Newsletter

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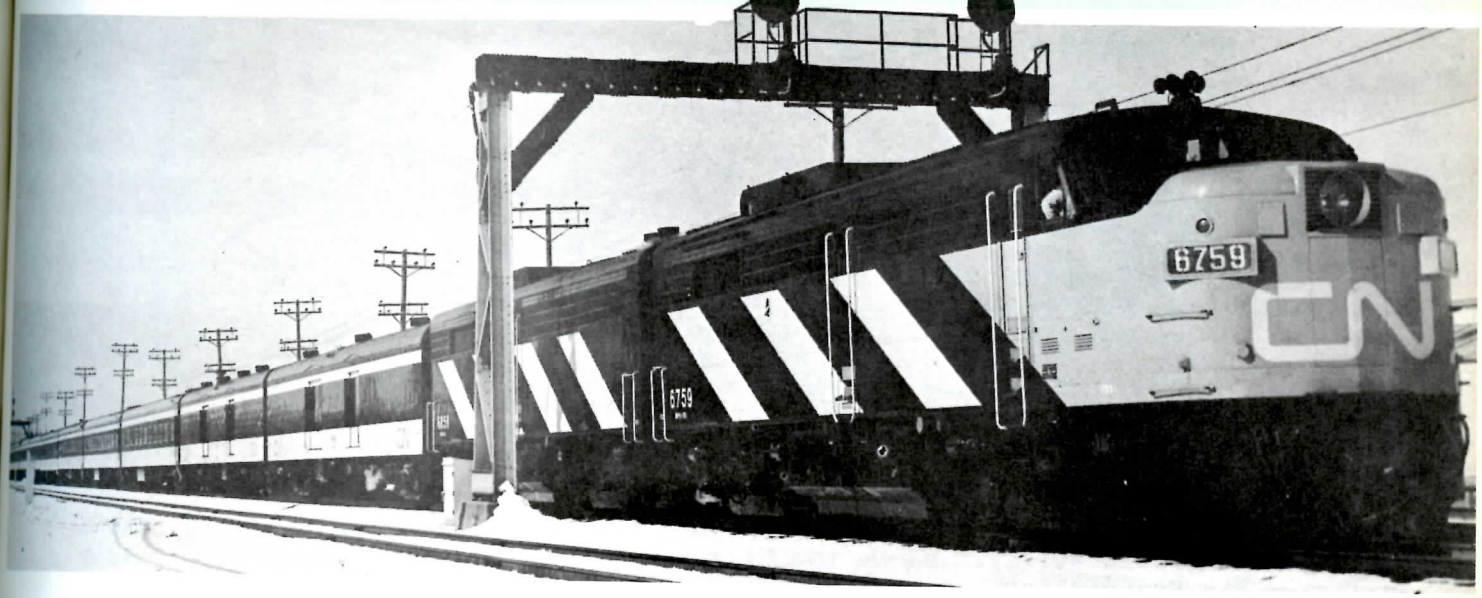


In this issue:

The **C. N.** *tries out*

NEW
Passenger Tariff

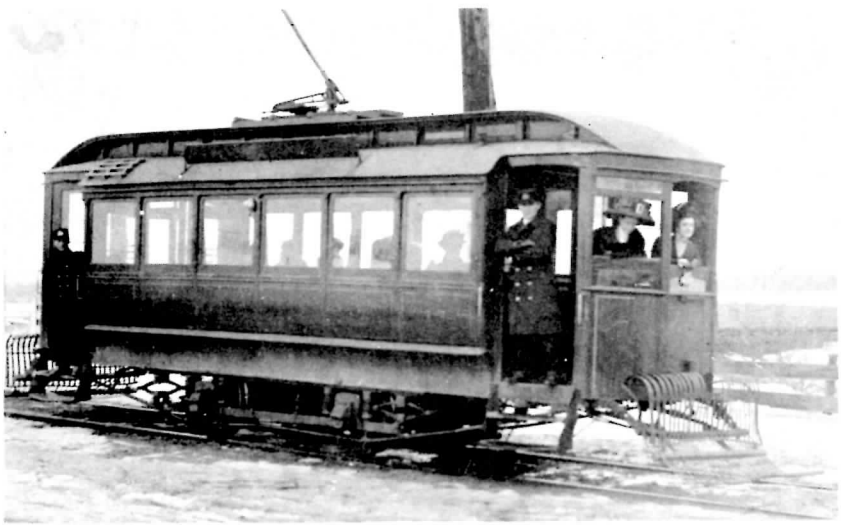
NEW
Passenger Train
Colours

UPPER CANADA RAILWAY SOCIETY
BOX 122 TERMINAL "A" TORONTO, ONTARIO

More on the K. P. & C.

