1931.

NEW ZEALAND.

TRANSPORT DEPARTMENT

(ANNUAL REPORT OF).

Presented to both Houses of the General Assembly by Leave.

SIR,— Transport Department, 22nd July, 1931.

Herewith I have the honour to submit the annual report of the Transport Department for the year ended 31st March, 1931.

I have, &c.,

J. S. HUNTER, Commissioner of Transport.

The Hon. W. A. Veitch, Minister of Transport, Wellington.

REPORT.

THE major activities of the Department during the year are summarized hereunder:—

MOTOR-VEHICLES ACT, 1924.

The regulations relating to the granting of motor-drivers' licenses have been completely reissued after first being circulated in draft form for public information and criticism. It is generally accepted, and appears to be undoubted, that there was much room for improvement in the previous state of affairs, and that the new regulations have effected this improvement.

The regulations relating generally to motor traffic have been revised and consolidated with many amendments shown to be desirable, and will be circulated as a draft for criticism at an early date.

The Motor-vehicle Mechanical Appliances Committee has met on five occasions, and given consideration to many motor appliances submitted to it, such as direction-indicators and anti-dazzle devices. The voluntary services rendered to the Government by the members of this Committee, the majority of whom are not Government officials, are much appreciated.

MOTOR-VEHICLES INSURANCE (THIRD-PARTY RISKS) ACT, 1928.

Although this Act is much more complete in its provision for insurance of third parties injured or killed by negligent motorists than any other similar enactment of which the Department is aware, the case of a third party who is injured or killed by a motorist of the "hit and run" type is not covered by the Act unless the motorist is subsequently located. The insurance companies are not desirous of taking advantage of this fact, and an agreement, to be signed by all of the companies accepting risks and by the Minister of Transport, has been finalized and will be gazetted, laying down the procedure to be followed to obtain compensation in such cases, proof of negligence by the motorist being, of course, an essential ingredient in all these accidents.

For the year ended 31st May, 1930, forty-two insurance concerns gave the prescribed notice to undertake business under the Act and carried on business accordingly. The premiums for the year, excluding, of course, any relating to the 1930–31 licensing year, amounted to £240,630 17s. 9d., after

taking into account adjustments between the insurance concerns and the insured on account of extra premiums and refunds due to changes in the classification of the vehicle and the cancellation of registrations. The commission of the Post and Telegraph Department, at the rate of 6d. per transaction, amounted to £5,624 7s. 4d., leaving a balance of £235,006 10s. 5d.

Claims settled during the year, including costs, amounted to £84,959 18s. 6d., while the liability in respect of outstanding claims at the 31st May, 1930 (including costs), was estimated by the concerns carrying on the third-party business at £97,950 8s. 6d. Assuming that this estimated liability will eventuate, this means that the total payments on account of compensation (including costs) will amount to £182,910 7s., or 77·83 per cent. of the net total of premiums received.

Attention is specially directed to the fact that the statistics cover the period of one year only, and must be interpreted with the utmost caution. It is quite impossible to state to what extent they represent normal or abnormal conditions. Experience over a longer period is the only way of ascertaining figures that will be typical of the third-party business in all its ramifications. The developments of the scheme are being closely studied with a view to ensuring that due equilibrium is maintained between premiums and benefits, but definite conclusions cannot be reached until more experience has been recorded.

It is of interest to note that the percentage ratio of claims actually paid (including costs) to premiums for all classes of insurance undertaken in accordance with the provisions of the Accident Insurance Companies Act, 1908—accident (including motor accidents), disease, employers' liability, &c. —was 51·75, 49·32, 54·03, 57·98, and 60·62 per cent. respectively for the five calendar years ending with 1928. As the outstanding claims for any particular year would be paid during the succeeding or subsequent years, these figures are comparable, up to a point, with those for the third-party business alone, which show a corresponding percentage ratio of 77·83 per cent. Owing to the short period covered by the third-party figures, too much should not be inferred from this comparison, beyond a broad indication, that may be disproved by further experience, that the premiums as they stand to-day are not too high.

PUBLIC WORKS ACT, 1928

(SO FAR AS IT RELATES TO HEAVY TRAFFIC OR MOTOR-VEHICLES).

