

A terrible accident took place last night on the new Drummond County Railway portion of the Intercolonial Railway. It was the first day of the operation of the Intercolonial's new extension between Levis and Montreal. There was a heavy snow on the tracks that day and three ICR locomotives were coupled together to drive a snowplough through an immense snowdrift at St Croix, which is not far west of the junction of Charny-Chaudiere. The snow was so heavily packed that when the plough stalled in the snow the engine rammed through the plough and the engine was derailed. An engineer Dussault was killed.

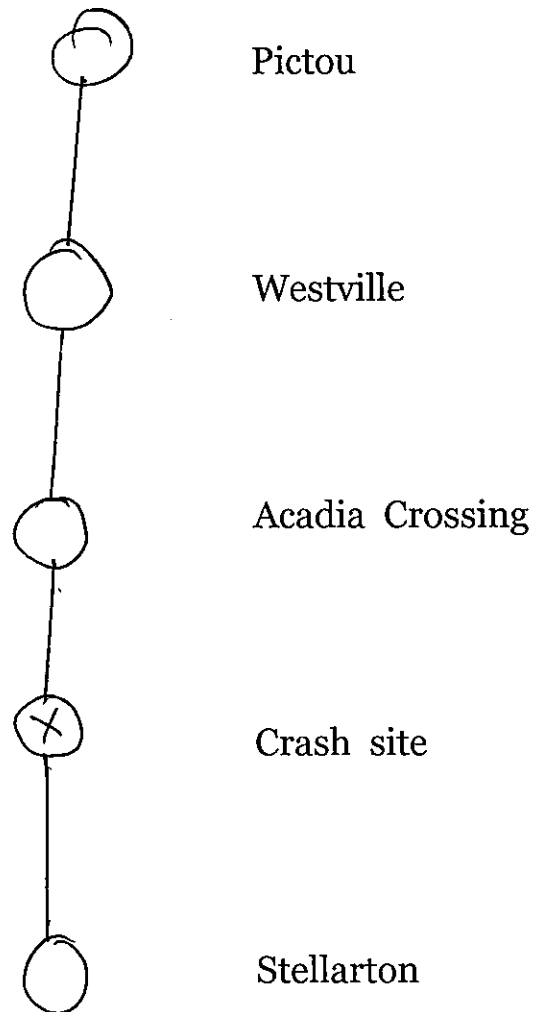
September 28, 1898

ACADIA SIDING - WESTVILLE

At an early hour the last special excursion train left Tatamgouche station under the charge of Conductor Alexander McLeod with Michael O'Brien as the engine driver and D. W. Henderson as his fireman. The train consisted of five first class cars . There were less than a hundred passengers on board the train. The

The excursion reached Westville at about 6:45 where it was understood that the special received orders to pass a coal miners train at Acadia Siding which was within sight of the Westville station. This miners train runs from Stellarton to Westville every morning to carry between fifty to one hundred miners to the Acadia mine where they went to work at seven o'clock each morning. It was at this point in time that someone blundered for the passenger train crew thought that they had seen smoke from the miners train coming out of the siding leading to the mine. They thought the line was clear and so off the excursion train went. It quickly gained speed, said to be forty miles per hour. But the miners train had not passed. It was also running at forty miles per hour. On the trains went at speed, the trains both rushed into a gorge and then there was a curve. They saw each other with only ten seconds of warning. The collision was a shock. The engineers and firemen had no time to jump. They were killed instantly. This railway horror left six dead and eleven injured. The engines involved were No. 4, a Dubs (Scotland) 4-4-0 built in 1882 and survived to become Canadian Government Railways No. 1052. Locomotive 117 was an 1880 Kingston built 2-8-0 which was rebuilt in 1907 into a 0-6-0

WESTVILLE CRASH



1899

January 12, 1899

St Hyacinthe

A collision which fortunately involved no loss of life and no serious damage to rolling stock occurred at St Hyacinthe at about one o'clock in the morning between a Grand Trunk freight train bound west from Richmond to Montreal and the Intercolonial accommodation train that had left Montreal's Bonaventure station at nine o'clock at night. The trains collided at St Rosalie Junction just across a small creek about three hundred feet from the Yamaska river bridge. Both engines rolled down the steep embankment for fifty feet and both the engines were damaged. There were no passengers on the ICR train. The GTR train had no orders against the ICR. The Grand trunk conductor stated that he gave the engineer the signal to back up and instead the engineer went ahead.

1899

September 26, 1899

St Hyacinthe, Quebec

A collision occurred to a fast Intercolonial passenger train running from Montreal bound east for the Maritimes. A switch in the St Hyacinthe yard had not been closed and the train was quickly diverted to a siding and smashed into a long standing freight train. On board the passenger train was the Honourable Mr Marchand the Premier of the Quebec Government.

1902

January 22, 1902 FORESTDALE, QUEBEC

A westbound freight train ran into an open switch at Forestdale, Quebec; half way between Drummondville and Charny Quebec, on January 22, 1902. Another freight train was sitting on the siding. The train crew had enough time to see the standing train and all jumped in time to safety. The engine and several cars were wrecked.

1903

November 27, 1903 DeLOTBINIERE, QUEBEC

The westbound Halifax Express over the Intercolonial Railway ran into a switch that had been left open and collided with a standing freight train at DeLotbriere Station

1903

November 27, 1903

DeLOTBINIERE, QUEBEC

The westbound Halifax Express over the Intercolonial Railway ran into a switch that had been left open and collided with a standing freight train at DeLotbiere Station

SAINTE ROSALIE JUNCTION

DECEMBER 10, 1910

Grand Trunk locomotive No. 416, a 4-4-0, H-4 class was built in the Grand Trunk shops at Montreal October 1882. A very standard type of GTR motive power, but very light.

Saturday around noon, December 10th, 1910 orders were given to send this little tea kettle, light, that is, only the engine and no train, from Sherbrooke to the Montreal engine terminal. The train crew all tucked into the engine cab this afternoon; consisted of Engineer William Walker, fireman McMullen and Conductor A. R. Biggs. It was snowing as the engine sped past the Sherbrooke station at three o'clock that afternoon as it sped up the line. Through Richmond heading west, this was an old twenty-eight year old steam engine, and was probably difficult to steam and speed. Even without a single car behind it was late when it came up to the junction at Sainte Rosalie.

Sainte Rosalie was once a small hamlet, just east of the town of St. Hyacinthe, but now it was the important junction between the Grand Trunk and the Intercolonial Railway. The ICR had its own mainline east of St. Rosalie to Quebec and the Maritimes, but west of St. Rosalie the Intercolonial ran over the tracks of the Grand Trunk right into downtown Montreal. Since 1903, the Grand Trunk was double tracked from St. Rosalie to Montreal.

One report has it, that engine 416 was running late, and at this junction, the GTR turns from being single track to being double-tracked, the 416 took the first switch on the left. That sent it west, on the east bound mainline. It is not known why with three men in the cab that they set off on the wrong track, was it a mistake, or did they think they could make up time then switch to the east bound track. There is no explanation, but they did not go far - when out of the western winter, at 5:35 P.M. came the Intercolonial's train No. 146 from Montreal to Nicolet. The ICR men thought they had a clear track, they were entitled. They did not see each other, no chance to apply brakes, they just plain smashed into each

other at full speed near the Yamaska River bridge There was a terrific impact. The tender of the 416 smashed through the locomotive cab. Engineer Walker and Conductor Biggs died in an instant. The ICR engine had its tender smash through the cab of the locomotive killing the unsuspecting Engineer Robert Jamieson and his Fireman M. Dionne. GTR officials could give no explanation why locomotive 416 was on the wrong track. Four men died at the Yamaska bridge. with the Canadian National number

Engine 416, this old tea-kettle was rebuilt by the Grand Trunk and managed to live to be assigned the Canadian National Railways number in 1923, and was scrapped August 1932. Another twenty-two years, after St Rosalie, and a lifetime of fifty years.

1916

January 5, 1916

Westchester

At 12:30 last night at a point west of Westchester Conductor Edward Johnston of Truro was bringing in an extra train and had taken a siding on the double track siding on the double track main-line. For some reason the switch points were left open and a double headed freight train running in the same direction ran up into the siding and collided with the rear of Johnston's train.

May 1, 1925

LEVIS, QUEBEC

Engineer Joseph Gagnon had just got underway from the Levis, Quebec station with the eastbound train No. 4, the Ocean Limited in the early morning of May 1st, 1925. It was pouring rain. It was 12:47 A.M., just one and a quarter miles from Levis, known as Bienville, when a number of large boulders descended from the towering cliffs above the St Lawrence River. Engineer Gagnon saw the fall of the rocks cascading down in front of him. He slammed on the train brakes. It was too late, however, for the big Canadian National Railways U-2 Mountain Type locomotive hit the rocks and rolled down a twelve foot embankment and then rolled over on its side. Stream was everywhere in the dark night. The express car No. 8855 and mail car No. 9720 had derailed and torn up the track. The following passenger cars had not derailed and all passengers were safe. Train crew and passengers ran in the dark to extricate Engineer Gagnon and Fireman Emile Courtier. They had been scalded and injured. A Doctor Cupihot, a passenger on the train from Montreal was able to help. They were then taken to the Levis Hospital. It was not long before another locomotive was summoned from Charny. It was pulled back to Charny and sent on its way to Halifax via the freight line to St Charles Junction.



Levis 1925

January 12, 1925

Springhill Junction has a larger turntable than Halifax. The new larger engines, (4-8-2 and 2-10-2) have o be backed out of Halifax at the present time.

January 13, 1925

BELLEDENE

Locomotive Engineer Joseph McDermott was killed and his fireman Stanley Murphy had his leg badly injured as the result of a head on collision between two freight trains at Belledene Station, about forty miles south of Campbellton at two o'clock in the morning.

The third section of freight No. 82 which was in charge of Conductor J. C. Cormier and Engineer Joseph McDermott running southbound was to meet an extra freight under the charge of Conductor Walter McCline and Engineer Edward Legere at Beledene Station. The northbound freight had arrived at Belledene and was standing on the CNR mainline when the southbound freight coming out of an intense snowstorm crashed into the standing McCline train.

February 20, 1925

STELLARTON

A locomotive jumped the tracks and turned over at stellarton one mile from Sunny Brae., after leaving there to return to Stellarton. The engineer James Shaw was killed.

May 1, 1925

LEVIS

The eastbound Ocean Limited was derailed as it was leaving Levis Station by a rock slide from the famous St Lawrence River cliffs. A large rock threw the new CNR Mountain Type No. 6015 off the track and its following mail cars. They landed almost right into the St Lawrence River.

January 31, 1927

THOMPSON'S SIDING - OXFORD JUNCTION

Canadian National Railways U-1 class locomotives, numbers 6000 to 6015, of the 4-8-2 type were the first locomotive order of the new railway system, and they were delivered in the summer of 1923. The first order consisted of fifteen engines. Out of the fifteen locomotives ten were immediately assigned to the Atlantic Region.

It was on January 31st, 1927, around 5:30 in the afternoon, when CNR 6007 on the eastbound Ocean Limited pulled up to Thompson's Siding four miles east of Oxford Junction. It was to await a meet with the westbound Maritime Express. In the cab were engineer Willard Ruston and his Fireman Daniel Carruthers. The switch was thrown and the train lumbered into the siding. The trainman alighted from the back of the train, walked back and returned the switch points to their proper position. He then started walking toward the front of the train for the purpose of inspecting the switch at the front of the Ocean. As he got opposite his own engine he saw in the distance the approaching Maritime Express. He then noticed that up forward there was a red light on the siding switch. The switch in the distance was turned against the on-rushing Maritime Express. He started to wave his red kerosene lantern frantically. The engineer on the 6007 then started to blink his headlight. The engineer on the Maritime Express Robert Lindon saw the warning but he was coming on down a grade. He applied the brakes on his Mountain Type locomotive, the No. 6006. The Maritime Express was suddenly thrown onto the wrong siding. Tons of iron and steel exploded in the crash. The 6006 on the Maritime received the most damage. Two express cars full of fish wrecked and torn open. The passenger car windows exploded.

Daniel Carruthers the fireman on the Ocean Limited was killed. Engineers Lindon and Rushton were badly scalded, as was the

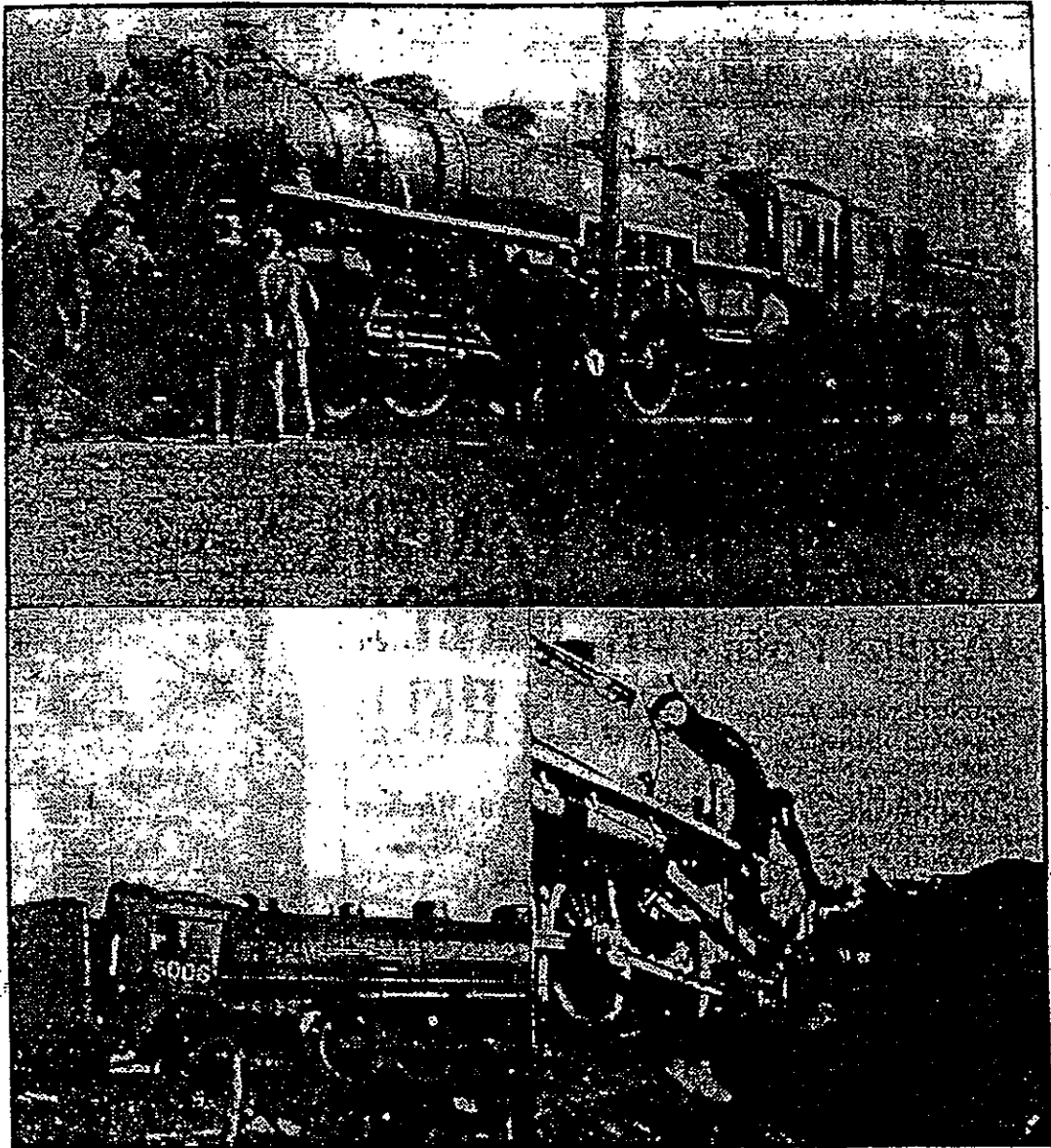
fireman on the Maritime, Clarence MacDonald. Eighteen people were injured.