U.C.R.S. member Wm. J. Maddock, of Lyons, New York, found he had more than a passing interest in Bulletin 54 on the Kingston, Portsmouth and Cataraqui Electric Railway. His grandfather, Joseph Maddock, who was born in Manchester, England and immigrated to Canada during the 1890's, worked as a conductor and motorman on that line. In 1920, he and his family moved to Syracuse, New York, where he found work on the Rochester, Syracuse and Eastern until the line was abandoned.

During his stay on the K.P. & C., Joseph Maddock was photographed several times aboard the cars on which he worked and it is these photographs which have been handed down to his grandson who, in turn, has very generously loaned them to the Society for reproduction. The photo of the closed car, no. 15, shows Jos. Maddock standing on the rear platform while his sister-in-law, Mrs. J.M. Cunningham, is seen at the front window of the car. Considering the background in the photo, it would appear that it was taken somewhere on the line to the Grand Trunk station. The other photo shows Mr. Maddock on the front platform (on the right) of a single truck, apparently unnumbered sweeper at the car-house.



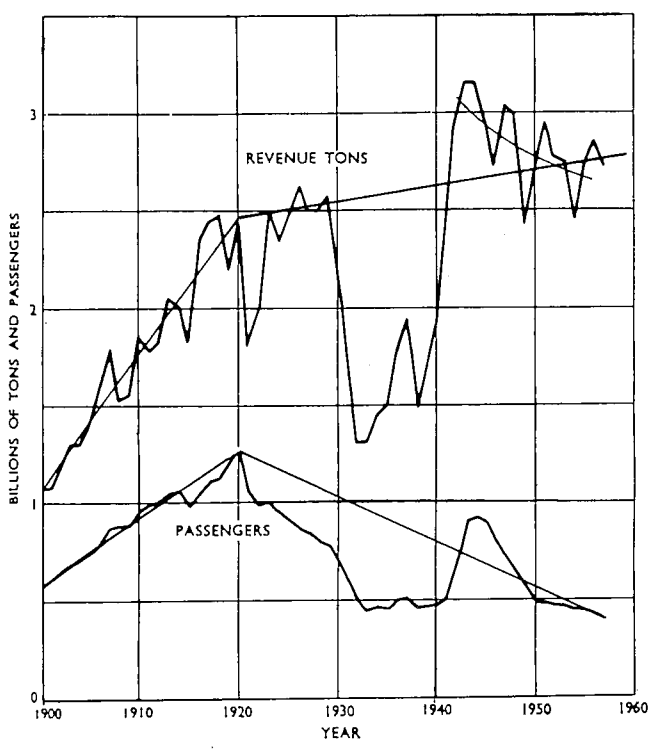
The Economic Results of Diesel Electric Motive Power on the Railways of the United States of America

by H. F. BROWN, Ph. B., Fellow A.I.E.E.,
Consulting Engineer, Gibbs & Hill, Inc., New York, N.Y.

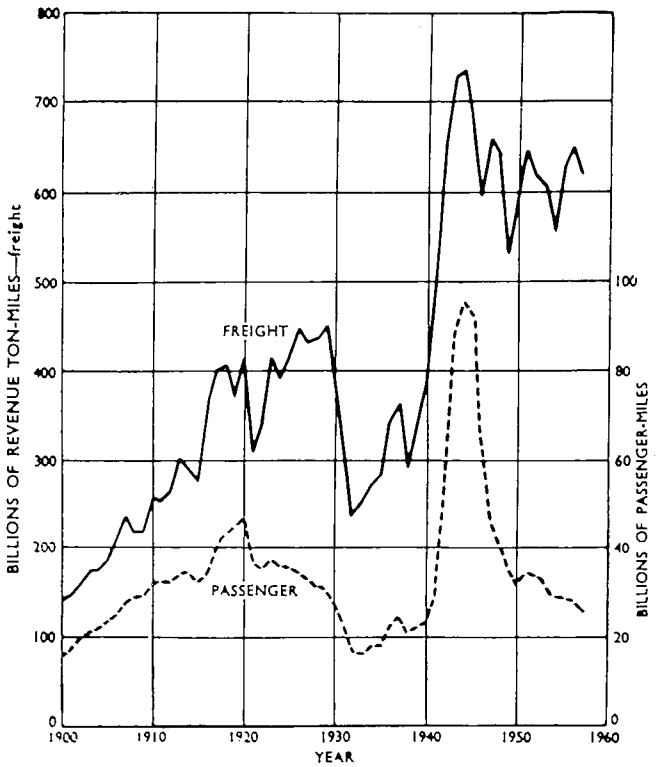
This interesting paper, presented by the author at a meeting of the Institution of Mechanical Engineers in London, England in November, 1960, was prepared from statistics made available by the Interstate Commerce Commission, in the United States. No doubt, data on Canadian railway operations would produce similar conclusions for this country. While the author is not advocating the adoption of any particular type of motive power, the points that he makes are, in some cases, rather startling.