Apart from the action in connection with road-classification, which is dealt with in another part of this report, the chief work under this statute has been the complete review of the Motor-lorry Regulations. The aim generally has been to bring the regulations into line with modern conditions of motor traffic, at the same time bearing in mind the vital necessity for the conservation of roads.

A draft consolidation of the regulations has been circulated for criticism, and will be considered, together with the criticisms, before being gazetted, by a conference of experts representative of local bodies and others directly affected.

TRAMWAYS ACT, 1908.

In accordance with a Cabinet direction, all proposed tramway Orders in Council are reviewed by this Department. Several have been dealt with during the year, and of matters of significance one has been the replacement of the North Beach line, Christchurch, by a trackless trolly service. This is a case where the lines of a long and sparsely settled line of tramway came to a stage when heavy repair of them was necessary. The route has been unprofitable for trams, and by using trackless trolly vehicles the overhead equipment is available without the necessity of expensive repairs to the rails. As the trackless trolly vehicle has become a much improved transport unit in the past few years, particularly in speed and comfort, it seems that the action in Christchurch indicates a tendency likely to grow in this country. This type of vehicle is further discussed in another part of the report.

MOTOR-OMNIBUS TRAFFIC ACT, 1926.

During the year ended 31st May, 1931, the District Engineers of the Public Works Department, who act for the Transport Department as Inspecting Engineers under the Motor-omnibus (Constructional) Regulations, 1929, received 494 applications for examinations of omnibuses, and issued 476 certificates of fitness in respect of omnibuses.

The provisions of the Motor-omnibus Traffic Act, 1926, continue to be taken advantage of by the municipalities operating electric-tramway undertakings in protecting the public investment in these undertakings. There are signs of growing competition on both electric tram and bus routes from the smaller types of vehicles (carrying less than eight persons) which do not come within the meaning of the term "omnibus" as used in the Motor-omnibus Traffic Act, 1926, and are not, therefore, subject to its provisions.

Out of the 476 omnibuses licensed under the Motor-omnibus Traffic Act, 1926, approximately thirteen were scrapped during the year. It is not anticipated that there will be much expansion in the number of omnibuses coming under the provisions of the Act during the coming year.

LEGISLATION.

NEW ZEALAND.

Comprehensive legislation dealing with the position in New Zealand was prepared during the year. This legislation is based on the results of investigation by the Department into New Zealand conditions, and also on the experience of other countries.

Other Parts of British Empire.

The past year has witnessed the adoption of much transport legislation aimed at meeting the transport problem in different parts of the Empire. The principal legislative enactments or proposals are summarized hereunder :—

South Australia.—Road and Railway Transport Act, 1930: "An Act to provide for the co-ordination of passenger and freight transport by railways and by vehicles used for carrying passengers and goods on roads and to provide for the control and licensing of persons operating such vehicles." Assented to 12th November, 1930.

South Africa.—Motor Carrier Transportation Act, 1930: Areas are to be "proclaimed transportation areas" by Proclamation and notice in the *Gazette*, and thereafter a motor carrier certificate is necessary before the conveyance of goods or passengers can be undertaken for reward. Probably in force on 1st January, 1931.

Tasmania.—The Traffic Act (No. 2), 1930: All "public vehicles" (all vehicles used for hire or for conveyance of goods or passengers for hire or any other consideration), and drivers and conductors of same, must be licensed. Public vehicles to be inspected.

Northern Ireland.—All public service vehicles to be licensed and inspected. Certificate of insurance to be produced when license issued. Licensing procedure vested in State Department.

New South Wales.—The Transport Act, 1930: "An Act to provide transport trusts for the regulation and control of tramway and omnibus transport and public vehicles in certain areas." (Areas to be named in Proclamation.)

Victoria.—Ministry of Transport Bill, 1930: Transport Department to comprise three branches—(1) Railways; (2) tramways; (3) road transport. All motor freight vehicles to be licensed, with exception of vehicles used solely within an urban area or vehicles owned and used by a primary producer solely for conveyance of primary produce to market, factory, or nearest railway-station. Above in addition to requirements of Motor-omnibus Act, 1928, relating to omnibuses.

