$106,467,198. In 1913 they reached high-water mark—$256,702,703. Not another country under the sun had done relatively as well. Is it any wonder we grew sanguine? A setback had really begun before the war broke out; but with Europe in arms the decline gained momentum month after month. It was under such circumstances that the test of management occurred to which reference has been made. Operating expenses, which had been $178,975,259 in 1914, were pulled down to $147,731,099. Earnings shrank by 17.8, and operating cost by 17.5. The result was that net earnings were brought up to $52,111,973, as against $64,108,280 in 1914. This was a fine achievement, all things considered; but it involved drastic and courageous action. The number of employees was cut down from 159,142 to 124,142. Retrenchments took place in many directions. It was a very trying year. Yet the high standard set for operating conditions was maintained. Roadbed and equipment were not neglected. Our railway managers did not lose their heads and do wasteful things.

The decline in traffic, as has been said, began a few months before the outbreak of war. Ere the people at large knew that a period of contraction in trade had begun the railways knew it. They are always the first to know whether commerce is moving upward or downward. They hold the barometer, and an unfailing, trustworthy barometer it is. Commerce has no particular centre. Foreign trade is registered at the Customs Department; but domestic trade has no point of registration. Railway earnings will always show the trend of both foreign and domestic commerce. These earnings are recorded weekly, and the man who watches them really has his finger on the pulse of national business life. For trade and traffic are synonymous terms. So, let it be repeated, the railways had primary warning of the slump which started early in 1914. It continued until September last. Then the pendulum began to swing in the other direction. War orders and the harvest combined to bring about the change. Instead of one day of thanksgiving, the people of Canada should have been on their knees for a week last autumn. That unprecedented harvest saved Canada from very serious trouble; saved them in a far broader sense than did the demand for munitions.

The upward movement in railway earnings has continued with more or less steadiness since last September. Therefore, without any corroboration from the banks or any other quarter, we know beyond a peradventure that the commerce of Canada has been actively growing. A very substantial part of the losses in gross receipts incurred between March, 1914, and September, 1915, have already been retrieved. This recovery is not wholly attributable to the movement of grain and war materials. Trade in general has answered to the impulse of confidence—that subtle, yet potent, force beneath all enterprise. It is well this change took place. It concerns us all. When earnings are pouring into the coffers of the railways, everybody should rejoice; for railway earnings are invariably and necessarily the reflex of trade. Let nobody grumble when the railways are doing well; the people at large are also doing well. Of course, the fall in earnings last year smashed practically all the nice looking and encouraging averages which had been built up in railway statistics year by year since 1895. It looks at this moment, however, as if many of them would soon be restored to former levels. All the conditions are favorable.

There is another aspect to the decline of last year, and the circumstances which produced it, that cannot be ignored. There will inevitably be a lull in railway building for a time. Caution has succeeded to daring. Nobody knows what adjustments will be necessary when the war is over. Canada is in the best position of any country affected by the war to stand the strain, and Canada, too, is in the best position to receive the immediate benefits of peace. Immigration has been the parent of our railway expansion since the early nineties, and the outflow of population from Europe, when fighting ceases, must come in large measure to our shores. We hold the land available for settlement on attractive terms. But capital will be at too high a premium for some years to make financing easy, and we must not forget that railways are constructed on borrowed money. On 30th June last there were barely 1,600 miles of new line under contract, as compared with many times that mileage two years ago. Not a single new line has been started since 1914. We are therefore facing a period of comparative inactivity. This will afford time for much-needed digestion of the ten thousand miles of railway put into operation since 1910. New mileage is invariably low in density of traffic for quite a period of years. Whatever may be said on the score of prudence respecting our rapid railway building, there is satisfaction in the reflection that we at least have the transportation facilities to make enormous development of our resources practicable. To bring about that development is one of the great problems to which the people of Canada are now called upon to address their energies. They have the power to win.

FUEL-OILS FROM COAL.

Advocating the use of raw tar as engine fuel, and, further, low-temperature carbonization, in a paper on "Fuel-Oils from Coal," read before the Manchester Association of Engineers on February 26, Mr. Harold Moore, M.Sc.Tech., stated that shale oil was a satisfactory substitute for petroleum, but that Scotland produced only 300,000 tons of crude oil per year, whilst the petroleum output of the United States had amounted to 33 million tons in 1913. Ordinary horizontal coal-gas retorts gave from 9 to 13 gallons of tar per ton of coal (about 5 per cent. by weight), while low-temperature carbonization yielded from 10 to 20 per cent. of tar. These figures fall within those quite recently given by Professor Bone. The lighter fractions of the tar distillate were known as creosote, and served both for timber preservation and as fuel for Diesel motors. Tar-oils from low-temperature carbonization being hardly on the market yet, the possibilities of raw tar as engine fuel had to be studied. Raw tars cost about 25s. or 30s. per ton now, which was half the price of the distillate; heavy tars yielded about 25 per cent. of their weight as tar oils, so that the direct utilization as fuel of raw tar, which was made all over the country, and not in special works only, would make four times the material available for power purposes. In calorific power tars were 16 per cent. lower than average petroleum oils. This consumption of tars, like that of heavy petroleum oils, in internal-combustion engines required, however, the use of an ignition oil and a special fuel-pump and atomizer for that oil. These problems had been investigated on the Continent, and Constam and Schläpper had found out that Diesel engines could be run on vertical-retort tars, on chamber-oven tars, water-gas and oil-gas tars, certain coke-oven tars, as well as on lignite tars, but not on tars from horizontal and inclined retorts. Mr. Moore entirely agreed with this conclusion. Requisites for fuel tars were: High hydrogen contents; low contents of "free carbon" (which would wear out cylinders and valves); high calorific power; moderately