TRAFFIC

In order to see the complete picture of the effects of dieselization on American railroads, one must also consider the many other changes that were made during the period from 1920 to 1955. These include not only desirable effects, but many undesirable ones as well, mostly the result of uncontrollable external



a Revenue tons and passengers carried.



b Revenue ton-miles and passenger miles.

Fig. 1. Traffic.. All classes I and II railways

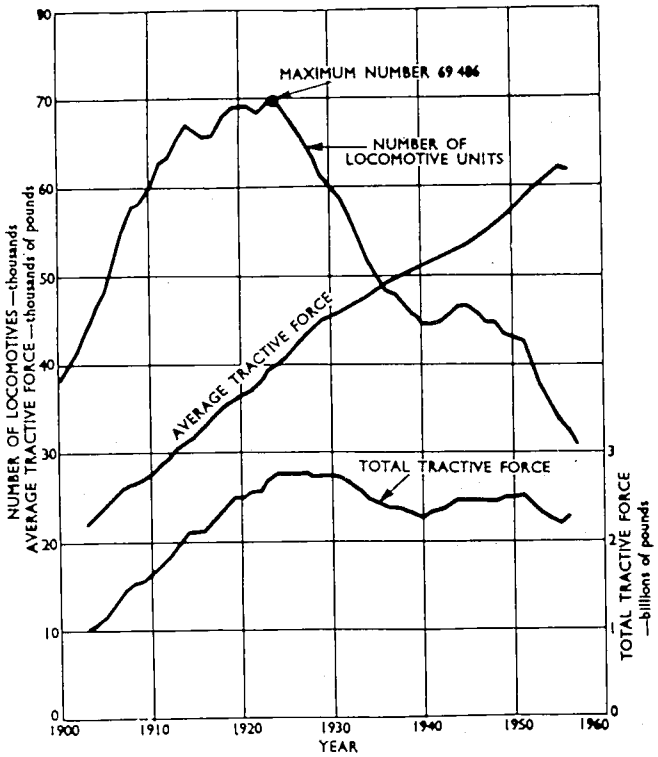


Fig. 2. Motive power in service on all railways in the United States of America

Classes I, II, and III.

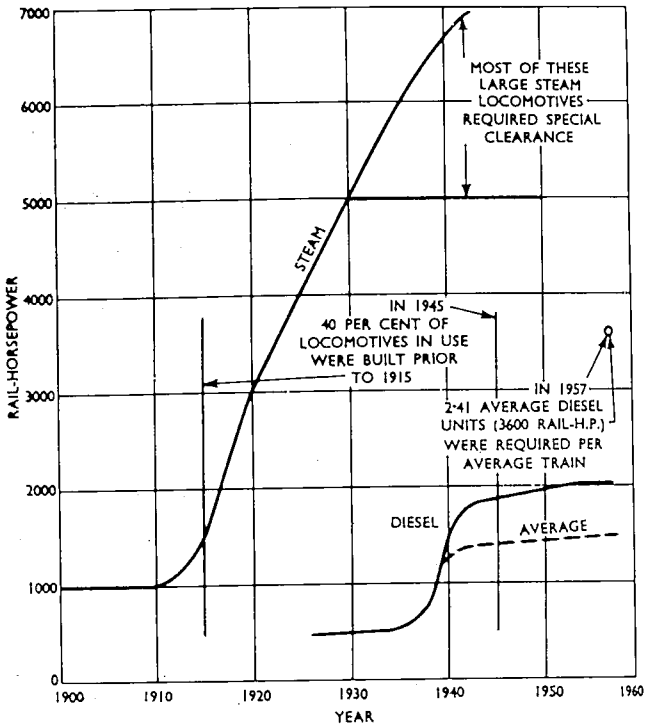


Fig. 3. Development of maximum locomotive rail horsepower

Available at rim of driving wheels.