Great Britain.—Road Traffic Act, 1930: "An Act to make provision for the regulation of traffic on roads and of motor-vehicles and otherwise with respect to roads and vehicles thereon . . ."

REGISTRATION OF MOTOR-VEHICLES.

The number of motor-vehicles registered during the year showed a marked decrease in comparison with the number of registrations effected during each of the five preceding years, as the following table shows :—

Year.	Cars.	Commercial Vehicles.	Cycles.	Total Registrations.
1925–26	18,811	4,409	5,130	28,350
1926–27	16,439	4,692	5,464	26,595
1927–28	12,531	3,399	4,560	20,490
1928–29	18,739	4,167	4,768	27,674
1929–30	20,802	5,745	4,300	30,847
1930–31	12,378	4,113	3,139	19,630

The registrations of vehicles manufactured in Great Britain have not during the year 1930–31 shown the same percentage decrease as have registrations of vehicles manufactured in other countries. This is probably due to the increased preferences granted in the Customs Acts Amendment Act, 1930, in respect of vehicles manufactured in Great Britain.

Detailed figures relating to the number of registrations and cancellations thereof are to be found in Tables 1 to 6 of the Appendix.

On the 1st June, 1931, the registrations of 12,785 vehicles were cancelled owing to the licenses not having been renewed during the relicensing years 1929–30 and 1930–31. This number is considerably greater than that for June, 1930—viz., 8,338.

The following figures show the number of motor-vehicle registrations (including dormant registrations) as at the 31st March, 1931 :—

——	North Island.	South Island.	Total.
Cars	99,967	56,213	156,180
Commercial vehicles	24,055	11,515	35,570
Cycles	22,634	15,342	37,976
Totals	146,656	83,070	229,726

These figures do not include vehicles for which approximately 3,000 "demonstration" plates were issued to dealers during the year.

The number of registrations cancelled between the coming into operation of the Motor-vehicles Act, 1924, and the 31st March, 1931, is as follows :—

—	North Island.	South Island.	Total.
Cars	8,299	4,878	13,177
Commercial vehicles	3,685	1,619	5,304
Cycles	7,021	5,341	12,362
Totals	19,005	11,838	30,843

Action was taken during the year to place with the Precision Engineering Co., of Wellington, an order for the manufacture of the number-plates required for the relicensing year ending on the 31st May, 1932.

VEHICLES ACTUALLY ON THE ROAD.

The number of "live" registrations on the register kept in accordance with the provisions of the Motor-vehicles Act, 1924, may be taken as a reasonable indication of the number of vehicles actually on the road. The numbers of these "live" registrations have been estimated for each month, and the monthly averages for the twelve months ended 31st March, 1930 and 1931, are given hereunder :—

Vehicle.	Monthly Averages.	
	1930.	1931.
Motor-cars	125,013	134,407
Trucks	23,512	25,294
Omnibuses	1,029	1,040
Traction-engines	173	117
Trailers	755	923
Tractors	293	302
Motor-cycles	26,266	25,167
Other motor-vehicles	445	458
Totals	177,486	187,708

N.B.—Service-cars designed to carry not more than nine persons are included with motor-cars, while those designed to carry more than nine persons are included with omnibuses.

MOTOR-SPIRITS TAXATION ACT, 1927.

The motor-spirits tax was increased from 4d. to 6d. per gallon as from the 22nd July, 1930.

The following data show the yield from and distribution of the petrol-tax for the year ended 31st March, 1931. The figures for previous years are given for comparative purposes :—

(*a*) YIELD.

	£	£
Gross yield		1,417,294
Deductions—		
Refunds and cost of making same ..	102,844	
Commission to Customs Department for collection ..	14,400	
		117,244
		£1,300,050

Net yield (*i.e.*, gross yield less refunds and commission on collection)—

Year ended 31st March—	£
1928	143,516*
1929	802,232
1930	961,907
1931	1,300,050†
Total since inception of tax	£3,207,705

There has been an increase in the applications for refunds since the tax was increased to 6d. There are two main reasons for this—firstly, the financial stringency due to the prevailing depression, and, secondly, the increase in the tax, which has now made it worth while for people to claim refunds that they did not worry about when the tax was 4d.