The points were maliciously turned against the on-rushing Maritime Express was the opinion of the new Superintendent of the Halifax Division, Atlantic Region. He was a passenger aboard the Ocean Limited this very day. He immediately inspected the forward switch and that forward switch was locked in place, the points going into the siding.

THE HALIFAX HERALD.

February 2 1927

BEFORE AND AFTER THE WRECK



THE picture at the top shows the 6006 Engine of the Maritime Express, which was damaged in the wreck at Thomson's Siding on Monday night. This picture was taken at the Moncton station and "X" shows Driver Robert Lindop, who was scalded in the crash at Thomson's Siding.

The two lower pictures, right and left, show the engine on the Maritime Express, immediately after the crash occurred, and show plainly the amount of damage that resulted to the giant locomotive.

1927

April 9, 1927

NEPISQUIT JUNCTION

Engineer Norman Matheson was killed at Neipissuit Junction at about two o'clock on the winter afternoon of April 9th, 1927. Matheson was driving the mixed train that operated between Bathurst and Tracadie on the CNR Caraquait Branch. A snow plough had been attached to the front of the engine to help clear the track of snow. At the Junction the blades of the snowplough hit the cast iron switch frog which had the effect of throwing plough and engine off the track. The engine turned completely around and then it overturned. Engineer Matheson was pinned under his engine.

September 21, 1928

NEW MILLS, NEW BRUNSWICK

Two track labourers were killed when two CNR trains collided on the mainline. A light engine was running from Bathurst to Campellton, New Brunswick when it ran into a work train that was loading rails about a mile north of New Mills in Restigouche County. Both engines were damaged.

December 19, 1928

DALHOUSIE JUNCTION

There was a head-on collision between a shunting engine and a north bound freight train. Robert McAllister was killed.

1930

July 21, 1930

CANAAN

On this summer day an Al. G. Barnes Circus train had left Charlottetown on Prince Edward Island. At Canaan, fourteen miles north of Moncton, the circus cars left the tracks and ploughed up the track before it almost demolished the station. Flatcars left the track first. Four workmen attending the animals were killed. Two of the circus passenger cars then left the track with many of the circus people on board. Two more workers were killed and another seventeen were injured.

1933

January 30, 1933

ACADIAVILLE

A light engine crashed into the van of a snowplough snow extra at Acadiaville, which is 55 miles north of Moncton. The snowplough extra was running ahead of the eastbound Ocean Limited train No.4. Heavy snow was encountered about Rogerville. The extra got delayed and left Rogersville that evening at about six o'clock, and managed to get to Acadiaville only three miles distant when the storm gained intensity. The snowplough extra became stalled on the main track and just couldn't move. Assistance was needed. A call for help was made. At Rogersville a train crew were dispatched with a light engine to render aid. As the light engine was making its approach to Acadiaville the snow storm turned into a raging blizzard sweeping the area in a curtain of blinding white. White blindness! The light engine in a moment pitched into the rear of the van of the snow train, demolishing the van and killing three occupants.

January 31, 1933

The mainline of the Canadian National Railways remained blocked because of a major blizzard that struck the Maritimes. Six of the CNR's crack passenger trains were held up at Moncton. The Saturday Ocean Limited and the Maritime Express were held at Moncton. Sunday the frigid blockade continued, the westbound Ocean was held at Coal Branch and the eastbound did not pass Rogersville. The Monday Ocean and Maritime took a waiting siding at Moncton. An eastbound was held at Newcastle. At one o'clock that dark morning the Canadian National mainline was pronounced clear as the last snow extra and its tired crew took a switch to a side siding. The crack trains could now move.

1937

May 5, 1937

SPRINGHILL JUNCTION

It was 5:30 in the afternoon, the first week of May 1937. Springhill Junction. At the Canadian National Railways station, CNR Mikado 3376 had pulled in, running as an extra east. In the yard it was busy switching cars of coal brought in from the nearby coal mine. The 3376, a 2-8-2 type built at Kingston in 1919. People standing on the platform were preoccupied staring down the track, for the Ocean Limited was running five minutes late today.

The train crew on the 3376, Conductor McKenna, Engineer Dave Murray were busy shunting and sorting coal cars in the small yard that they were to take east after the arrival of the Ocean Limited. They were in the process of shunting the last lot of cars into a siding while Brakeman Keddy held open the switch. A brakeman was not riding on this last cut of cars. In the past a dip in the tracks helped to stop the freight cars Brakemen Keddy looked and this day the cars had not stopped rolling and suddenly they started to pick up speed. Keddy raced after trying to jump onto the runaway cars. He couldn't make it. The cars were moving faster towards a split switch. The coal cars cut the switch and rolled out on to the CNR mainline and picked up speed as they started rolling faster. Engineer Murray saw the danger and attempted to run after the cars with the low drivered freight engine. He chased after them but the cars were rolling faster and he could not catch them. The cars were gone. Murray knew what was inevitable. Better to stop the chase and get out of the way, he returned to the station.

At the station agent S. A. McPherson was frantically telephoning the next station Athol, trying to stop the Ocean Limited. The fast express had already passed Athol. Trainmen and spectators standing on the Springhill platform and raced to their automobiles in an attempt to race to the ongoing express to flag down.

They lost their grim race with death. At a mile and a half from Springhill Junction the Ocean Limited was speeding at sixty miles per hour. The locomotive was pulling up hill and as it approached a curve Engineer Clarence Bauer looked up saw the approaching coal cars and yelled at his fireman Clarence Steeves, "Oh My God!" The next second the Ocean Limited stuck the runaway coal cars that were said to be travelling at the same speed of sixty miles per hour.

There was a terrible crash. The express, mail and baggage cars on the passenger telescoped, and the locomotive reared up hung for a moment in the air then toppled down the steep embankment. A muffled explosion. The locomotive boiler exploded. Wreckage was hurled over forty yards. The wooden baggage and express cars pitched down into the ditch immediately burst into flames. It was 5:45. In one of the express cars Camille LeBlanc was trapped. The passenger cars did not derail.

It was found that two young lads had jumped onto the grab-irons of one of the baggage cars to just take a joy ride. They were torn to pieces by the wreck.

It was found that Engineer Clarence Bauer, Express Messenger Camille LeBlanc and two lads, Alfred Legere and Ernest Long were killed, and nine others were injured.

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1943

December 22, 1943

Port Tupper, Nova Scotia

Five locomotives were wrecked, including three Mikado type s when fire destroyed the Canadian National roundhouse and the new bunk house at Port Tupper, Nova Scotia.

April 6, 1954

MONTMAGNY, QUEBEC

The early morning of April 6th, 1954 saw the Canadian National Railways crack "Ocean Limited" west-bound, flying across the Quebec landscape. It was early morning. The train pulled by a CNR Northern Type locomotive, consisted this day of six sleeping cars, four mail cars, and a baggage-express car. In the locomotive cab were Engineer, sixty year old J.D. Levesque of Riviere du Loup. On the other side of the cab was Fireman Gaudiose Thibault and brakeman G. E. Belanger. Thirty-five miles east of Levis is the town of Montmagny. A clear board, the Ocean Limited does stop here, it is 2:15 in the morning.

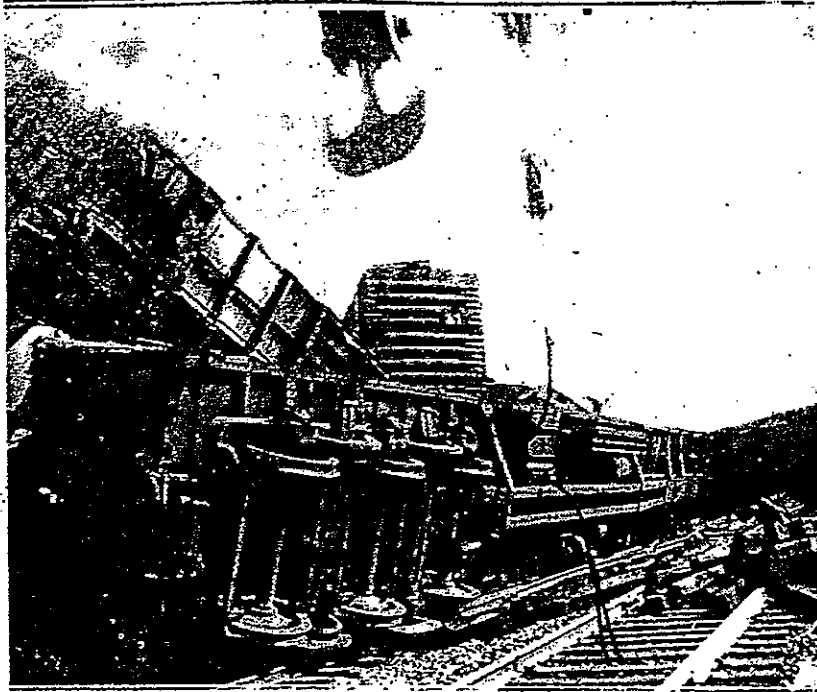
Unfortunately a switch on the mainline had been left open. The Ocean Limited shot through the switch, right in front of the station, and in just one moment smashed into a string of three standing boxcars in the siding. The locomotive smashed the freight cars into a shed where twenty boxes of dynamite were stored. Hot coals from the locomotive's firebox were thrown about the entire area.

In the passenger train there were very few injuries. The Montmagny fire department were soon on the scene and they were able to quickly extinguish the small fires and advert a further tragedy with the dynamite. The head end crew in the locomotive cab were all dead.

1954

L'ACTION CATHOLIQUE, QUEBEC, MERCREDI, 7 AVRIL 1954

Différentes scènes de la tragédie de Montmagny

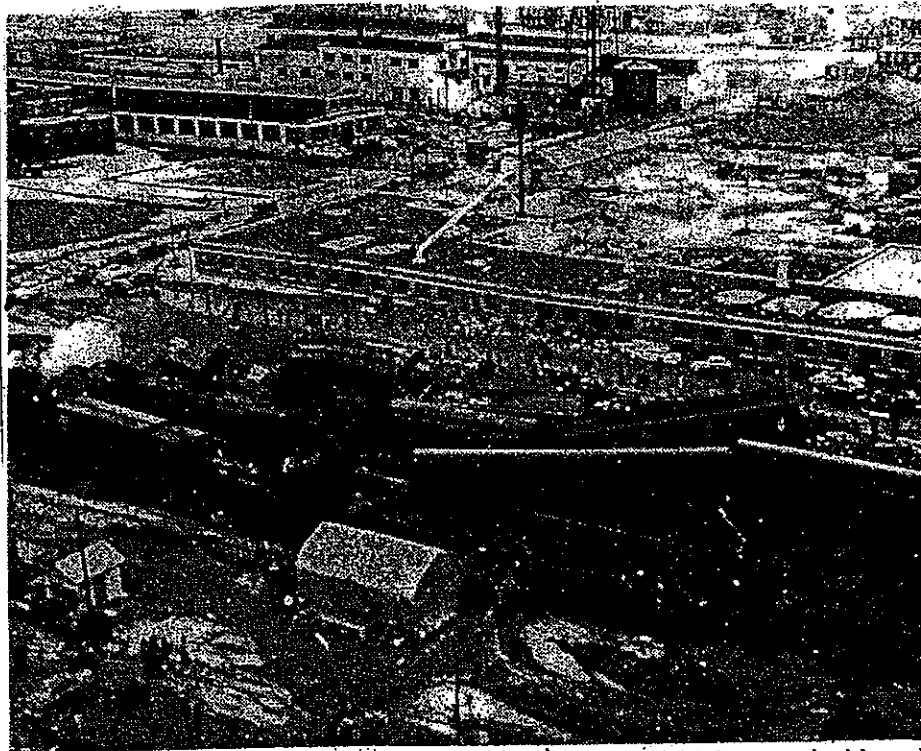


Trois employés du C.N.R. y trouvent la mort

(Photos L'Action Catholique, Roger Bédard.)

1954

Vue aérienne de l'accident ferroviaire de Montmagny



● Cette photo a été prise, hier après-midi, par le photographe de l'«Action Catholique», M. Roger Bédard, sur les lieux de l'accident de chemin de fer, survenu quelques heures auparavant à Montmagny, et au cours duquel trois personnes ont perdu la vie. Les victimes, comme on le sait, sont MM. Adélard Lévesque, de Rivière-du-Loup, mécanicien et ses compagnons, MM.

Gaudias Thibault, chauffeur, du même endroit et Georges-Etienne Bélanger, serre-frein, de St-Vallier, cité de Bellechasse, tous à l'emploi du C. N. R. La photo nous fait voir la position des wagons après qu'un train rapide venant de Halifax eut quitté soudainement la voie ferrée à Montmagny pour aller s'écraser contre trois wagons de fret stationnés à cet endroit. Sous le choc

qui fut d'une grande violence, la locomotive versa sur le côté, détruisant dans sa chute un long hangar de fret d'une centaine de pieds de longueur, tandis que les wagons s'empilaient les uns sur les autres comme on peut le constater. Une enquête se tient actuellement en marge de cette tragédie, sous la présidence du Dr Paul Dupuis, coroner du district. (Photo l'Action Catholique, Roger Bédard).

DERAILLEMENTS AND COLLISIONS

January 15, 1923	Middleton
April 9, 1923	Moncton
July 17, 1923	Malagash
July 23, 1923	Montmagny
January 2, 1924	Sackville
January 17, 1924	St Ramauld
June 13, 1924	Middle Sackville
July 18, 1924	St Quentin Subdivision M.P. 79.5
October 7, 1924	St Martins Subdivision M.P. 25.2
January 13, 1925	Belledune, New Brunswick
February 19, 1925	Sunny Brae Subdivision M.P. 12
April 3, 1925	Inverness Subdivision M.P. 5.2
May 1, 1925	Levis, Quebec
May 13, 1925	Springhill Subdivision M.P. 84
June 13, 1925	Pugwash Subdivision M.P. 3

January 31, 1927	Thompson
March 4, 1927	Dartmouth Subdivision M.P. 32.9
April 8, 1927	Nepisiquit Junction
July 29, 1927	Dartmouth Subdivision M.P. 13.15
October 14, 1927	Riviere du Loup
January 3, 1928	Bayfield Road, Nova Scotia
February 25, 1928	Montimore siding, New Brunswick
February 24, 1928	Lampedo, New Brunswick
July 25, 1928	Centreville subdivision, Nova Scotia
August 15, 1928	Limerick
September 11, 1928	Dunmore Siding
September 20, 1928	Bathurst, M.P. 162
December 7, 1928	Riviere du Loup
December 18, 1928	Dalhousie Junction
December 20. 1928	Halifax Ocean Terminals
December 24, 1928	Summit
January 23, 1929	Riviere du Loup
March 17, 1929	Millerville
April 22, 1929	Bathurst Subdivision, M.P. 174
May 3, 1929	Mont Joli
July 11, 1929	French Village Siding

April 22, 1930	Bathurst Subdivision
April 23, 1930	Bathurst Subdivision M.P. 92
April 23, 1930	Pugwash Subdivision M.P. 3.86
April 26, 1930	St Quentin Subdivision M.P. 23.7
May 12, 1930	Caraquet Subdivision M.P. 8
July 20, 1930	Canaan
August 20, 1930	Moncton
December 11, 1930	Bedford Subdivision
August 22, 1931	North Sydney
November 4, 1932	Oxford, Nova Scotia
January 29, 1933	Harcourt Subdivision
January 30, 1933	Montimer, New Brunswick
March 1, 1934	Caraquet Subdivision M.P. 3.9
March 11, 1934	Sydney Harbour
September 7, 1934	Truro
October 3, 1934	Riviere du Loup
December 4, 1934	Pirate Harbour

January 6, 1935	Napadogan, New Brunswick
May 17, 1935	Mulgave subdivision M.P. 95.5
December 25, 1935	Port Hood, Nova Scotia
December 25, 1935	Naswaak Subdivision, New Brunswick
January 1, 1936	St Quentin Subdivision M.P. 88.5
September 20, 1936	Moncton, West End Interlocking
April 8, 1937	Inverness Subdivision
May 5, 1937	Springhill Subdivision M.P. 62.1
May 21, 1937	Sunny Brae Subdivision
June 1, 1937	Lincoln, New Brunswick
January 1, 1938	Harbour au Bouche
August 17, 1938	La Durantaye, Quebec
April 22, 1939	Apohaqui, Sussex Subdivision M.P. 51.5
October 20, 1939	Matapedia Subdivision M.P. 15.95
December 9, 1939	St Rosalie Yard, Quebec