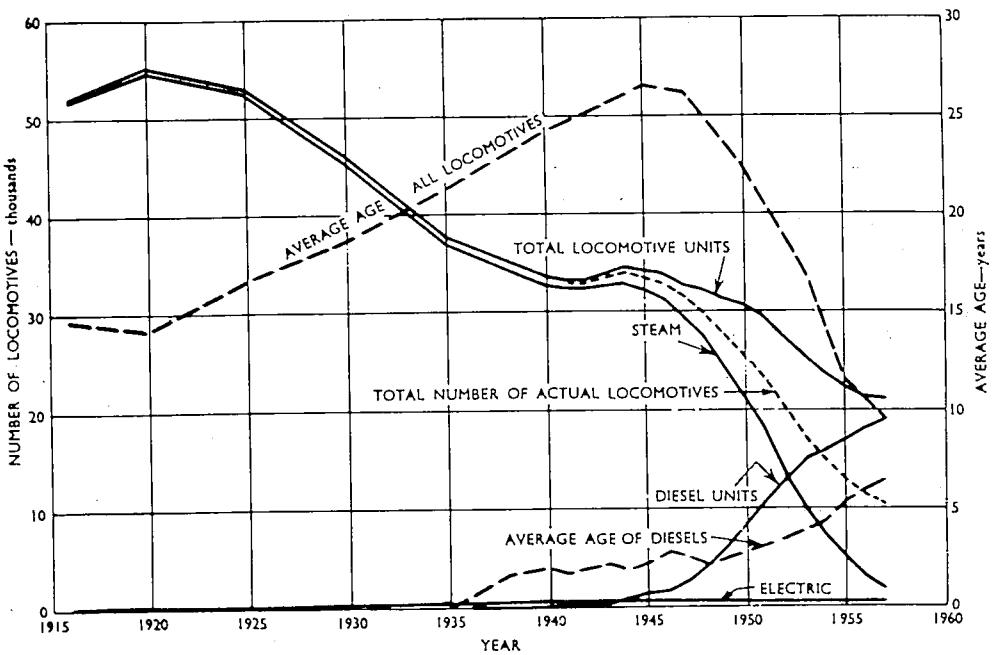


Fig. 5. Road locomotives on all class I railways

circumstances. After 1920, the rapid development of the country's highway network proceeded rapidly, and much of the railways' short haul traffic was syphoned off by highway carriers. Then too, the country-wide economic depression during the 1930's reduced traffic to below 1910 levels. The years of World War II brought unprecedented traffic back to the rails, but the boom was short-lived, as both passenger and freight traffic returned to their declining state after 1945. These trends are clearly shown in Fig. 1a, and will be shown to be the most influential factor in railway motive power, regardless of type.

MOTIVE POWER REDUCTION

Coincident with this overall decline in the volume of traffic came a corresponding decrease in the number of motive power units available on American railroads. However, as train lengths were increased, so did the average tractive effort of the available locomotives, as shown in Fig. 2. Similarly, advances in motive power technology produced a rapid increase in the horsepower per unit of motive power making possible the haulage of heavier trains at higher speeds than were previously possible. During the depression years, few new engines were bought but obsolete units were disposed of at a fairly uniform rate, leaving those remaining to increase in average age as the years passed. The overall trends in the number of road locomotives in service and their average age are shown in Fig. 5. At the end of the war, in 1945, over 45% of the serviceable motive power consisted of locomotive units built prior to 1915, or over 31 years old. This equipment was small in capacity, completely worn out, and hence, long overdue for replacement. Never before had so much motive power become so old and so inadequate. As fate would have it, it was by this time that General Motors had come up with an apparently satisfactory diesel-electric locomotive, and on the basis of unrealistic economies realised from the operation of a few of these units under ideal conditions in the years 1935 to 1945, proceeded with an intensive sales campaign against railway managements desperately searching for a way out of the motive power dilemma.

OPERATIONS

Considering railroad operations,

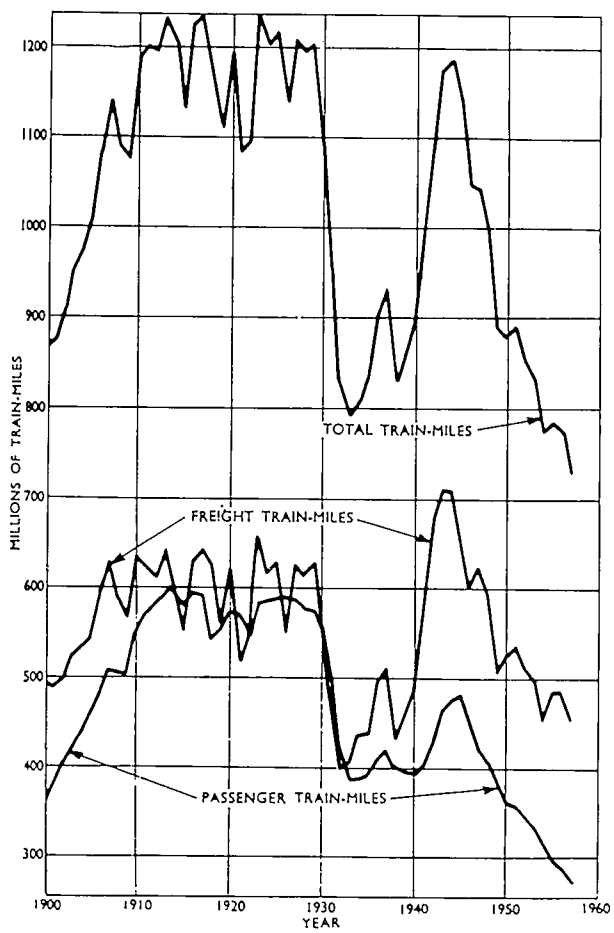


Fig. 7. Train-miles

All classes I and II railways.