* Part year only. † Increase from 4d. to 6d. per gallon as from the 22nd July, 1930.

(*b*) Distribution.

The distribution of the proceeds from the petrol-tax between the Main Highways Board and boroughs with populations of 6,000 and over was as follows for the year ended 31st March, 1931 :—

	£
Main Highways Board	1,219,209
Boroughs (population of 6,000 and over)	80,841
Total	£1,300,050

N.B.—After the 1st August, 1930, the proportion of the petrol-tax paid to boroughs with populations of 6,000 and over was reduced from 8 per cent. to 5½ per cent. (section 38, Finance Act, 1930).

For the year ended 31st March, 1931, the One Tree Hill Borough was added to the list of boroughs qualified to participate in a direct share of the petrol-tax.

The distribution of the petrol-tax amongst boroughs in accordance with section 9 (1) (*b*) of the Motor-spirits Taxation Act, 1927, for the year ended 31st March, 1931, together with cumulative figures showing the total distribution from the inception of the petrol-tax up to 31st March, 1931, is given in Table 7 in the Appendix.

(*c*) Classification according to Vehicles.

The following figures show the net yield from the petrol-tax for the year ended 31st March, 1931, split up according to the nature of the vehicle in which the motor-spirits was consumed :—

Kind of Vehicle.	Amount.	Percentage of Total.
	£	
Motor-cars	794,000	61
Trucks	370,000	28
Omnibuses	68,000	5
Motor-cycles	54,000	4
Balance, covering other motor-vehicles and other uses of motor-spirits for which refunds were not claimed	14,000	2
	1,300,000	100

N.B.—Service-cars designed to carry not more than nine persons are included with motor-cars, while those designed to carry more than nine persons are included with omnibuses.

Motor-spirits in respect of which refunds of the tax were made have not been included above.

The above figures are obviously inconclusive as evidence of the incidence of the petrol-tax. Like all taxes, this one may shift either backwards to the producers of the benzine, or forward to the consumers of motor transport services, while a certain amount of the burden may be carried for a time by the operators of motor transport services.

In the long-run the petrol-tax will tend to be shifted forward to the consumers of motor transport services, and, in so far as the increased cost of these services causes a diminution in the demand for them, a proportion of the tax will also, in the long-run, be cast upon the producers of motor-vehicles and equipment, in the form of losses of business consequent on a diminished demand.

For the year ended 31st March, 1931, passenger transport effected by motor-cars, motor-omnibuses, and motor-cycles contributed £70 out of every £100 of the total yield from the petrol-tax, against £28 out of every £100 from trucks. Thus the petrol-tax derived from the carriage of passengers in motor-vehicles is over twice that derived from the transportation of commodities. A further analysis of the motives lying behind the movement of persons (impossible at this stage) would shed further light on this question. Investigations by the Department indicate that approximately 50 per cent. of the total cost of operating motor-cars in New Zealand is for purposes of a non-business nature.

On pages 68 and 69 of the last report of the Royal Commission on Transport in Great Britain, the following statement is made apropos of the place occupied by the motor-car in the modern community : "In these days of modern civilization the motor is an essential to many—to the doctor, to the commercial traveller, and to those whose profession or trade involves constant travelling. There is, of course, a certain number of cars which can properly be regarded as luxuries, but, in our view, it is impossible to define the point at which a motor ceases to be an essential and becomes a luxury, and we cannot admit the truth of the proposition that private cars are, as a class, articles of luxury."

Usage of Roads by Motor-vehicles.

Some speculation exists as to the best method of measuring the usage of roads by motor-vehicles, and also the utilities accruing from the existence of a road to the different sections of a community. The problem is both difficult and important—difficult because of the paucity of data relating to the nature and flow of traffic on our roads ; important because of its close relationship to the distribution of the revenue from special motor-taxation.

Ignoring all other than purely motor-traffic considerations, it would appear that the best measure of road-usage is the gross weight (of the vehicle and the load) that passes over any given road. Road-maintenance varies with the weight and speed of the vehicles that use the roads. From the road-damage point of view, therefore, speed should, strictly speaking, be considered. This, however, is impossible at the present time, so the figures given hereunder relate to weights only. The average weights used in calculating the gross ton-miles have been carefully estimated, while the annual vehicle mileages are in accordance with actual conditions in New Zealand, so far as is known :—

Gross Ton-mileage of Mechanically-propelled Traffic on Roads and Streets.