1945

March 20, 1945	Evans East, Springhill Subdivision M.P.91.8
March 21, 1945	Amagance, Sussex Subdivision
July 11, 1945	Moncton
July 18, 1945	Sydney Subdivision
October 22, 1945	Inverness Subdivision M.P. 26.
October 31, 1945	Campbell's , Mulgrave Subdivision

1946

January 18, 1946	North Branch, Chipman Subdivision
January 31, 1946	Sayabec
April 23, 1946	Halifax Ocean Terminals
May 30, 1946	Collett Siding, Harcourt Subdivision
September 15, 1946	Merigomish

1947

January 10, 1947	Caraquet Subdivision, M. P. 38.5
February 13, 1947	Bathhurst, M.P. 122.61
February 27, 1947	Odell, Grand Falls Subdivision
March 4, 1947	Rabbit, Centreville Subdivision M.P. 49.79
April 27, 1947	Sussex Subdivision, M.P. 58.6
May 30, 1947	St Jean Chrysotome, Quebec
July 24, 1947	St Eloi, Rimouski Subdivision
August 26, 1947	Matapedia Subdivision, M.P. 66.5

1948

March 17, 1948	Bridge Subdivision, Quebec
May 14, 1948	St Noel, Matapedia Subdivision M.P. 83.33
May 28, 1948	Cascapscal Subdivision, M.P. 8
June 9, 1948	Pointe a la Garde, Cascappedia Subdivision
July 6, 1948	St Quentin Subdivision M.P. 10
July 26, 1948	Barnaby River, Harcourt Subdivision 69.7
August 13, 1948	Mahone Bay, Chester Subdivision, M.P. 66.7
September 1, 1948	Borsdale, Sydney Subdivision
September 25, 1948	Maria, Cascapedia Subdivision
October 3, 1948	Sydney Yard
October 8, 1948	Mulgrave Subdivision
December 29, 1948	Casapschal Subdivision

1949

January 27, 1949	Luceville, Rimouski Subdivision
February 5, 1949	Chipman Subdivision M.P. 50
March 23, 1949	McLaughlin, Grand Falls Subdivision
May 6, 1949	Ste Helene, Montmagny Subdivision
September 13, 1949	Eel River, Bathurst Subdivision, M.P. 93.94
November 12, 1949	Plaster Rock

March 9, 1940	Mulgave Subdivision M.P. 87
June 7, 1940	Rimouski, Quebec
September 15, 1940	Sayabec, Matapedia Subdivision M.P. 75.86
November 14, 1940	Milford, Bedford Subdivision
December 3, 1940	Odlum Junction, Harcourt Subdivision
December 19, 1940	Marshy Hope

Some Features of the Intercolonial Railway of Canada

This Government owned utility fills a large place in the development of the Maritime Provinces, and at the present time is attracting considerable attention on account of the proposed increase in freight rates, and the reorganization being effected since the appointment of Mr. F. P. Gutelius to the management.

ON the Intercolonial Railway of Canada, there are now nearly 1,700 miles of road in operation of the standard 4 ft. 8½ inches gauge, with 397 locomotives, 447 passenger cars, 12,025 freight and miscellaneous cars, and 78 snow plows. The road traverses the most varied and inviting scenery.

Starting at Montreal, the Intercolonial crosses the Victoria Jubilee Bridge on the St. Lawrence, and takes the shortest route to Quebec which is full of historic interest. Passing along the southern shore of the St. Lawrence, the road makes its way among picturesque French-Canadian villages, after which the romantic and beautiful scenic wonders of the mountainous districts is passed until Dalhousie on Chaleur Bay is reached. Here the great moose hunting

ward Island railway, the main line continuing to the furthest point of Nova Scotia, at Sydney, which together with North Sydney, is rapidly becoming a great commercial centre. A separate branch runs south through the center of Nova Scotia to Halifax. The entire route from Montreal to Halifax or Sydney is of surpassing interest, and the road and equipment are among the best in North America.

The Moncton Shops.

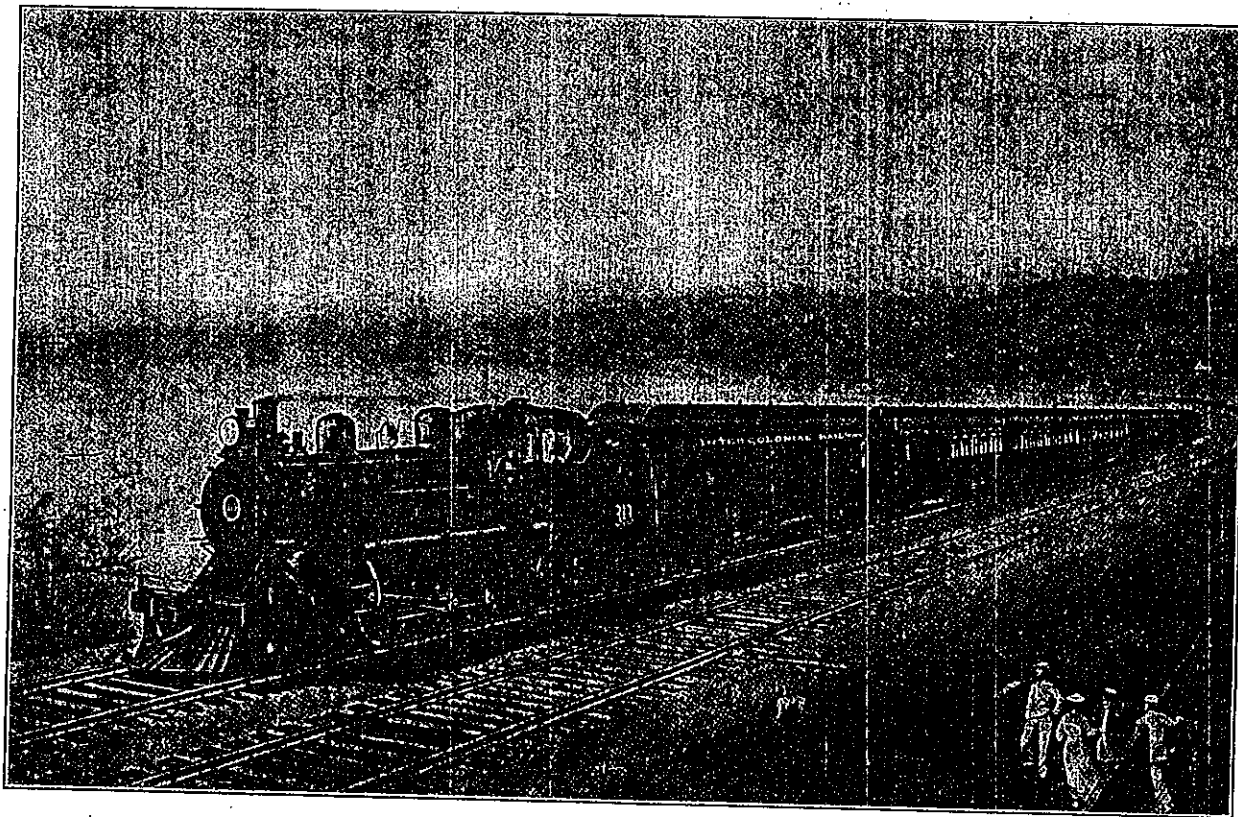
With regard to the principal repair shops which are located at Moncton, it will be recalled that they were completely destroyed by fire in 1906, and plans were immediately made for extensive works which now completed are among the largest and best equipped on the continent. The locomotive erecting shop,

pairing same. The machine shop proper is divided into two bays, each served by a 10-ton traveling electric crane. These serve every machine tool, thereby abolishing hand and air cranes and leaving the shop light and open.

The brass and tool room is situated on the north-west side of the machine shop, and compares favorably with the old shop, having 3,800 sq. ft. more floor. The brass foundry adjoins, and between the two are placed racks for storing the castings on their way to the brass room. In the tool room where small tools are stored is located a grinding department.

Passenger Car Shops.

The passenger car and paint shops comprise two buildings each 361 feet by 100 feet, and are built to handle 34 passenger cars; 22 was the capacity of those



THE OCEAN LIMITED, INTERCOLONIAL RAILWAY OF CANADA.

and big game territory begins. A string of thriving towns has recently sprung up all along the road through New Brunswick. At Moncton the strange tidal phenomenon known as the Bore is first seen, and forms a remarkable feature of this interesting country.

Near Moncton is Point du Chene where steamers connect with the Prince Ed-

375 feet by 80 feet, is itself more than twice as large as the old shops, and is arranged in departments each caring for certain similar parts of rolling stock. The machines are mostly motor driven. The pits are placed at an angle, or herring bone fashion to economize space. Two 60-ton electric cranes handle locomotives and all material needed in re-

shops destroyed by fire. Between the shops is placed a traveling table on which the cars are placed for transfer to or from either shop or to the yard. This out-door table is placed well above the ground, so as to be clear of snow.

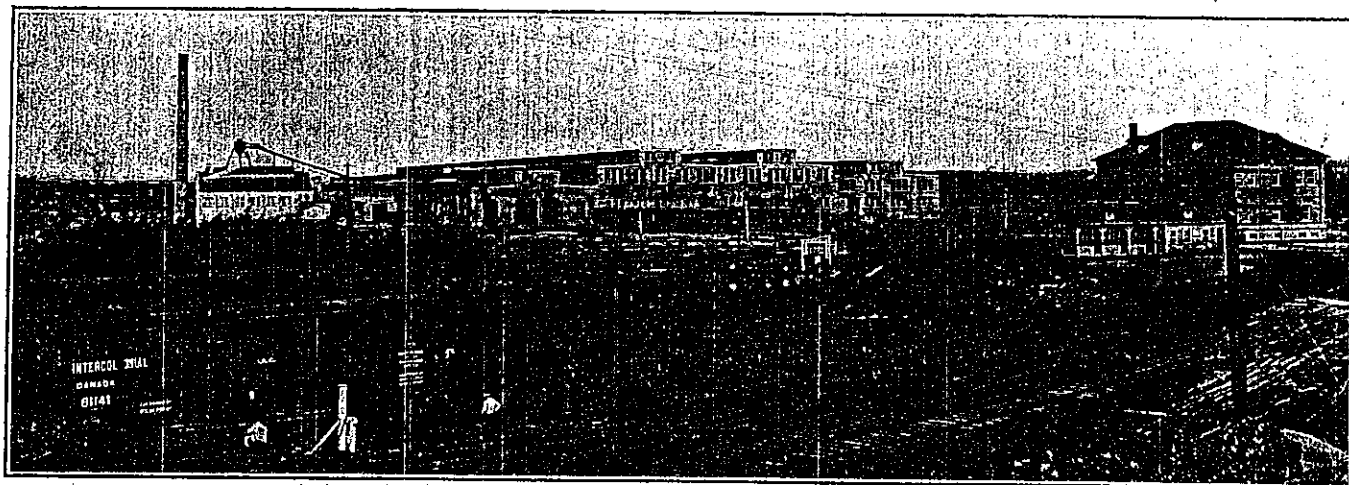
Car Repair Shop.

The freight car repair shop is arranged to accommodate 42 cars, and the ad-

provision being made for a third to be installed later if required. Most of the machine tools were furnished by John Bertram Sons & Co., Dundas, Ont., and Canada Machy. Corporation, Galt, Ont.

tion of a paint shop, 700 feet long, containing four tracks, to house the painting and finishing department. Among the other accessory buildings which go to make up the plant are the following:

pumps with remote control so that the operator can start and stop them from the power house without the necessity of going to the pump house except for occasional inspection.



GENERAL VIEW OF BUILDINGS, EASTERN CAR CO. PLANT.

Individual Motor Drives.

All machines so far as possible are individual motor driven, electricity being used wherever possible. Very few air hoists are employed, nearly all of the work being done by electric hoists. Three of the four spans are supplied with 10-ton traveling cranes, seven being pro-

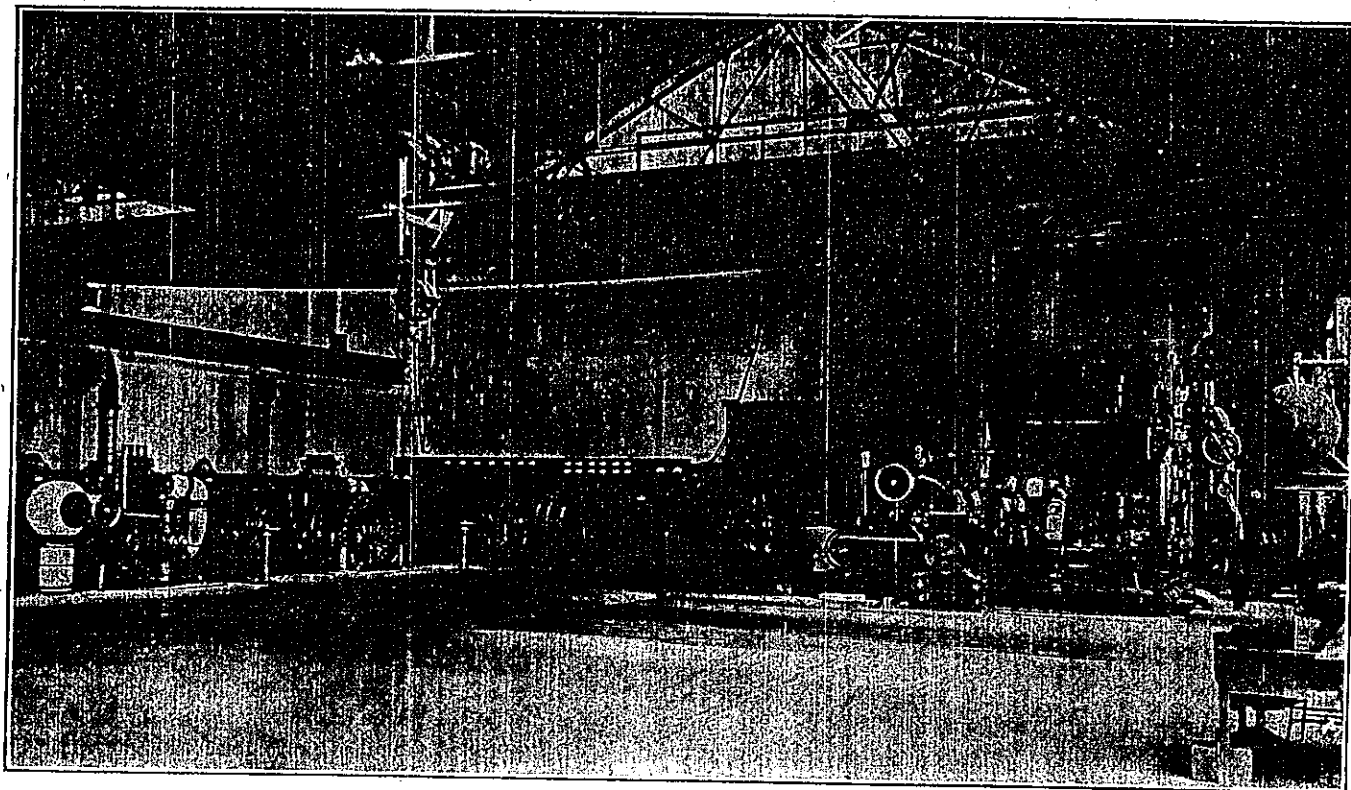
Power house, dry kiln, lumber storage, general storeroom and paint and oil storage, locomotive house, general office, etc.

Power Plant.

The power plant, a separate structure, is close to the west side of the main building, midway along its length, as

Boiler Installation.

The boiler room is laid out for five 600-h.p. Edge-Moor water-tube boilers, equipped with Green chain grate stokers, making a total of 3,000 h.p. at normal rating. The boilers are guaranteed for a continuous overload of 50 per cent. Three of these boilers have been install-



POWER HOUSE, EASTERN CAR CO. PLANT, SHOWING HYDRAULIC EQUIPMENT TO THE RIGHT.

vided for the three spans. There are two in the wooden car shop, three in the steel car shop and two in the truck and forge shop. These cranes travel the entire length of the building.