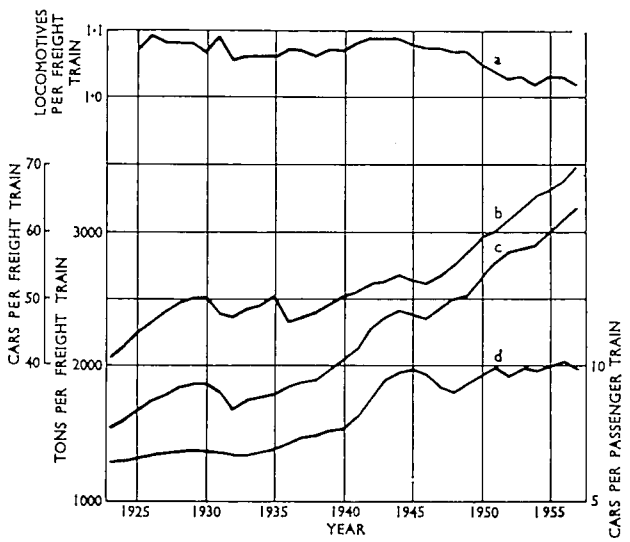


Fig. 8. Locomotive-miles, car-miles, and ton-miles per train mile

a Locomotive-miles per freight train-mile (average locomotives per freight train).
b Car-miles per freight train-mile (average cars per freight train).
c Gross ton-miles trailing per freight train-mile (average tons per freight train).
d Car-miles per passenger train-mile (average cars per passenger train).

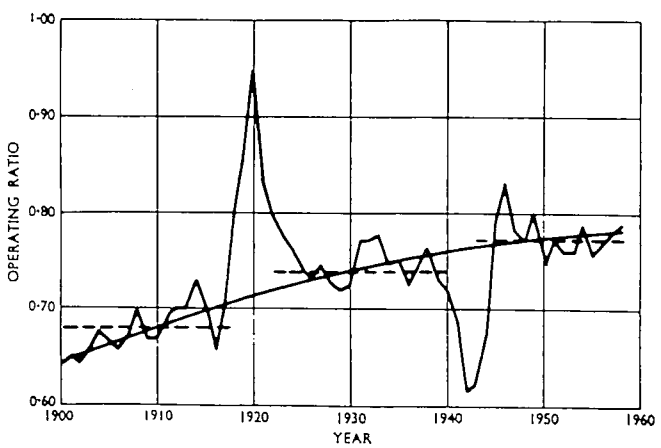


Fig. 9. Operating ratio, all classes I and II railways

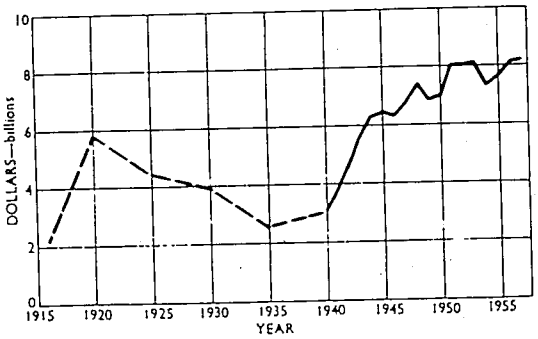


Fig. 10. Total railway operating expense, all class I railways

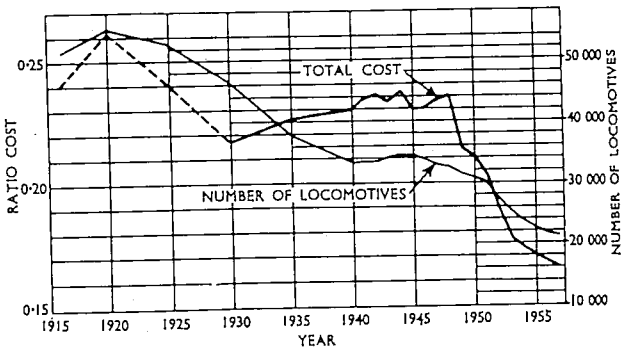
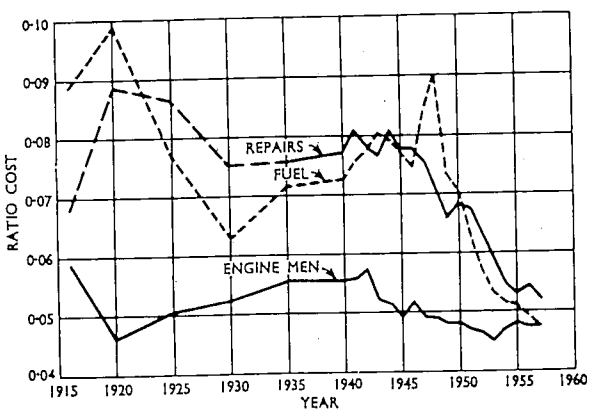
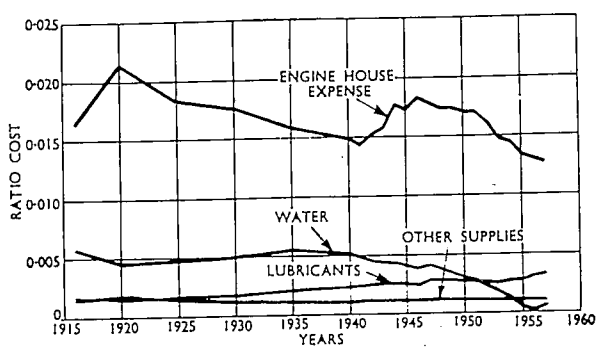