Kind of Vehicle.	Year ended 31st March, 1930.		Year ended 31st March, 1931.	
	Gross Ton-miles (000 omitted).	Percentage of Total.	Gross Ton-miles (000 omitted).	Percentage of Total.
Cars	1,000,104	60·44	1,075,256	60·55
Trucks	543,737	32·88	591,712	33·32
Omnibuses	77,175	4·67	78,000	4·39
Traction-engines	2,076	0·13	1,404	0·06
Trailers	1,510	0·09	1,846	0·10
Cycles	29,549	1·79	28,313	1·58
Totals	1,654,151	100·00	1,776,531	100·00

CONDITIONS IN THE MOTOR INDUSTRY DURING YEAR.

Import Trade.

The main features characterizing the motor import trade during 1930 were—

(*a*) Substantial falling-off in the numbers of new vehicles ;

(*b*) The fact that the quantity of motor-spirits was the highest yet recorded, while the average value per gallon (invoice value in country of shipment plus 10 per cent.) was the lowest yet recorded ;

(*c*) A substantial decrease in the value of tires imported ;

(*d*) A substantial decrease in the aggregate value of motor-vehicle parts.

It would appear that there has been a sharp contraction in the additions to the number of new vehicles in the Dominion. The following tables show the number and value of motor-vehicles, and the value of fuel, tires, and spare parts, on which Customs duty was payable imported into the Dominion during the last five calendar years :—

(a) Imports of Vehicles.

Calendar Year.	Motor-cars.	Lorries, Trucks, Vans, and Buses.	Motor-cycles.	Totals.
	(A) NUMBER.			
1926	15,790	2,649	4,651	23,090
1927	9,936	2,195	3,543	15,674
1928	15,814	2,236	3,554	21,604
1929	22,345	5,707	3,823	31,875
1930	13,422	3,046	2,749	19,217
	(B) VALUE.			
	£	£	£	£
1926	2,610,392	588,053	203,868	3,402,313
1927	1,504,749	361,920	165,300	2,031,969
1928	2,231,757	418,841	173,241	2,823,839
1929	3,272,653	833,827	189,359	4,295,839
1930	1,860,174	482,002	134,594	2,476,770

(b) Imports of Motor-spirits, Tires, &c., and Vehicle Parts.

Calendar Year.	Motor-spirits.		Tires and Tubes.	Vehicle Parts.	Total.
	Quantity.	Value.			
	Gallons.	£	£	£	£
1926	44,817,512	2,654,482	925,268	350,818	3,930,568
1927	48,042,640	2,005,983	1,053,435	265,973	3,325,391
1928	54,540,416	1,655,451	991,022	239,823	2,886,296
1929	62,448,092	2,130,835	1,161,893	268,151	3,560,879
1930	68,309,672	2,090,542	808,535	206,666	3,105,743

ORGANIZED MOTOR TRANSPORT SERVICES.

Notwithstanding the depression, there was considerable expansion in the motor transport services running over defined routes during the year ended 31st March, 1931. The number of vehicles engaged increased from 2,172 in January, 1930, to 2,430 in January, 1931, or by 258, or 12 per cent.

Official statistics regarding motor transport services on defined routes are collected for the months of January and July each year. The yearly figures given in this survey have been derived from these monthly figures, by adding them together and multiplying by six, on the assumption that the months of January and July may be regarded as more or less normal busy and slack months respectively.

The following figures summarize the position for the year 1930–31 as compared with 1929–30 :—

Item.		1929–30.	1930–31.	Increase.	Decrease.
				Per Cent.	Per Cent.
Vehicles	Number	2,172	2,430	12	..
Vehicle mileage	Miles	40,300,000	45,700,000	13	..
Passengers carried	Number	26,500,000	26,000,000	..	2
Goods carried	Tons	900,000	1,053,000	17	..
Receipts	£	1,947,000	2,031,000	4	..