Provision has been made for the area

central as possible without being too far from the supply of condensing water. The condensing water is taken from the East River, 1,000 ft. away. A pump house is built on the shore of this river, containing three electrically driven

ed and are now in service. Overhead steel bunkers lined with concrete are provided for coal storage and a continuous conveyer handles the coal from the track hopper to the bins. Automatic

joining planing mill is 203 feet by 82 feet. Only heavy lumber for freight and passenger cars is handled here. All of the new machines and also quite a number of the old machines are driven by separate motors; some of the related machines are grouped.

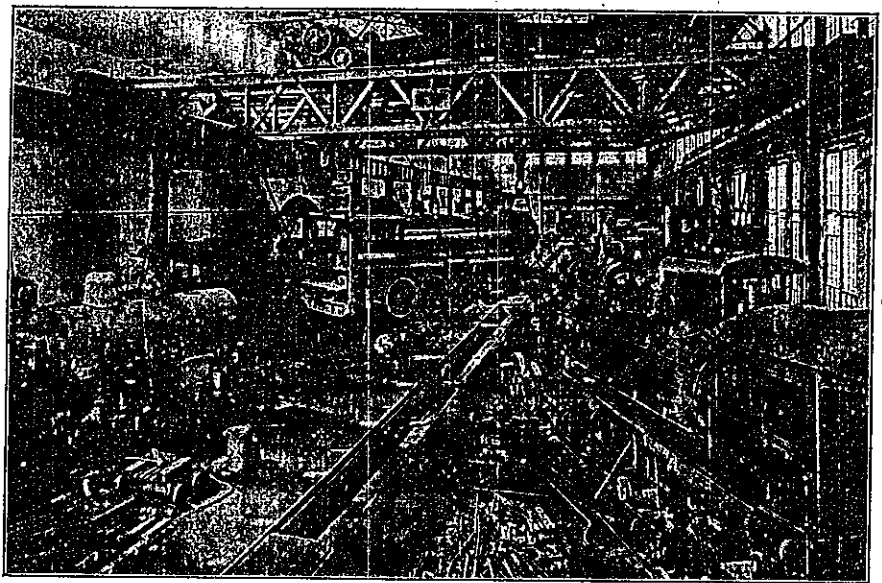
The power-house, 203 feet by 62 feet, is divided into two parts, and in one is placed three boilers of 500 horse power each, and two fans for supplying heated air to the blacksmith and freight car repair shops. In the other part of the power house, two 500 horse power tandem gas engines direct connected with 300 kilowatt generators supply power to the shops. An air compressor of 2,000 cubic feet per minute capacity supplies air for all pneumatic purposes.

The Boiler Shop.

The boiler shop, 225 feet by 100 feet, is equipped with a 35-ton travelling electric crane, and a full complement of the latest machinery. A 10-ton crane is also in operation on one side of the shop. The smith shop, 375 feet by 75 feet, is equipped with furnaces operated by natural gas and arranged in pairs, and 5 large single forges. A number of steam hammers are in oper-

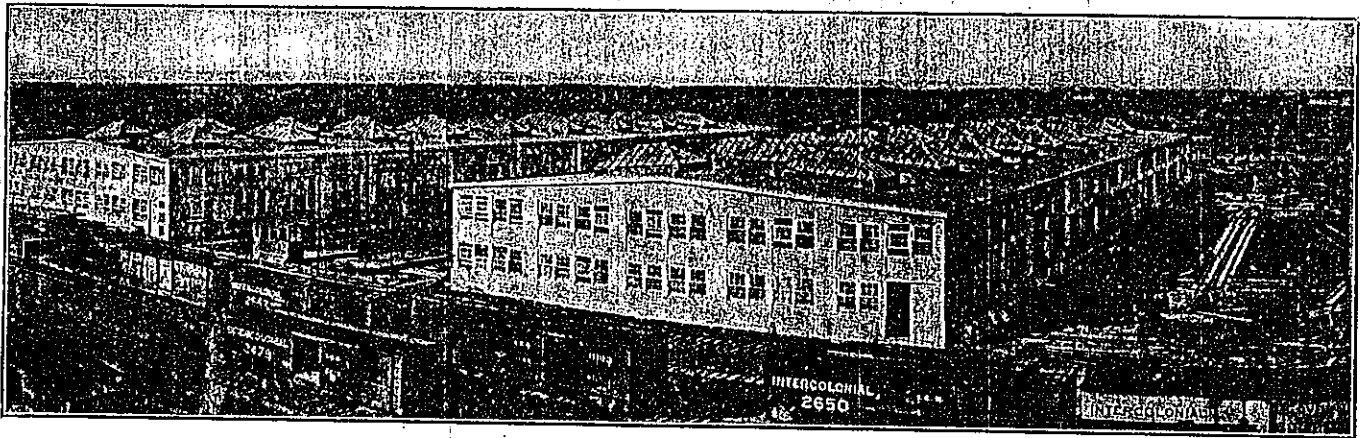
The locomotive shops comprise the machine shop and annex, boiler shop, boiler erecting shop, engine erecting shop, and

ment of the pits. The main pit runs almost the entire length of the shop, while the track is continued across the machine



TWO 60-TON OVERHEAD ELECTRIC TRAVELLERS LIFTING A 120-TON LOCOMOTIVE, L.C.M. SHOPS, MONCTON, N.B.

smith shop, all under one roof. The four latter shops are parallel to the main and passenger car shops into the paint shop, where locomotives may be painted



CAR SHOPS AT MONCTON, N.B., INTERCOLONIAL RAILWAY OF CANADA.

ation. The smoke is carried out beneath the floor by the down draft system, leaving the shop entirely clear.

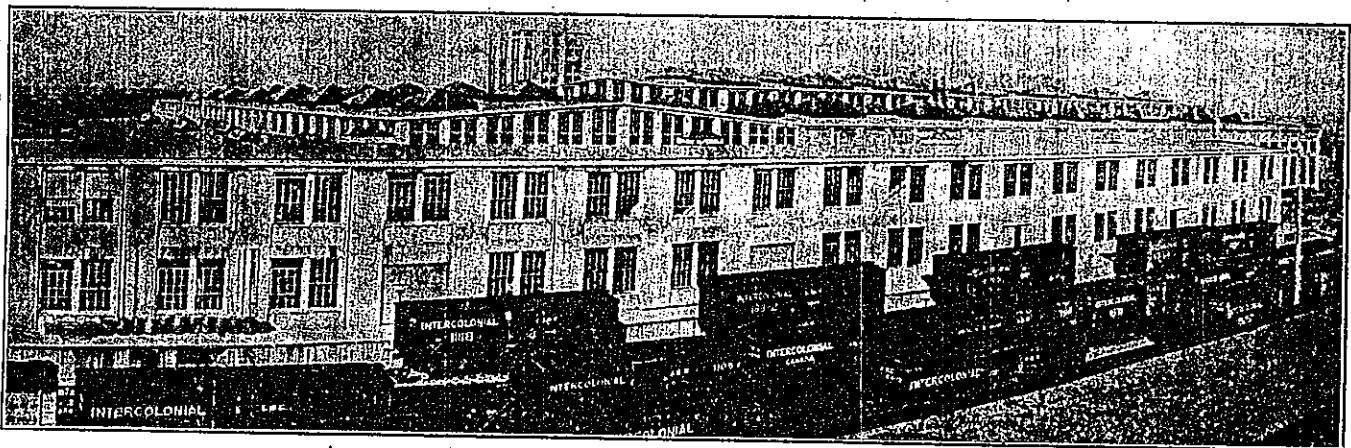
The planing mill is situated convenient to the passenger car and freight car shop.

line, but at right angles to the machine shop.

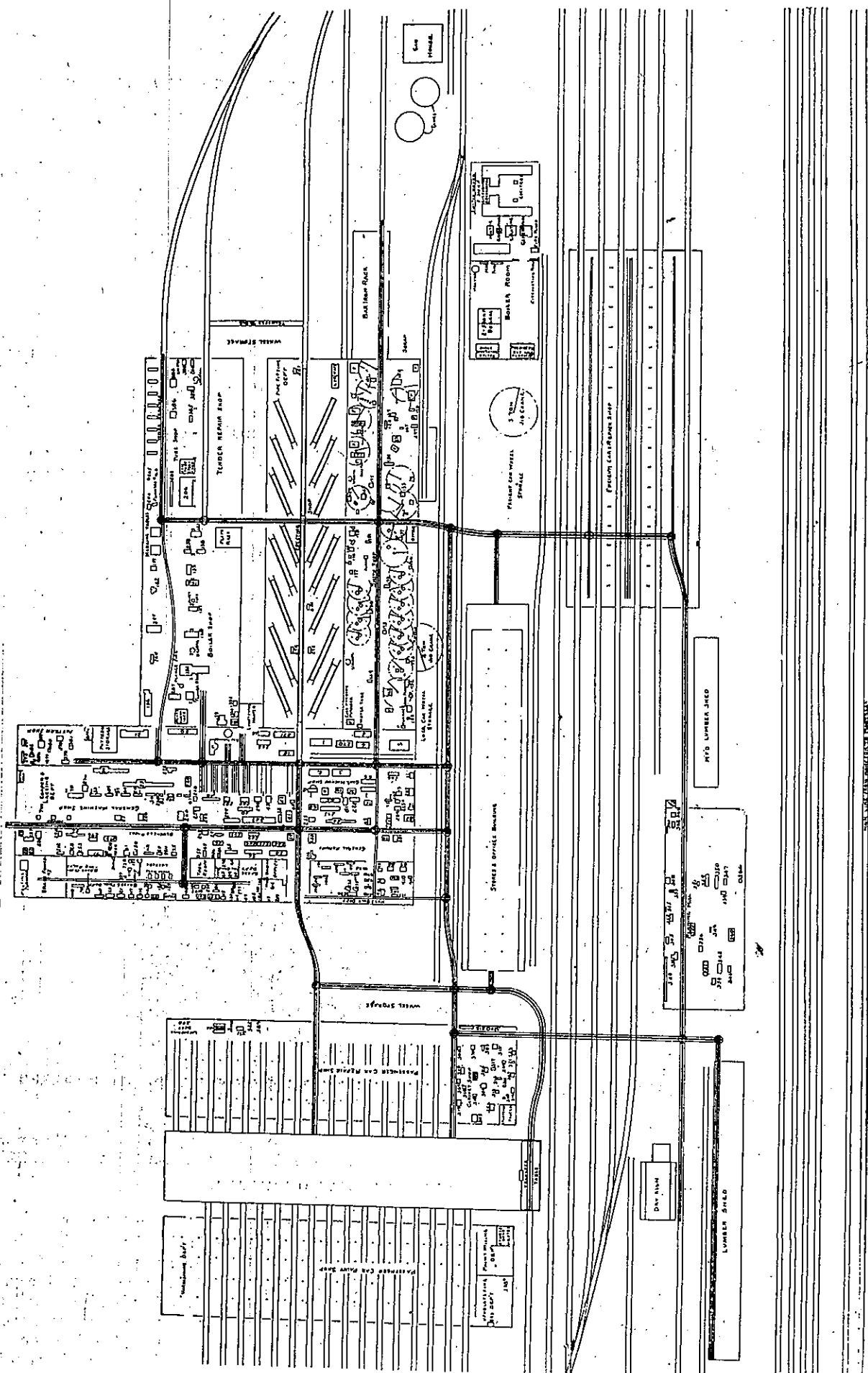
Locomotive Pits.

A notable feature in connection with the engine erecting shop is the arrange-

ment should the erecting shop be crowded. The side pits are all laid at an oblique angle to the main pit, and this arrangement provides greater facilities for stripping and repairing engines.



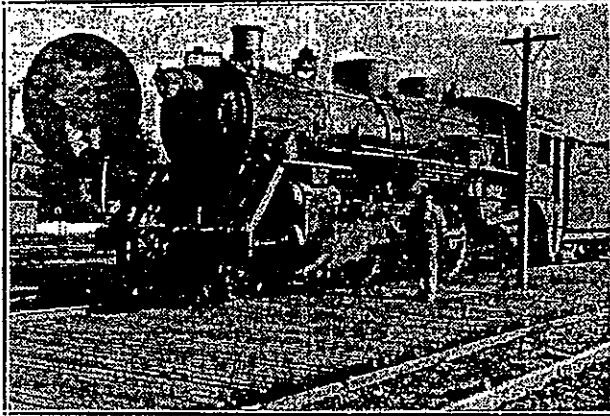
LOCOMOTIVE SHOPS, MONCTON, N.B., THE INTERCOLONIAL RAILWAY OF CANADA.



THE HALIFAX HERALD

October 9 1926

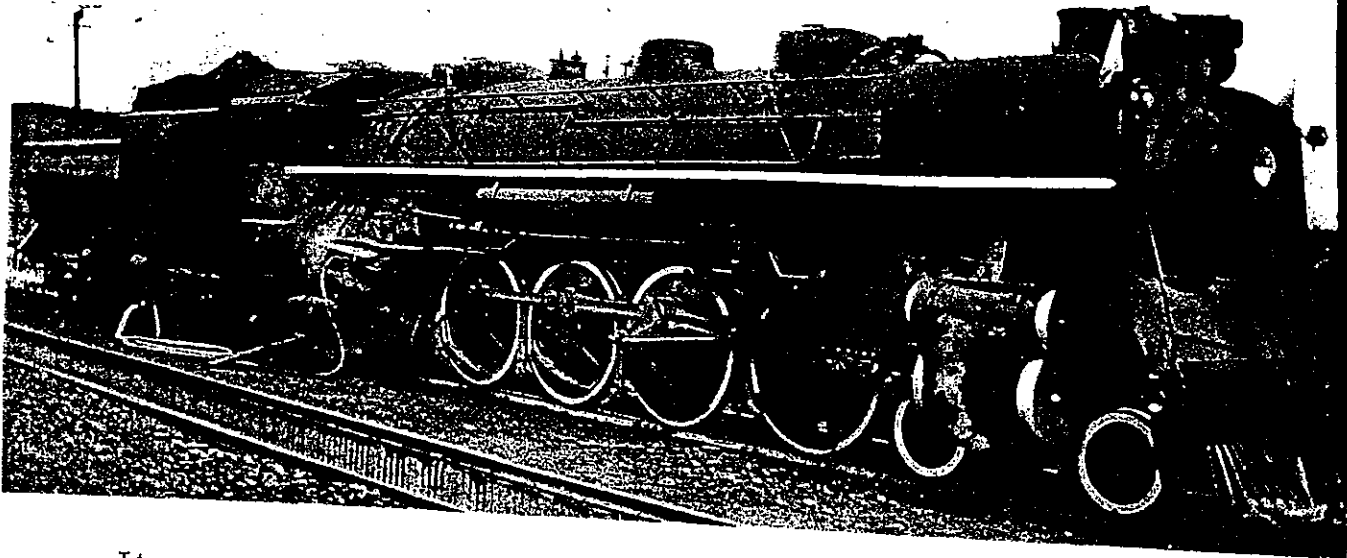
A Retired Veteran



THOMAS MCCOLLUM, Truro, on the 30th of September last, retired from the service of the C.N.R. (engine service) owing to ill health, reference to which has already appeared in The Halifax Herald. Mr. McCollum was born on the old homestead farm, North River, Colchester, in 1864, and joined the service of the I.C.R. in 1889 as an engine wiper in Truro roundhouse. Three months after he was promoted to fireman, and in 1900 was made an engineer. He was very successful, never having been in any bad accidents. He is a prominent member of the Brotherhood of Locomotive Engineers, being a member of Granite Rock Division Lodge of his home town, and in addition is a highly respected citizen of the "Hub." His friends—and they are legion—express the fervent wish that he may be long spared to enjoy his well earned rest.

The other picture is from a snap of Mr. McCollum, taken two years ago by Earl Hennessey, while he was preparing his locomotive at the South Terminal, Halifax, to go out on his regular run.