Fig. 11. Total cost of operating and maintaining road locomotives on all class I railways

Fig. 7 shows the changes in train miles produced while Fig. 8 illustrates the variation in the average length, weight and number of locomotives per train. It is easy to see how the longer trains demanded larger motive power, while the train-miles generally decreased over the years. However, in spite of the change in motive power, the operating expenses and, more important, the operating ratio (the ratio of costs to total earned revenue) have continued to increase, as shown on Figs. 9 and 10. When the total operating costs of the motive power are considered, it is noted that they follow the generally decreasing tendency of the number of locomotives, as shown in Fig. 11. If these costs are broken up between the running expenses and the depreciation of the first cost of the unit, they may be best compared by considering the "ratio costs", that is, the various expenses as proportionate parts of the total operating expense. Doing this cancels out any effects of inflation as both the numerator and the denominator of the ratios are equally inflated over the years. These costs are shown in Fig. 12. The depreciation charges, which represent the money invested in the locomotives, are considered in Fig. 14. While it has been customary to depreciate the cost of a steam or electric locomotive over a period of 30 years, the diesel was originally depreciated over a 20 year period. However, while many steam and electric units did exceed this serviceable life, the diesel rarely exceeds a life span of 12 to 14 years. The balance of the unit's cost not depreciated at the end of this time must be charged as a loss against reserves or profits and often turns an



a Repairs, fuel, and engine men for road locomotives.



b Other itemized costs of operating road locomotives.

Fig. 12. Costs on all class I railways

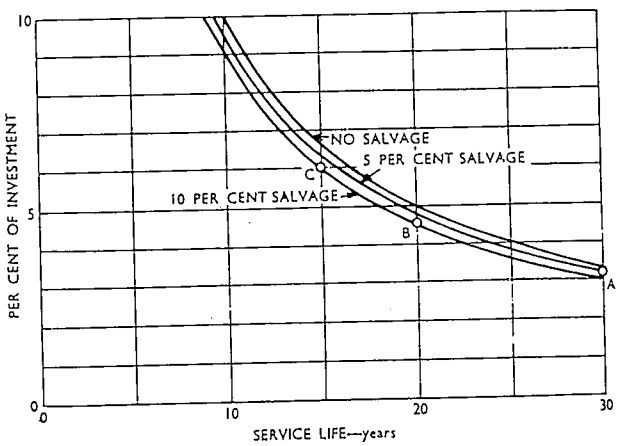


Fig. 14. Annual depreciation charge in per cent of investment

A Steam and electric locomotives.
B Yard diesel locomotives.
C Road diesel locomotives.