These figures are in striking contrast to similar figures for the railways over the same period, as given hereunder :—

Item.		1929–30.	1930–31.	Increase.	Decrease.
				Per Cent.	Per Cent.
Ordinary rail passengers* ..	Number	8,469,038	7,265,912	..	14
Season tickets	,,	667,432	600,440	..	10
Goods carried	Tons	7,796,209	6,963,073	..	11
Revenue*	£	7,473,993	6,781,388	..	9

* Excluding motor transport services.

While rail transport business during the year showed recessions in both the passenger and goods branches as well as in total operating revenue, organized motor transport showed substantial gains in the volume of goods business and total revenue, and a slight decline in the number of passengers handled. Freights handled by coastal shipping during the calendar year 1930 showed a drop of 3 per cent. from the figure for 1929.

The outstanding point emerging from the foregoing figures is that the economic law of substitution, which is inevitable in economic progress, is particularly to be observed in the field of transport to-day. The plain fact appears to be that organized road motor transport is rapidly gaining ground, while the rail and coastal shipping facilities are barely holding their position. It is true that the present depression has caused a shrinkage in the national volume of both goods and passenger traffic, and the fact that the motor transport business has expanded in spite of this drawback is evidence of the dynamic conditions in the industry.

Omnibus Services.

For statistical purposes the terms "omnibuses" and "service-cars" shade into each other in respect of a few vehicles on the border-line between the two classes. For the purpose of distinction the omnibuses have been regarded as the bigger vehicles operating on the comparatively short routes, while the service cars have been regarded as the smaller vehicles on the longer routes.

The principal estimated data relating to the operation of omnibuses in the Dominion during the years ended 31st March, 1930 and 1931, are given hereunder :—

		Year ended 31st March,		Percentage.	
		1930.	1931.	Increase.	Decrease
(a) Absolute Figures.					
Vehicles	Number	562	609	8	..
Vehicle mileage	Miles	13,900,000	15,300,000	10	..
Passengers	Number	25,200,000	24,800,000	..	2
Receipts	£	735,000	747,000	2	..
(b) Average.					
Average mileage per vehicle per annum ..	Miles	25,000	25,000	..	..
Average number of passengers per vehicle per annum	Number	45,000	41,000	..	9
Average receipts per vehicle per annum ..	£	1,308	1,200	..	8
Average receipts per passenger	d.	7	7·2	3	..
Average receipts per vehicle-mile ..	d.	12·7	11·7	..	8

The main points disclosed by the above figures are an increase of forty-seven vehicles in 1930–31 as compared with 1929–30; an increase of 1,400,000, or 10 per cent., in the vehicle mileage; a decrease of 400,000, or 2 per cent., in the number of passengers carried; and an increase of £12,000, or 2 per cent., in the total receipts.

In the absence of information relating to the average length of passenger journeys, it is impossible to say whether the decrease in the number of passengers carried has been compensated by an increase in the length of journeys. Although the average mileage per vehicle remained at 25,000 miles in 1930–31, the number of passengers per vehicle and the receipts per annum declined by 4,000, or 9 per cent., and £100, or 8 per cent., respectively. The average receipts per passenger carried increased from 7d. to 7·2d., while the receipts per vehicle-mile receded from 12·7d. to 11·7d.

Omnibus and Railway Competition.

The expansion during 1930–31 in the omnibus services operating on routes that parallel railway routes affords evidence of the further displacement of the railway by the omnibus in the field of short-distance suburban passenger transportation. The number of vehicles employed on these routes increased from 220 to 283, while those on routes where there was no railway decreased from 342 to 326.

The following figures show the position with respect to the services that operated on routes which paralleled the railways, and those on other routes, for the years ended 31st March, 1930 and 1931:—

		Year ended 31st March,		Percentage.	
		1930.	1931.	Increase.	Decrease.
(a) Omnibus Routes that substantially parallel Rail Routes.					
Vehicles	Number	220	283	29	..
Vehicle mileage	Miles	7,200,000	8,600,000	20	..
Passengers	Number	8,000,000	8,100,000	1	..
Receipts	£	380,000	413,000	9	..
(b) Omnibus Routes that do not parallel Rail Routes.					
Vehicles	Number	342	326	..	5
Vehicle mileage	Miles	6,700,000	6,700,000	..	..
Passengers	Number	17,200,000	16,700,000	..	2
Receipts	£	356,000	334,000	..	3

SERVICE-CARS.