Wreck of 6167



It was on a bright and clear day, at 3:18 p.m., July 6th, 1943 that a violent head-on collision occurred between C.N.R. engines 6166 and 6167, resulting in a million dollar wreck. by G.W. Horne

The "Ocean Limited", train no. 1, from Halifax to Montreal with 15 cars, was operating late while fourth class eastward freight train no. 702, engine 6167 handling 41 loads and a caboose, 3284 tons, had left St. Charles, Quebec, its engineer under the impression that no. 1 was on time and had passed that point.

Both trains were operating at high speed and approached each other east of Montmagny on a tangent track which stretched five miles to the east and two miles to the west of the station. Engineer J.H. Blier on no. 1 having seen the opposing train, had applied his brakes, and his train was almost stopped at the moment of impact. The brakes on no. 702 had not been applied until moments before the impact and was still travelling very fast. Engineer J. Lavasseur's story was never heard, as he died in the cab of engine 6167. The collision occurred on a river bridge a half a mile east of Montmagny station. All wheels on both engines and tenders were derailed, while the tender of engine 6166 was resting at an angle against the girders of the bridge. Estimated damage to engine 6166 was \$35,000 and to engine 6167 \$40,000.

Other damaged equipment included express refrigerator car 10010, loaded with fresh fish, which was demolished, while baggage car 8778 was badly damaged and lay across the tracks at right angles. The other 13 cars on no. 1 remained on the tracks. On no. 702's train there were six cars of merchandise and 14 cars of coal derailed on both sides of the track, jammed into a 200-foot long area between the bridge and a nearby road crossing.

In addition to the death of 6167's engineer, other injured employees were no. 1's engineer, both firemen, one baggageman, four Royal Mail clerks, one express messenger and the dining car steward. However, there were forty-five passengers on no. 1 who reported receiving only minor injuries. The multi-span bridge over the river at mile 77.5 on the Montmagny Subdivision was extensively damaged. After the auxiliaries from Joffre and Riviere du Loup had rerailed the locomotives by about midnight on July 7th, it took an additional 16 hours to make temporary repairs to bridge spans 4, 5, 6 and 7 before traffic was again permitted to cross the river.

Had it not been for the critical shortage of locomotives during the war years it is likely that 6167 might have been scrapped at that time instead of being repaired and returned to service.

PHOTO: 6167 at Truro, N.S. during wartime.

Photo by J.A. Brown

THE HALIFAX HERALD
September 22 1928

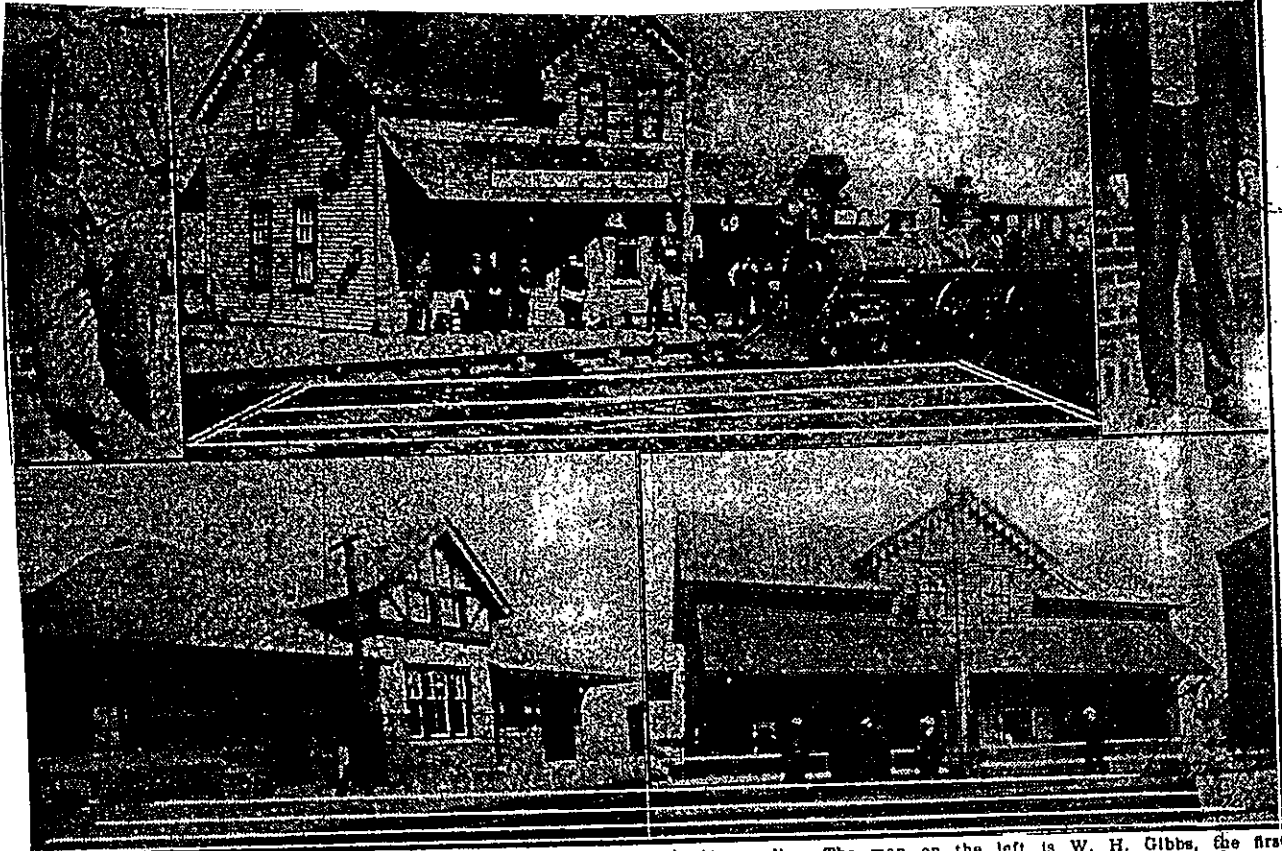
Rail History In Pictures



THE top picture shows the result of a collision at Grover's Siding, near Windsor Junction in 1903, and the lower picture shows another view of the same disaster, in which four railway men lost their lives.

THE HALIFAX HERALD

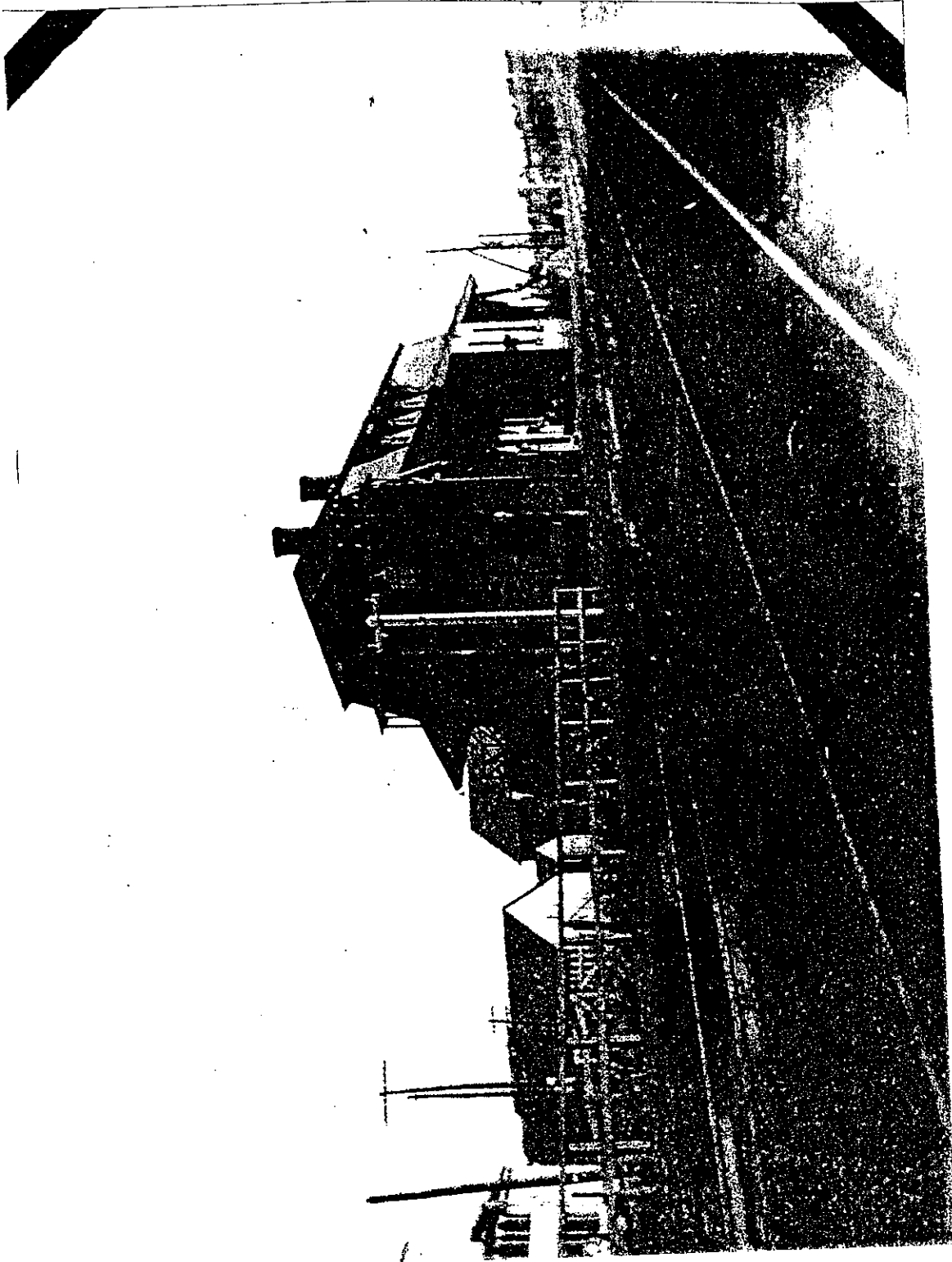
September 22 1928



The picture in the upper centre shows the first railroad station in Shubenacadie. The man on the left is W. H. Gibbs, the first station-master, and others are George Forbes, R. M. Halesworth, William Kelly and Shaw Smith. The engine is No. 8, with Conductor James Miller, and the first freight landed at Shubenacadie was in 1858, when a puncheon of coal was shipped to Thomas Mackenzie, blacksmith.

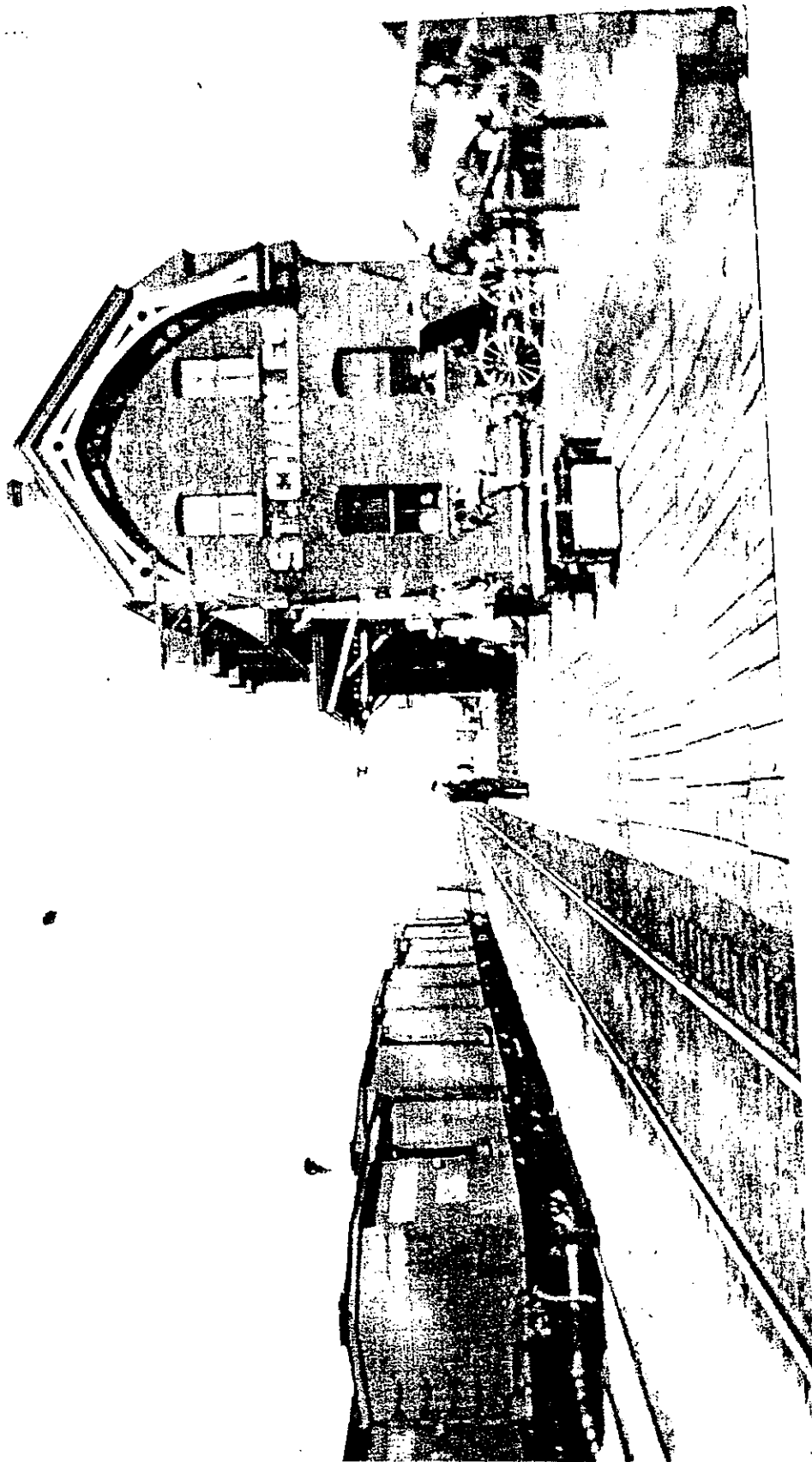
On the left, at top, is Howard Patton, present station-master, and on the right is Harry Burgess, who, on Thursday, completed thirty-five years' continuous service without losing a day from accident or illness.

On the right, below is the old station, built in 1875, and on the left is the new station of brick and stucco, almost ready for occupancy.



BIC-

'FONDS REAL GOSSELIN'
, CARSTEN



Real Gosselin
Carotte

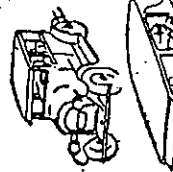
THE first bridge across the Narrows, which collapsed in 1891. From photo loan by A. H. McCaughlin, 188 Oxford Street Halifax formerly of Dartmouth.

Company, of the iron superstructure in Dartmouth, with passenger-senders or freight. There was no plan and other superstructure. connection with the Windsor and This plan had been adopted. because the engineers, it is said, had can Waddei, of Dartmouth, of the Annanols Railway at that time.

THIS bridge, with the exception of the "draw" and one or two other portions, was swept away during a terrible wind and rain storm on the night of 7th September, 1831. It had been erected upon cribwork piers filled with stone pier on which the iron draw was swung. The pier was a solid piece of work erected in water 40 feet deep. On 6th January, 1836, the branch was opened for business. A train left every morning for Richmond and connected with the Intercolonial Railway. Another returned to the engine to the

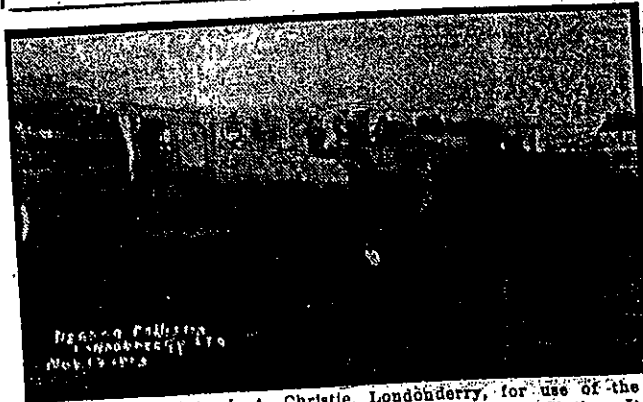
1. The first part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$. It is shown that the solutions of the system (1) are bounded and tend to zero as $t \rightarrow \infty$ if the matrix A is stable. The second part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$ if the matrix A is not stable. It is shown that the solutions of the system (1) are unbounded and tend to infinity as $t \rightarrow \infty$ if the matrix A is not stable.