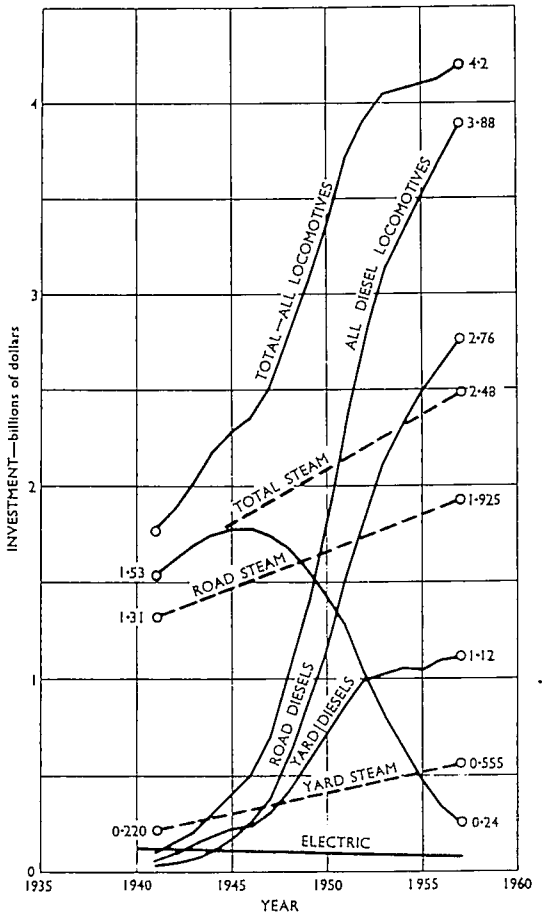


Fig. 15. Investment in locomotives, all class I railways

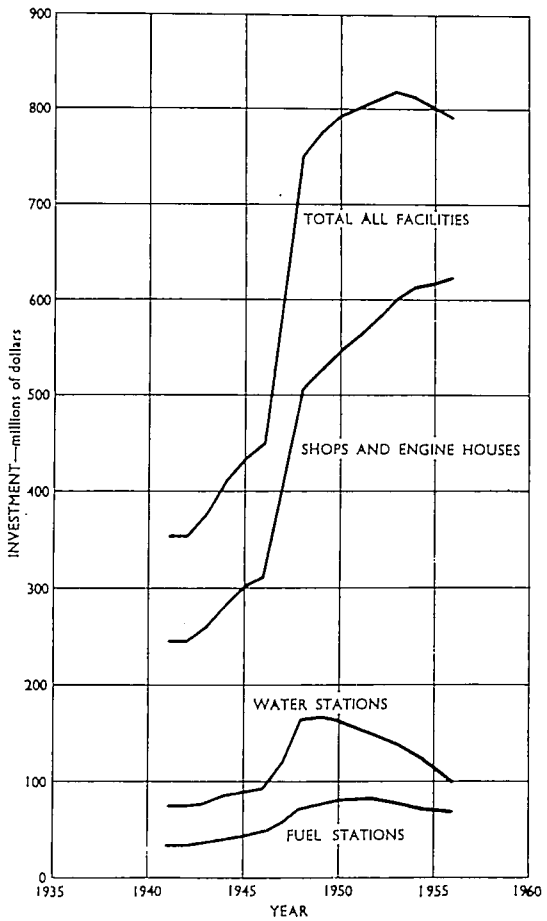


Fig. 16. Investment in motive power facilities

otherwise profitable operation into a debt-ridden one with little warning, as illustrated by the present plight of the New Haven in the U.S.

INVESTMENT IN MOTIVE POWER

Figs. 15 and 16 illustrate the great increase in investment in motive power and servicing facilities coincident with the change to the diesel prime mover. Of interest are the dotted lines on Fig. 15 which illustrate the hypothetical case had modern steam power been purchased rather than diesel power. This case will be discussed further in the next section of this article.

(to be concluded next month)

ERRATA

CN engines 9068 and 9051 were written off the roster in December 1961, not September 18th as reported last month.

It appears that it was D-10 953 that was scrapped during 1961, not 963 as stated.

The CN line from Matane, Quebec to Ste. Anne des Monts on the Gaspé peninsula is under consideration only, and construction has not started, as stated last month.

Newsletter
EDITOR; E. A. JORDAN, 48 Woodland Park Rd., Scarborough, Ont.
NEWS EDITOR; S. I. WESTLAND, 36 Fishleigh Dr., Scarborough, Ont.

All weights are ready to run, less crew.

Total units purchased - 55
Total units active 1962 - 54 (one car scrapped)

NOTES

(M) indicates modified model.
A - 30 ft. baggage section with 5 ton load limit.
B - 17 ft. baggage section with 3½ ton load limit.
C - 17 ft. baggage section with 4 ton load limit.
D - 30 ft. baggage section with 10 ton load limit and 30 ft. mail section with 5 ton load limit.
E - 60 ft. baggage section with 18 ton load limit.
F - from Duluth, South Shore and Atlantic Railway No. 500, 1958.
G - scrapped after wreck on October 24, 1959.
H - from Lehigh Valley Railroad No. 41, 1958.
J - has 2 Rolls Royce 311 H.P. engines.

EQUIPMENT

Diesel engines: All cars except 9194 have GM model 6-110 rated at 275 or 280 H.P.
Wheel size: All cars have 34" diameter wheels.
Air brake equipment: Type HSC with M-38 brake valve standard on all cars.
Fuel capacity: 250 gallons on all cars.
Maximum speed: 90 M.P.H. on all cars except 9194 which is 85 M.P.H.

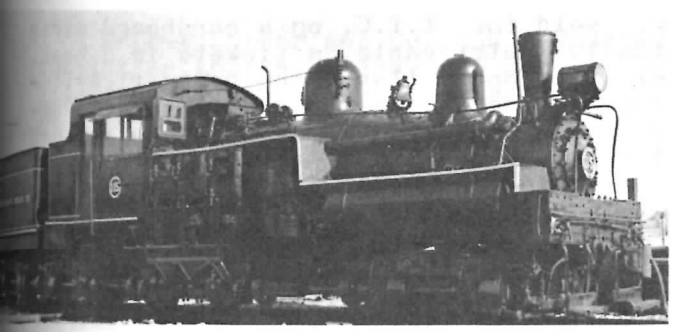
A Shay - in 1962!

by Peter Cox

Much to the surprise of Vancouver railway enthusiasts, an operating Shay geared locomotive has appeared on their very door-steps. The Vancouver Wharves operation in North Vancouver has been using an oil-burning three truck Shay, lettered as Railway Appliance Research no. 115, to switch cars of ore and sulphur on its bulk cargo docks. These switching operations were formerly handled by various diesel-mechanical locomotives, including one built by Ruston and Hornsby of England.