The number of vehicles operating as service-cars increased from 501 in January, 1930, to 542 in January, 1931; the vehicle mileage increased from 15,000,000 to 17,300,000, or by 15 per cent. As these vehicles operate mainly over rural roads, and as the maintenance-cost of these roads is determined by, *inter alia*, the volume and speed of traffic thereon, this increase in the mileage is closely connected with the increasing maintenance-cost of rural roads.

The number of passengers carried increased from 1,220,000 in 1929–30 to 1,240,000 in 1930–31, while the total receipts gained from £507,000 to £539,000, or by 6 per cent.

The following table shows the principal information available relating to the operation of service-cars during the years ended 31st March, 1930 and 1931:—

Item.		Year ended 31st March,		Percentage.	
		1930.	1931.	Increase.	Decrease.
Vehicles	Number	523	564	8	..
Vehicle mileage	Miles	15,000,000	17,300,000	15	..
Passengers	Number	1,220,000	1,240,000	2	..
Receipts	£	507,000	539,000	6	..
Average mileage per vehicle per annum	Miles	29,000	31,000	7	..
Average number of passengers per vehicle per annum	Number	2,300	2,200	..	4
Average receipts per annum per vehicle	£	969	956	..	1
Average receipts per passenger	d.	100	104	4	..
Average receipts per vehicle-mile	d.	8·1	7·5	..	7

The above figures show that the average service-car ran 2,000 more miles in 1930–31 than in 1929–30, and carried 100 less passengers for a drop of £13 in total receipts.

An examination of the fares charged on certain representative routes discloses an average of 2½d. per passenger-mile. Dividing this figure into the average revenue per passenger, it would appear that the average length of each passenger journey is approximately forty miles.

Competition with Railways.

Of the 564 service-cars operating in January, 1931, 260 were running on routes that paralleled the railway. The operations of these vehicles during 1930–31 accounted for 11,000,000 miles, or 67 per cent., out of a total vehicle mileage for all service-cars of 17,300,000; 705,000, or 57 per cent., of the total service-car passengers (1,240,000); and £327,000, or 61 per cent., of the total receipts for service cars (£539,000).

The annual receipts from those vehicles operating on routes that do not parallel the railway increased by approximately 10 per cent. in 1930–31 as compared with 1929–30, while that from vehicles operating on routes that parallel the railway increased by 4 per cent.

The following figures show the developments in the services on routes that substantially parallel the railways, and those on other routes, for the years ended 31st March, 1930 and 1931 :—

		Year ended 31st March,		Percentage.	
		1930.	1931.	Increase.	Decrease.
(a) Service-car Routes that substantially parallel Rail Routes.					
Vehicles	Number	266	260	..	2
Vehicle mileage	Miles	9,700,000	11,000,000	13	..
Passengers	Number	703,000	705,000	..	..
Receipts	£	315,000	327,000	4	..
(b) Service-car Routes that do not parallel Rail Routes.					
Vehicles	Number	257	304	18	..
Vehicle mileage	Miles	5,300,000	6,300,000	19	..
Passengers	Number	519,000	539,000	4	..
Receipts	£	192,000	212,000	10	..

The outstanding point in the above figures is the relatively greater expansion in the services running on routes unserved by the railways. Another noticeable feature is that out of a total of 17,300,000 vehicle-miles for 1930–31, approximately 11,000,000, or 67 per cent., were run on routes that paralleled the railways.

Freight Services.

In the earlier stages of the development of motor-transport passenger and goods services on defined routes, passenger services developed more rapidly than the freight services. Recent years, however, have witnessed increased organization in the freight-haulage business, with rapid increases in the number of time-table services over defined routes.

The number of vehicles employed on these routes during the year ended 31st March, 1931, was 1,160; the monthly average number of trucks (including all classes from small delivery-vans to the heaviest types) licensed during the same period was 25,294.

These trucks on the organized services ran 11,700,000 miles during the year, and carried 1,038,000 tons of freight for a revenue of £708,000. Compared with the preceding year, these figures show gains of 19, 18, and 8 per cent. respectively.