MAY 29 1926



THE HALIFAX HERALD
October 26 1929

An Old Time Head On



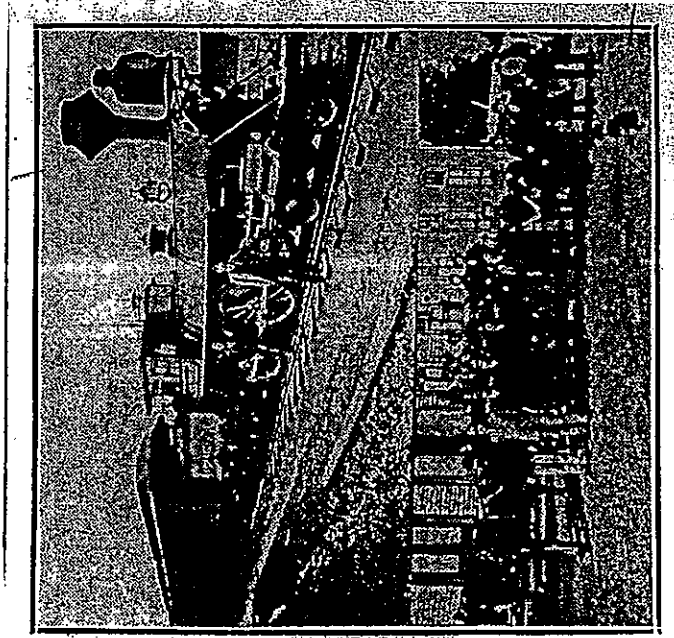
I AM indebted to J. A. Christie, Londonderry, for use of the picture of this head on collision at Londonderry Station. It occurred sixteen years ago, when the road was known as the I. C. R. Indications are that the locomotives were not badly damaged, but there appears to be some pretty badly wrecked cars at the rear of the locomotive to the right. I do not remember that any person was hurt in it. It was between two freights. I would appreciate it if some reader would give me some particulars of this affair. The picture is certainly striking.—
LINKS AND PINS.

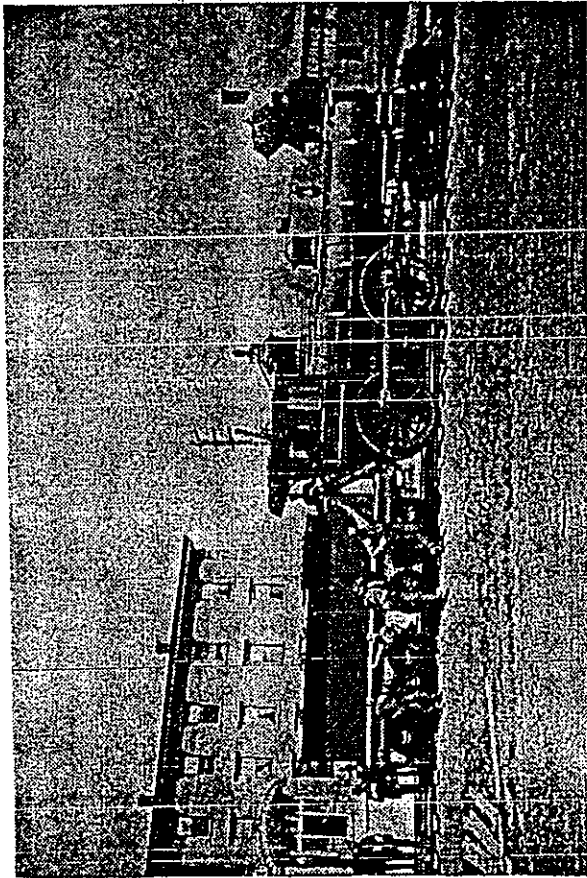
THE HALIFAX HERALD

October 8 1926

IN the upper picture is the first engine to run on the Eastern Extension and was taken in 1882. The men in the picture reading from left to right are John K. Stewart of New Glasgow at that time rear brakeman on the train and now retired and residing in New Glasgow; Alexander MacLaughlin, brakeman, now retired and living in Providence but who at the present time is enjoying a visit to his native county; Alexander Dunbar, engineer, who is now living at Mulgrave and is still in service and holds the record for being the oldest active engineer in this Division if not in Canada, having seen nearly fifty years of active service as an engineer; George Dunbar, still living on the Old Homestead at Abercrombie, Pictou County, and Robert Muirhead, deceased.

This photo turned up after being lost for some 30 years.





LOCOMOTIVE OF YESTERYEAR—This photograph of Intercolonial Railway locomotive No. 4, taken at Amherst, N.S., was submitted by J. H. Cutten of Parrsboro, N.S. Built by the Dubs Locomotive Works in Glasgow, Scotland, in June 1882, the locomotive weighed $43\frac{1}{2}$ tons and had 62" drivers with tender capacity of 2,000 gallons of water. It was renumbered 1052 and classed D-5 in 1912. These old locomotives did particularly good work and were famous in their day. The diamond smokestack was later changed to the straight type and after going through various vicissitudes the old locomotive was finally scrapped.

CANADIAN NATIONAL MAGAZINE
JUNE 1950

THE HALIFAX HERALD
JANUARY 21, 1928

Holby
Vart

A BAD SMASH



THIS graphic picture is of a wreck which occurred at Lakeview, between Bedford and Windsor Junction, twenty-six years ago. Norman Purcell, the fireman, was severely injured, but there were no casualties.

HALIFAX

November 3 1904

Is I. C. R. Locomotive No. 239 Hoodooed?

Nov 3
1904

**THREE OF HER FORMER ENGIN-
EERS ARE DEAD, AND A
FOURTH IS DYING FROM
INJURIES RECEIVED
IN COLLISION
TUESDAY.**

Is I. C. R. locomotive 239 "hoodooed?" is a question that is being asked in railway circles. Three of her former engineers are in the grave—Samuel Tiller and William Wall, and one killed north of Moncton—the result of accidents that have befallen her during her unlucky career, extending over a period of a little over two years, and her latest victim, Engineer James McAuley, is lying at the point of death while Fireman W. C. Lawrence is seriously injured, as the result of an accident that occurred at Oxford Junction yesterday, in which the locomotive was prominent.

Yesterday morning, at 10.30, the Montreal and Boston express was pulled out of Truro station by the locomotive in question, with Engineer McAuley and Fireman Lawrence in charge. All went well until Oxford Junction was reached. The train went thundering down the hill into the junction at schedule speed, but just as the yard was being entered

Engineer McAuley Was Horrified

when he noticed that a switch only a few yards distant was open. He did not lose his presence of mind, but immediately applied the emergency brake power, which resulted in checking the speed, but not to any appreciable extent, before his engine had crashed into the locomotive of a special that was doing some shunting on No. 3 siding. In the meantime the fireman had jumped, but before the engineer could do likewise he was caught between the engine and tender and pinned fast. Willing hands quickly went to his assistance, and after a time succeeded in getting him out, when it was found that both legs were not only badly broken, but that they were also fearfully scalded. The fireman in jumping sustained serious injury to the lower back part

of one of his legs. Engineer McAuley is badly injured, and even if he does survive it is feared he will lose the greater portion of both legs.

The crew of the train that were doing special shunting on the siding say the express was several minutes ahead of time. Had it not been for that they say the points would have been in proper position when the express arrived. When one of the brakemen of the special heard the express coming down the hill

He Started at Top Speed

for the switch to close it, but the on-coming train beat him out by several seconds. However, that matter will no doubt come out in the official investigation.

Engineer McAuley had a narrow escape for his life several years ago while running the same train. It was one night during a severe gale and thunder storm. The gale carried a box car down onto the points from a siding in the north end of Truro yard. Just at that moment the express came speeding along and crashed into the car, with the result that the car was

Smashed Into Kindling Wood,

while the locomotive and every car of the express were derailed. The locomotive was thrown on its side and badly broken up. Engineer McAuley was with great difficulty extricated from among the twisted iron, taken out of a fourteen inch space.

It is estimated that locomotive 239 has figured in accidents that total up a death roll of twelve—seven at Belmont, one north of Moncton, and four at Windsor Junction. After the Windsor Junction accident she was rebuilt, and has only been out of the shops a few days.

Engineer McAuley is married, and makes his home in Moncton. He is a native of Mount Thom, Pictou county, and is a brother of Henry McAuley, I. C. R. locomotive engineer, Truro. He is a man of splendid character, a firstclass official, and highly esteemed by all who know him.

LATER—A despatch received today stated that both of McAuley's legs had been amputated above the knees.

"THE OLD HOO-DOO 239"

SHE AND HER SISTER 237 MADE "BELMONT" "WINDSOR JUNCTION" "GRAND LAKE"
 "OXFORD JUNCTION" "MILFORD" AND "BROOKFIELD" HOUSEHOLD BY WORDS
 THROUGHOUT THE EAST

Early in 1902 the old Intercolonial Railway, of ever pious and immortal memory, took delivery of six of an order of seven handsome high wheel Dickson passenger engines to be used chiefly for hauling the Maritime Express, CPR Express, Midnight Express and lesser trains on the old main line between Halifax and St. John.

Their road numbers ran from 234 to 239 inclusive, and they were all ten wheelers with 20 x 26 simple cylinders and 72 inch drivers.

As readers of this journal will readily understand, although built from identical blueprints and to identical specifications, no two were exactly alike in all particulars and characteristics, and the seventh (No. 233 delivered in the fall of 1901) was something of a curiosity, being equipped with the new Cleveland cylinder, invention of a Moncton machinist, which was then being tried out on various forms of ICR power. It was supposed to be an improvement on the compound principle, which in 1902 was still the popular fad of American and Canadian lines.

"BELMONT"

The 239 had been in service only a few months when on December 5, 1902, while hauling No. 25 Westbound CPR express at high speed, she jumped the track at Belmont, seven miles west of Truro, crashing into and partially destroying the station house, and killing her veteran engineer, Sam Trider, and four others.

Mr. Trider, widely known as a pioneer from the old original Nova Scotia Railway, was especially noted for the daring rescue of his fireman, trapped under water in the cab, when their engine went through the ice of Palmer's Pond near Dorchester some five years earlier.

In those days, when the automobile was making its first feeble advent in the Maritimes, and the public was entirely dependent upon steam railways for transportation, a wreck of this kind caused tremendous interest and excitement, not only because of the public safety element involved but because of the political hay that could be made by politicians and partisan newspapers vitally engrossed in panning or defending a government owned and operated road.

It was an era of disastrous rail wrecks in which scores, occasionally hundreds, perished in burning wooden passenger coaches, and such events were always publicized and editorialized on at great length in American and Canadian journals. No one in 1902 could possibly visualize a time when the killing of half a dozen people in a routine auto collision would merit only two or three inches or less on a back page, or the immolation of 50 to a hundred or more people in one of our modern flying incinerators would be only a one day ho-hum story.

In this case a spirited debate ensued as to cause of the wreck. Some critics maintained the 239's pilot had been insecurely bolted in place and had dropped down and tripped the engine wheels. Among practical railroaders, however, was believed that a freight engine which was known to have stood on the main line near the station several hours earlier in the day had leaked water which froze in a mass just high enough to trip pilot and leading truck off the rails.

"WINDSOR JUNCTION"

The excitement over Belmont had hardly subsided and the 239 was barely out of the shop again, when she figured in one of the most spectacular spills in the history of the old ICR.

On the night of April 11, 1903, westbound freight No. 75 left Halifax for Moncton and proceeded north with 87 cars and an order to cross eastbound No. 26 CPR express at Windsor Junction. The 239 at this time was still replacing its old 1873 - 1901 motive power (mostly eight wheelers, moguls, the like) with what were then called the "big gines," meaning consolidations and large ten-wheelers.

New consolidation 277 was hauling this freight, which was not as heavy a jag as might be supposed from its length, because 77 of the cars were old-fashioned four wheel wooden hoppers going back empty to the Pictou and Cumberland fields for refills. There was no air on the hoppers.

What ensued had all the elements of an old railroad movie, except the happy ending: As the long train rattled through Windsor Junction yard it did not slacken speed, and Conductor Harry Hansen sensed that Engineer Nelse Copeland did not intend to stop - perhaps had forgotten all about crossing on 26.

Owing to the length of the train the usual coupling cord had not been strung between the engine and van, and the presence of so many empty coal cars made a hasty dash over the top of the train from van to engine impracticable.

With great presence of mind, Haines ordered rear brakeman, Murdock MacDonald, to drop alongside the Dartmouth branch engine, which happened to be standing in the yard, and get the engine to blow the whistle to attract Copeland's attention. He was then to run to over the Junction station and get the operator to try to hold 26 at Wellington, the only telegraph station left between the trains.

The branch engineer whistled loud and long. Copeland and his fireman paid no attention, the doomed fast freight rolled on into Intercolonial history and folklore. At the station, the operator told MacDonald that there was no night messenger at Wellington, but there was a possibility that an agent might still be on the premises and hear an answer to a call, so he continued to pound out " "

26, hold 26!" until it became evident that the CPR had long gone by.

FLAGGING THE FLYER "

This frantic alert of course could be heard by every office on the wire, and in Truro (then division HQ), Chief Despatcher G.M. Jarvis, knowing what was about to happen, ordered out the wreckers from Halifax and Truro without waiting for orders from the superintendent.

All this time the eastbound CPR (behind time) hauled by 239 with veteran engineer Bill Wall at the throttle, and followed quite closely by the eastbound Sydney Flyer (No. 86) pushed on for Halifax.

The trains met on a very narrow strip of land between a lake and a lake pond, near Groves siding, about 2.5 miles west of Windsor Junction, and the resulting crash which was heard in Bedford ten miles away, buried the 239 under a pile of freight cars, threw her tender and the mail car into Long Lake, blocked the whole right of way, and extended some distance into the water on either side of the track.

(Brake man Stanley Spain ran back and flagged the Flyer in the nick of time, or she would have added her quota to the list of casualties and the mountain of wreckage.

Engineer Wall, also a veteran of the old NSR and chief organizer of the Brotherhood of Locomotive

Engineers in the parlous Sir Charles Tupper days, and four others were killed, and many other railroaders and passengers more or less injured, including Copeland who was the sole survivor of the two engine crews.

There were two Halifax doctors among the passengers on 26, and they patched up the wounded as best they could. They had their instruments with them, but had to sterilize them by boiling them in brass spittoons from the smoking cars. To add to the difficulties of the rescuers, there was a car of molasses directly behind 277, and many of the casks burst, enveloping the wreckage in a mess of sticky goo. Eventually it was necessary to bring boats to evacuate the killed, wounded and unhurt from the trains to the lake shore.

(There were also a car of whiskey and a car of coconuts near the freight engine, and an old timer who remembers the occasion well, says that for weeks afterward practically every farm for miles around boasted a few gallons of molasses, a jug or two of whiskey and a potato bag of coconuts.)