Number 115, leased to the Wharves company, is owned by RARL, a company headed by Robert Swanson, who is also Chief Inspector of the British Columbia Department of Railways and inventor of the Swanson air horn that is used on the PGE and BCE's diesel locomotives. Mr. Swanson is very much an enthusiast himself and the engine appears to be in good hands. Since the engine sees use only during the relatively infrequent intervals that a ship is loading at the wharf, the owner is overhauling the engine during these slack periods in order to guarantee its continued trouble-free operation.

Like most engines on industrial and logging railways, RARL 115 has had its share of renumberings and major repairs, as well as passing through the hands of three different owners. It was built by the Lima Locomotive Works in October, 1929 for the Merrill Ring Wilson Logging as their number 5. It was later sold to the Hillcrest Lumber Company and was numbered 11 while on their property. About 1947 it was sold to Canadian Forest Products, retaining the number 11 at first. During its stay here, its boiler was replaced by one from another Shay that had been built by Lima in April 1936, and had come to CFP (their no. 115) through the Merrill Ring Wilson (no. 4) and Salmon River Logging (their no. 1) ownerships. RARL 115 was built as Lima no. 3344. However, the replacement boiler carries the builder's plate from Lima 3350, a fact which had B.C. locomotive experts confused for a while.



Now that the mystery first surrounding the engine has been dispelled, Vancouver railfans are looking forward to watching its operation for many years.

Red, White & Blue - *Shades of Things to Come*

In what must surely be one of the boldest and most revolutionary approaches of all time to the pricing of railway passenger transportation, the Canadian National Railways will place in effect, on May 1, 1962, for a trial period of one year, what has already come to be known as the "Maritime Fare Experiment". The new tariff is based essentially on the principal of differentiation of fares by the day of the week and the time of the year - a concept to date untried so far as the CN is aware on any other railway on this continent. In addition to the introduction of three new categories of fares, "BARGAIN", "ECONOMY" and "STANDARD", replacing "COACH" and "FIRST CLASS" in the experimental area, there will be a very significant across-the-board lowering of rail fares to an extent that will surely cause alarm to the operators of competitive transportation services.

The following table will provide an indication of the import of the new system:

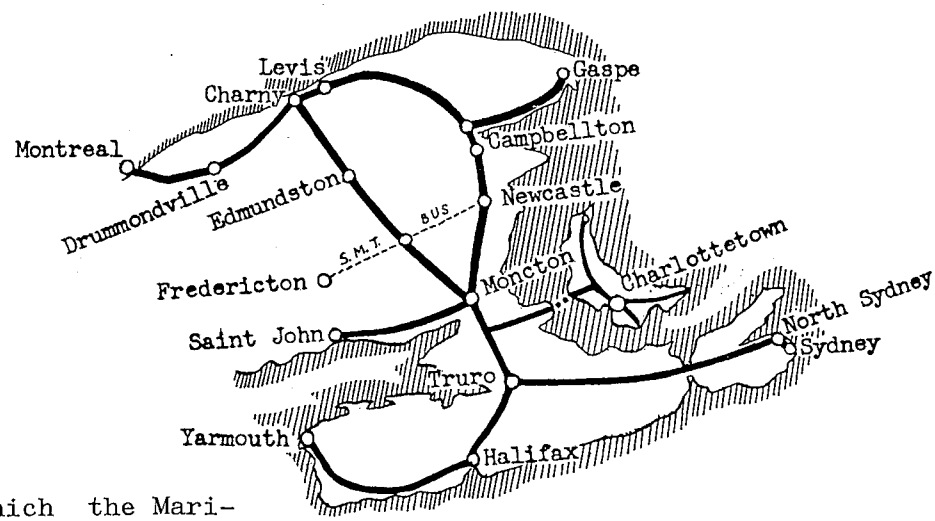
A. Present one way fares by various transportation services, Montreal-Halifax.

Rail (Coach)		Air			Bus
Regular	All-Inclusive*		Present	New	
29.45	26.00	Economy	28.00	33.00	24.00
		First Class	39.00	45.00	
		Mid-Week	21.00	25.00	

* (90% of travel between these cities by rail)

B. New C.N.R. one way fares, Montreal-Halifax, after May 1, 1962.

	Bargain (Red)	Economy (White)	Standard (Blue)
Coach	13.00	17.00	21.00
Lower Berth	24.00	28.00	32.00
Roomette	28.00	32.00	36.00
Single Bedroom	37.00	41.00	45.00



The territory in which the Maritime Fare Experiment is to be carried out is indicated by the adjoining map.

The days on which the various categories of fare will be in effect is shown in the following tabulation. In each case the governing date is that on which a trip begins, regardless of whether or not it may run through a day which has a higher category in effect.