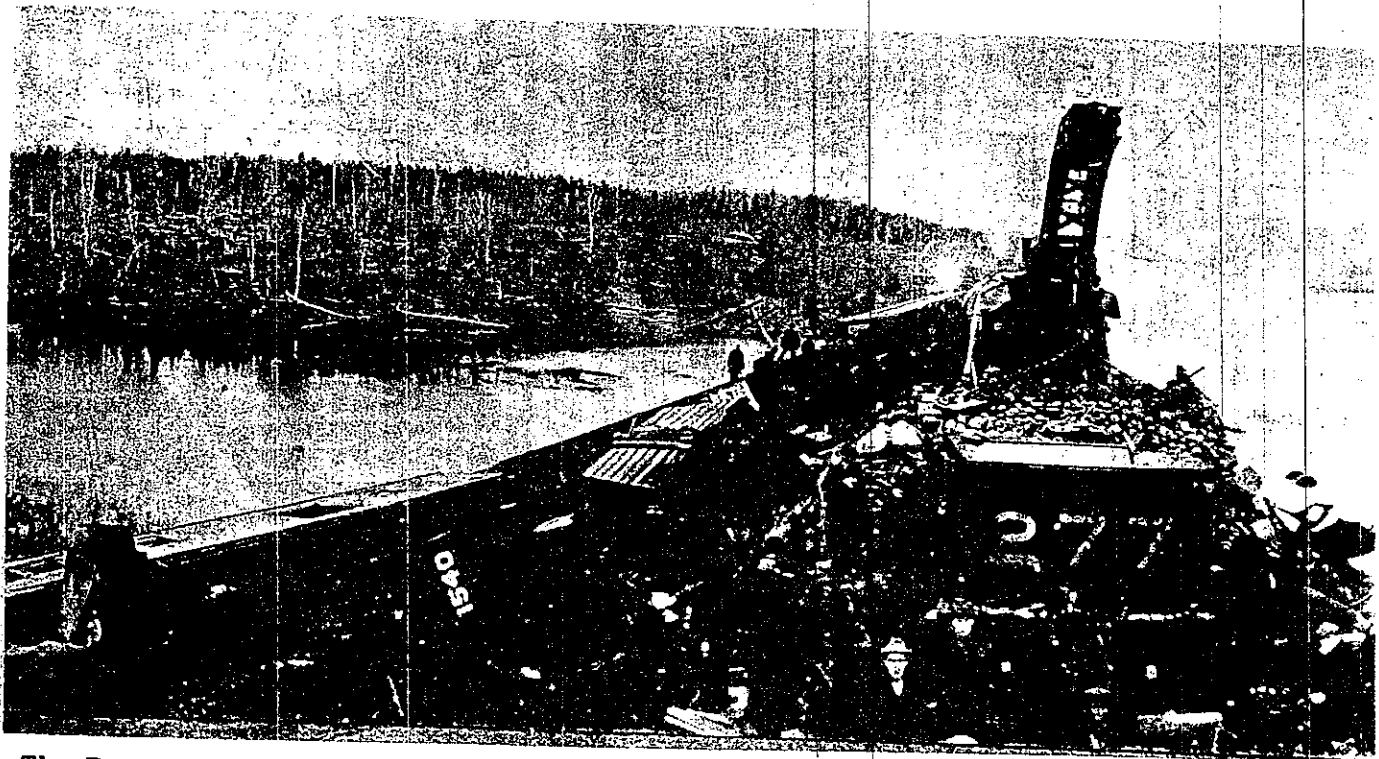
There had been many previous bad wrecks in and around Windsor Junction, but coming on the heels of Belmont, this one blew the lid off. The Halifax Herald -- less fearful of libel then than now -- charged bluntly that booze was the underlying cause. Other newspaper took up the cry and fulminated



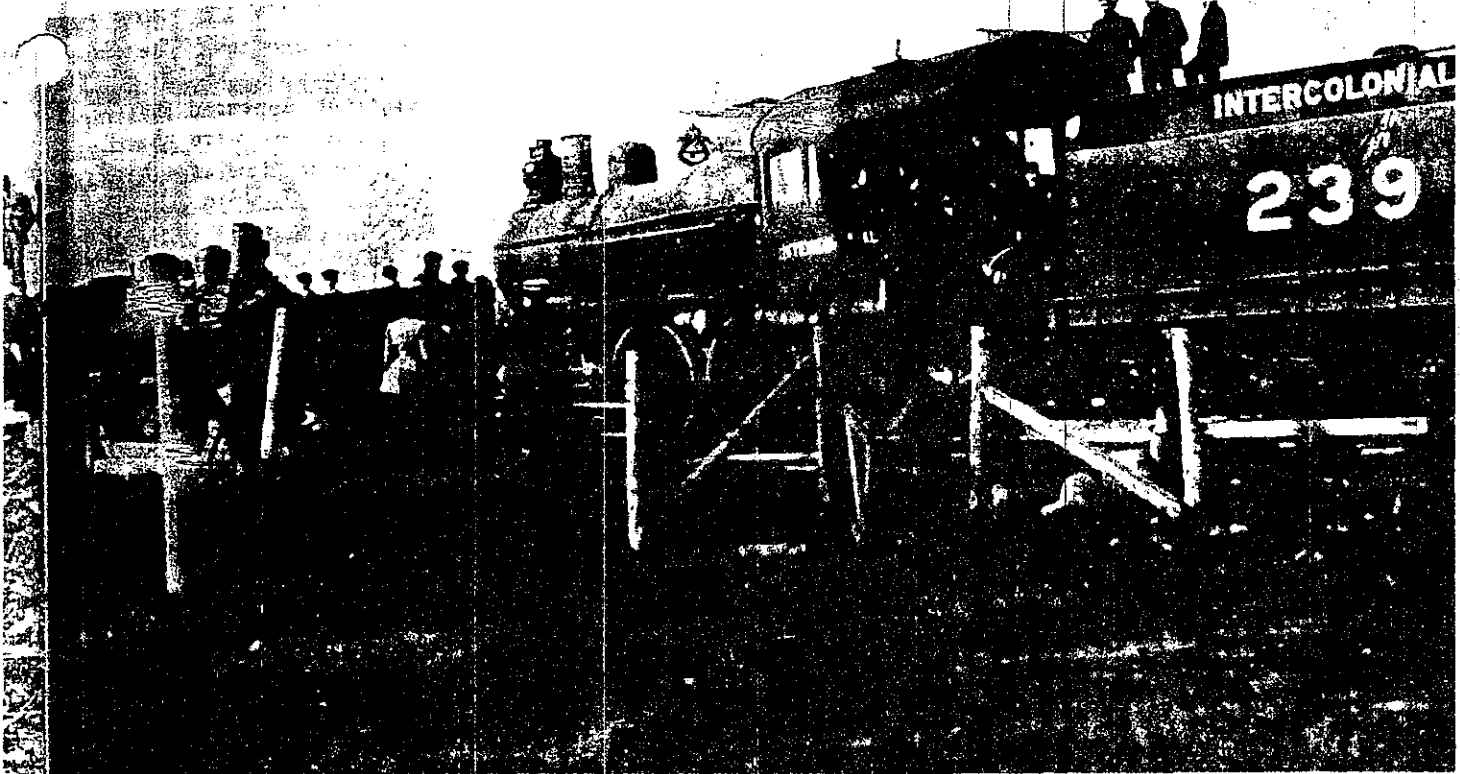
The impact of the Long lake collision drove 239's boiler three feet into the 277's smokebox. They are shown here at Groves siding, still tightly locked together. It took two powerful locomotives with steel cables to haul them apart.



wrecking cranes from Halifax and Truro combine to rescue the CPR's mail car from the waters of Long lake.



The Truro crane finally works its way through the debris to 277's tender. Note battered passenger and freight cars alongside.



The old 239 herself in a characteristic pose - being extricated by a wrecking crew from the embrace of Dave MacLeod's engine at Oxford Junction, where she killed Jim MacAulay.

according to their various political affiliations. Legal action was instituted against Copeland, but after discharge from hospital he was not molested and was allowed to exit quietly to the United States.

There was now eight or even sixteen hour law on the books in 1902, engine and train men were known to work atrociously long hours, and it is probable that the authorities were not anxious to have the labor delinquencies of a government road aired in court.

In Truro, Charlie Lunn's Headlight flayed the ICR C&M management, and in Moncton Charlie Manning of the Times, later a noted news executive in the Canadian West, pinned on "The Hoo-doo 239" the appellation that was to follow her all the days of her life, and beyond.

" TRURO WEST END "

The 239 was not long out of the shops again before she had another sharp run-in, but this time without serious casualties. One dark, stormy night a heavy gale blew a box car out on the main line at the west end of Truro yard, right on to the pilot of 239, this time with another celebrated old time engineer, Jim MacAulay, of Stellarton and Moncton, in the cab - the only man who ever rode her into a collision and walked away unhurt.

" OXFORD JUNCTION "

But the old killer was only biding her time. On November 1, 1904, approaching Oxford Junction with No. 25 westbound CPR express, she ran through an open switch and collided head-on with a freight special standing in the passing track. Engineer MacAulay lost both legs and was so badly wounded that he died a few days later at his home in

Moncton, while Fireman Watson Lawrence sustained severe injuries which kept him out of service action for some months afterward.

" RAILROAD PARIAS "

The Hoo-doo 239 figured in several other wrecks the details of which escape me now, and innumerable lesser accidents which helped to keep a lively fear of her green. Some enginemen would have nothing to do with her, and if called for such a trip would "trade off", report sick or do anything else to give her a wide berth. Others laughed at the bad luck superstition, saying that her numerous mishaps probably were due at least in part to the old principle of giving a dog a bad name.

At the general re-numbering of CGR locomotives in 1912 she became 629, and after the CNR merger 1542, and was finally scrapped in 1935.

She dropped out of the newspaper limelight completely after the outbreak of the Kaiser War in 1914, when Maritime attention became focussed on the army rather than the ICR, although that road proved indispensable, and had a vital influence on Canadian military effectiveness at home and abroad.

" GRAND LAKE " and " BROCKFIELD "

As a matter of fact, nearly all the engines of the 234 - 239 series had plenty of mishaps, especially 234 and 237. The latter was involved in as many bad spills as 239, notably a serious wreck at Grand Lake, and a fatal head-on crash between the east-bound CPR and the Midnight Express at the Polly Bog, near Brookfield, in 1907. But that is another story.

And thanks to Charlie Manning, and innumerable other writers who followed his lead, it was the 239 that got the publicity and the enduring place in ICR legend.

Steam Motor Cars for the I.C.R.

Three motor cars have been built for the Intercolonial Ry. The cars are very similar in design, at the passenger end, to the first-class day cars. At the motor end the roof is of wrought iron, and curved from plate to plate to which it is bolted—thus permitting it to be removed when it is desired to take out the boiler. As it is intended to run these cars in either direction, with or without a trailer as may be desired, they are equipped with a pilot, and M.C.B. coupler at both ends, also through piping and standard hose connections for steam heating and Westinghouse air brakes. The cars carry a standard I.C.R. locomotive bell on the roof at the motor end, and are equipped with a headlight which can be carried at either end. The cars are fitted with steel platforms at each end, built by the Standard Coupler Co., New York. The window sashes and fixtures are of metal. Water tanks having a total capacity of about 1,000 imperial gallons and the vapor and gas tanks, with the necessary pipes and fittings, are slung from the underframing with wrought iron straps. The cars are

boiler. Buffing springs are arranged in this casting to prevent any jarring when the car is in motion.

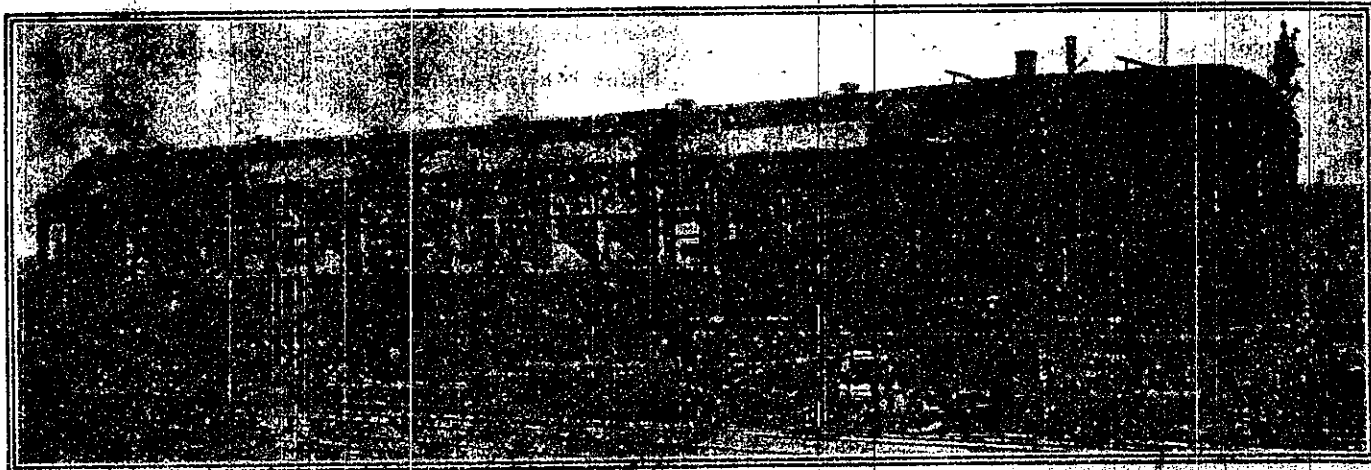
The locomotive has bar frames. The boiler is of vertical type and carries a pressure of 180 lbs. per sq. in. The locomotive has outside cylinders, with balanced slide valve operated by valve gear. The cylinders are 12 in. diameter by 16 in. stroke. The capacity of the engine is about 200 h.p. The journal bearings are 7 x 16 ins. long.

The interior arrangement and fittings are made up as follows, starting from the motor end of the car: The boiler room is 13½ ft. long inside. This section contains the boiler and boiler mountings, throttle lever, reversing shaft and gear, Westinghouse air brake pump, coal bunkers, etc. This section is fitted with sliding doors on each side, and an end door. Sliding doors leading to the baggage room are placed on each side of the partition. The baggage room is 8 ft. 4½ ins. long. In this section are placed the gauges in connection with the lighting system, also the battery for the electric bells and the tool case. It is fitted with a large sliding door on each side. The smoking compartment has seating capacity for 12

Car Heating and Lighting Co., New York. These are the first cars of this kind using the vapor system of lighting.

The entire motor car was designed in the I.C.R. mechanical drawing office at Moncton, under the supervision of G. R. Johnson, Superintendent of Motive Power. The locomotive was built in the I.C. shops, and the car body by Rhodes, Currier & Co., Amherst, N.S. The two parts were assembled and the trial tests made in the I.C.R. shops, Moncton. The first of the three cars built has gone into service—running between St. John and Hampton, N. Following are the principal items in its specifications:

Seating capacity	52 persons.
Gauge of track	4 ft. 8½ in.
Length over end sills	66 ft. 0 ins.
Width over side sills	9 ft. 10 in.
Height, top of sills to under side of plate	6 ft. 7½ in.
Length, inside sheathing	65 ft. 11½ in.
Width, inside sheathing	8 ft. 11½ in.
Width, between deck rails	4 ft. 10 in.
Height, inside, top of floor to under side of lower deck rail	7 ft. 7½ in.
Outside of end sill to center of body bolster, at motor end	10 ft. 0 in.
Outside of end sill to center of body bolster, at passenger end	7 ft. 0 in.
Center to center of body bolsters	49 ft. 0 in.



INTERCOLONIAL RAILWAY STEAM MOTOR CAR.

equipped with Westinghouse air brake apparatus of the latest and most approved design for cars of this class. This was specially designed for these cars by the Westinghouse Co. The passenger end of the car is carried on a standard four-wheel passenger car truck.

The method of carrying the motor end of the car is unique, having been designed first for these cars. On account of the boiler passing through the center of the car it was not possible to put a center bearing immediately under the car sills and over the center of the engine truck. This had to be carried below the ash pan and was done in the following manner: A large cast steel body bolster weighing about 4,430 lbs. was made to fit the underframing of the car body, having an opening in the center through which the boiler passes. This casting is securely bolted to the sills of the car. Four heavy steel struts carry the weight of the car body to a cast steel bolster below the engine frame having a male center bearing. This rests on a second casting, which is hung from the engine frame by means of four wrought iron hangers fitted with equalizing springs. The spring rests in cup-shaped caps and seats, which allow the car body and engine to take the different positions necessary when rounding curves. The boiler is the section under the car body is

persons. The seats and other furnishings are similar to those in the passenger compartment. The passenger compartment is 30¼ ft. long, and has seating capacity for 40 persons. The furnishings of this compartment are similar to those of a first-class day car. The woodwork is ash. The upper and lower ceilings are three-ply white wood painted olive green, striped in gold leaf ornamentation and varnished. The window curtains are the I.C.R. standard design. The material is pantasote. The seats are upholstered in rattan. The women's and men's lavatories are 3 ft. 11 in. long. They are each fitted with a closet and wash basin, the former being manufactured by Rhodes, Curry & Co., Amherst, N.S. A nickeline water cooler and tray is placed at this end of the car. The vestibule is 7 ft. longer than the standard, in order to give more room for the engineer's brake valve, throttle closing device, hand brake shaft, whistle and bell cords, all of which are arranged in this end, thus permitting the car to be operated at each end. This vestibule is equipped with hinged side doors, sliding end doors, and vestibule trap doors. Electric bells are placed in the vestibule and boiler room for communicating between these sections. The cars are heated throughout with the Safety Car Heating and Lighting Co.'s steam heat system. The lighting of these cars is a new feature, being the vapor sys-

Center to center of needle beams	10 ft. 6 in.
Center to center of transoms	29 ft. 9 in.
Height, top of rail to center of coupler	2 ft. 10½ in.
Wheel base of truck	8 ft. 0 in.
End door opening	2 ft. 3 in.
Width of end door	2 ft. 4 in.
Side door openings in baggage compartment	3 ft. 8 in.
Side door openings in boiler room	2 ft. 3 in.
Width of side doors in baggage compartment	4 ft. 0 in.
Width of side doors in boiler room	2 ft. 4 in.
Total wheel base	57 ft. 2 in.
Body and underframe of car	Wrought iron
Bolsters (at passenger end)	Wrought iron
Brake beams	Sim.
Brakes	Westinghouse
Couplers	M.C.B. autom.
Journal bearings	M.C.B. 4½ ins. x 8 ins.
Truck	I.C.R. standard 4-wheel passenger
Wheels	36 ins. W. I. disc Krupp steel

Following are the specifications of locomotive:

Cylinders	12 ins. x 16 ins. str.
Gauge	4 ft. 8½ in.
Driving wheels	42 ins.
Wheel base of engine	8 ft. 0 in.
Boiler type	Circular upright with steam d.
Heating surface in tubes	684.672 sq.
Heating surface in firebox	41.04 sq.
Total	728.712 sq.
Gross area	11.54 sq.
Working pressure	180 lbs. per sq.
Test	250 lbs. per sq.
Water tank capacity	about 1,000 gal.
Two coal bunkers (½ ton each)	1
Weight of motor (without car)	51,000
Weight of motor (with car)	92,000
Total weight of motor and car loaded	142,000
about	8,500
Tractive power	about
Horse-power of engine	about

SPROUL'S TRAIN

By C. Warren Anderson

Sproul's Train, an ancient story, will long be a memory with some older people of the Kennebecasis Valley, in New Brunswick between Saint John and Sussex.

John Sproul was the conductor. For some forty years he gave, the signal which controlled the movement of the train that ran in the morning from Sussex to Saint John, and returned to Sussex in the evening.

There were many changes in personnel of the patrons of this train during those years, but conductor John Sproul remained. He saw many people of his own age grow old and gray with the years and one by one make their last stop; and saw

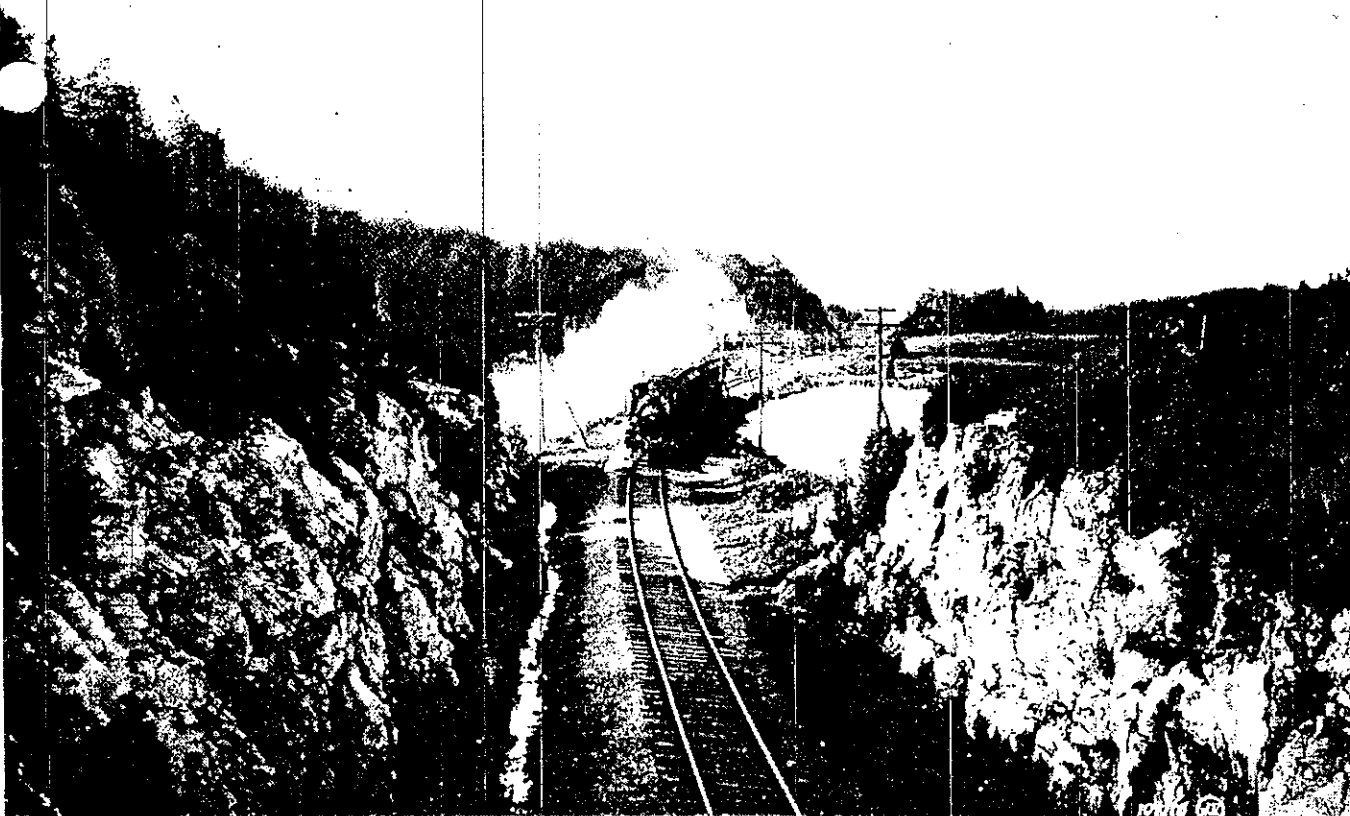
also their little children grow to manhood and womanhood.

To all of them he was just John Sproul; of Sproul's train, the alert but kindly official who seemed to have become a vital part of the life of that artery of commerce which traversed the valley for forty-five miles from the city of Saint-John.

Young people who went away to the United States, or other places, and remained for ten or twenty years came back to find Sproul's train still on the route, and its always well-groomed conductor still at his post.

He was part of the old life, and the sight of his erect image moving down the aisle of the car perhaps

I.C.R. Train near Brockville, N.B.



INTERCOLONIAL TRAIN crossing Lawlor's Lake near Saint John about 1912. The illustration is from a post card mailed at Gagetown New Brunswick on August 10 1912.

brought back memories of days when a boy on the meadow or on the hillside, raised his head from the tasks of the farm to hear the familiar whistle of Sproul's train at the curve, echoing back from the hills; and of thoughts and wonderings and longings concerning that mysterious world with which the rushing train to his boyist fancy was in some sense associated.

For that train had carried many a youth on the first



stage of his journey to the world beyond the valley, and brought him back again with wonder tales of cities and experiences denied the people in the valley.

John Sproul was a conductor when there were still patrons of his train who spoke of Canada as a foreign country and the Dominion very young. A whole generation of politicians passed in review, John Sproul knew them all and they looked all alike to him, in performance of his duties to the country which owned the railway, what reminiscences he could have penned, of griefs of parting, of joys of meeting, of life and death, of quaint and humorous incidents from day to day through forty years of contact with the people along the railway line.

Sproul's train is gone; for the steam locomotives and cars, so long familiar to its patrons, have gone to the scrap-heap, and more pretentious cars are provided for the travellers of today. The traffic of the valley has changed with the years, and there is some talk of railway improvement.

The old order changeth; John Sproul has gone to solve the mysteries of that world which is more mysterious to us than that which called to the boy in the meadow or on the hillside years ago, when the echoes of the whistle of Sproul's train awoke the echoes of the Kennebaccasis hills.

John H. Sproul, ex-conductor of the Intercolonial Railway died very suddenly the morning of March 17-1912 at his home on Pit Street, Sussex.

That morning he got up as usual had breakfast, and shortly after started to walk into the sitting room, when he collapsed and died a few minutes later. He was 76 years of age and was survived by his wife and five children, three sons and two daughters.

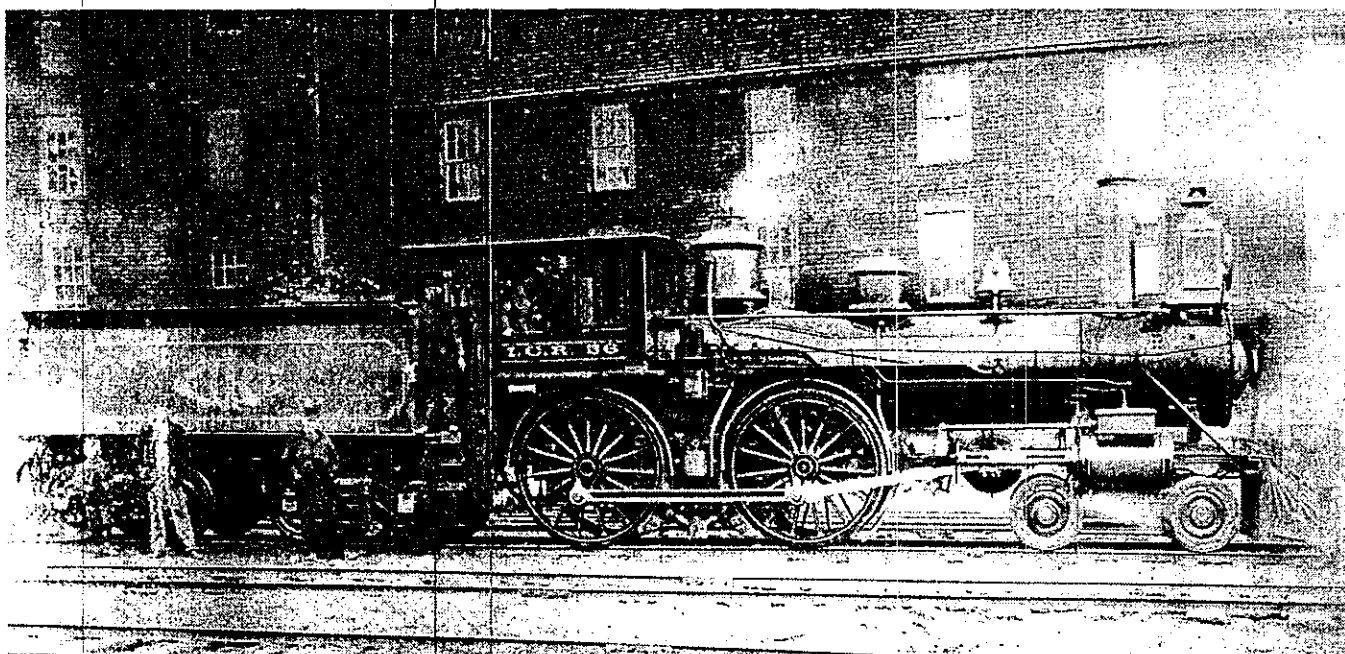
Mr. Sproul was widely known in railway circles and was in the service of the Intercolonial Railway for forty-seven years, forty years of this time he ran as a conductor on the Sussex train.

He was on this train, for so long a time, that the train was commonly known as Sproul's train.

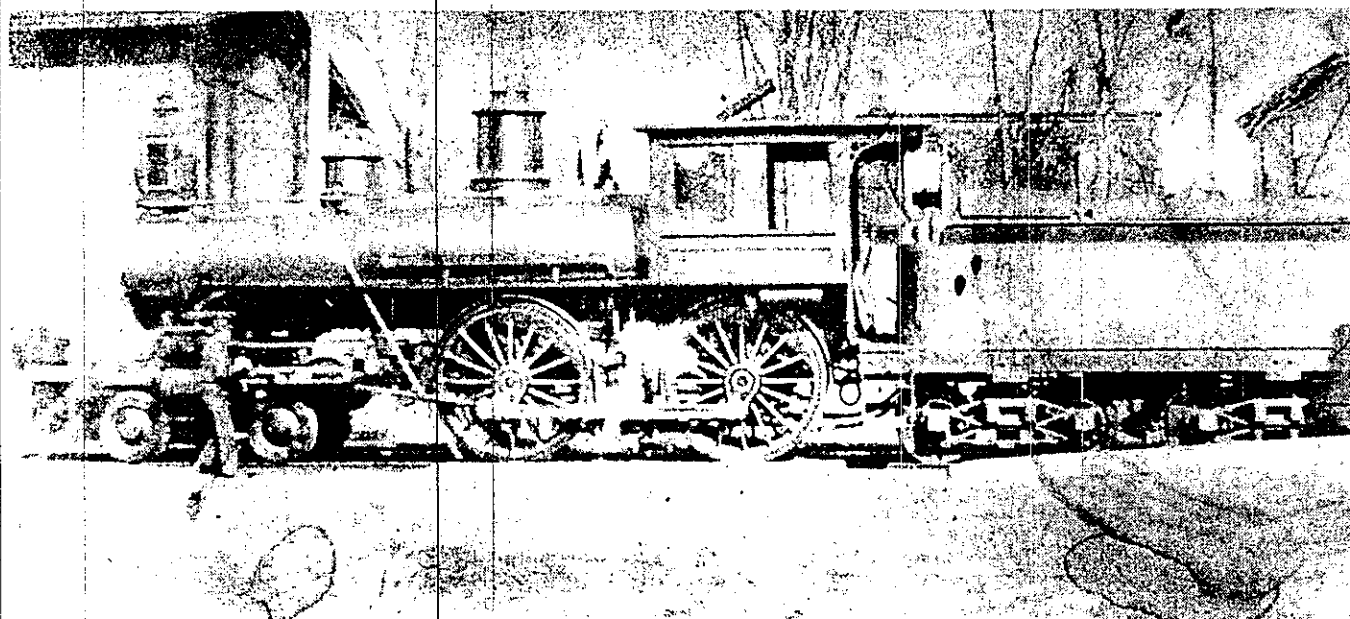
He was superannuated early in 1910 and was a devoted member of the Presbyterian Church.

He was a man held in high esteem by his many relatives and friends - a person not forgotten.

CONDUCTOR JOHN SPROUL who was born in 1836 and died in 1912. He was a brakeman for 7 years and a conductor for 40 years before he retired in 1910.



INTERCOLONIAL RAILWAY LOCOMOTIVE 56 at Saint John N.B. This engine was built by Manchester Locomotive Co. in March 1875, and later had a new boiler by Fleming's foundry in Saint John in 1889. It ran on the Sussex train about 1909-1910 before being succeeded by 10-wheeler No. 167. It was sold to the Caraquet Railway about 1910. In this photo Ned Haywood is the engineer.



INTERCOLONIAL RAILWAY LOCOMOTIVE 55 at Hampton N.B. on July 3 1899. Built by Manchester Locomotive Co. in February 1875, No. 55 survived until October 1920 when, as C.N.R. No. 233, it was scrapped. This engine was pulled out of the Sussex roundhouse at the time of the fire at 10:45 P.M. on October 5 1900 by a locomotive from a special train that arrived at Sussex at that time. On October 31 1910, engineer Fred Whitney was fatally stricken on this locomotive while bringing the train to Sussex from Saint John. Fireman Jack O'Dell handled the locomotive until it reached Sussex.

NOVEMBER 15 1922

—THE HALIFAX HERALD—FIRST IN

The "Long and Short" of It



I. C. R. Locomotive 525, that hauls the Halifax-New Glasgow local and her crew, Engineer "Lute" Starratt (right) and Fireman Truman Burris, snapped at Rockingham by J. J. Carnell during the two minutes the train stops there. It will be seen that "Lute" and Truman are what may be termed the "Long and Short" of the engine service.