The following summary shows the principal information relating to the operation of trucks on organized services during the years ended 31st March, 1930 and 1931 :—

		Year ended 31st March,		Percentage.	
		1930.	1931.	Increase.	Decrease.
Vehicles	Number	965	1,160	20	..
Vehicle mileage	Miles	9,800,000	11,700,000	19	..
Freight	Tons	876,000	1,038,000	18	..
Receipts	£	653,000	708,000	8	..
Average mileage per vehicle per annum	Miles	10,000	10,000	..	..
Average number of tons of freight per vehicle per annum	Number	907	894	..	1
Average receipts per vehicle per annum	£	677	610	..	10
Average receipts per ton of freight	d.	179	164	..	8
Average receipts per vehicle-mile	d.	16·0	14·5	..	9

The increase in the number of vehicles and the aggregate vehicle mileage is much greater relatively than that recorded for the tonnage of freight handled. A good proportion of this increase in the number of vehicles and mileage is due to new services being started, while a considerable proportion may be regarded as an indication of keener competition on routes already served.

Of the 965 vehicles engaged solely in the haulage of freight during 1929–30, 386 had pay-load capacities of under 2 tons, while 579 had capacities of 2 tons and over. In 1930–31 the smaller-sized vehicles increased by 20, or 5 per cent., while the bigger-sized trucks gained by 175, or 30 per cent.

Notwithstanding this increase in the heavier type of vehicles, the total quantity of freight per vehicle and the average receipts per vehicle per annum declined by 1 and 10 per cent. respectively in 1930–31 as compared with 1929–30.

The average receipts per ton of freight dropped from 14s. 11d. in 1929–30 to 13s. 8d. in 1930–31, while the average receipts per vehicle-mile also fell from 1s. 4d. to 1s. 2½d.

Competition with Railways.

The following figures illustrate the extent to which the organized freight services are operated on routes that parallel the railway and on routes unserved by the railway :—

		Year ended 31st March,		Percentage.	
		1930.	1931.	Increase.	Decrease.
(a) Motor Freight Routes that substantially parallel Rail Routes.					
Vehicles	Number	359	424	18	..
Vehicle mileage..	Miles	4,300,000	5,400,000	26	..
Freight	Tons	326,000	354,000	9	..
Revenue	£	276,000	292,000	6	..
(b) Motor Freight Routes that do not parallel Rail Routes.					
Vehicles	Number	606	736	21	..
Vehicle mileage	Miles	5,500,000	6,300,000	15	..
Freight	Tons	550,000	684,000	24	..
Revenue	£	377,000	416,000	10	..

The foregoing figures direct attention to the fact that, on the basis of total receipts, approximately 60 per cent. of the organized motor freight business is located on routes unserved by the railway, and that the average length of haul is considerably shorter on these routes than on those paralleling the railway. The first statement is in contrast to the case of both omnibus and service-car services, where the services on routes paralleling the railway account for more than half of the business.

COMBINED FREIGHT AND PASSENGER SERVICES.

In January, 1931, there were ninety-seven vehicles engaged on defined routes in the transportation of both passengers and goods. This number was twenty-five less than the number recorded for January, 1930. The reason for the decrease in this class of service appears to be that as these combined services develop they tend to be replaced by services catering solely for passengers or goods, not for both.

The following summary shows the principal estimated data for these combined services for the years ended 31st March, 1930 and 1931, respectively :—

		Year ended 31st March,	
		1930.	1931.
Vehicles	Number	122	97
Vehicle mileage	Miles	1,500,000	1,300,000
Passengers	Number	88,000	33,000
Freight	Tons	25,000	14,886
Receipts	£	51,036	36,768

ROAD-CLASSIFICATION.

The classification of roads is based on a restriction of the maximum gross loads (*i.e.*, weight of vehicle plus the weight of the load) that may be transported over any given roads. Power is given in the Public Works Amendment Act, 1924, for the classification of all roads and streets with reference

to their suitability for use by different classes of motor-lorries. The regulations made in pursuance of this provision give the appropriate road-controlling authorities power to classify roads into the following classes :—

Class.	Gross Weights (Vehicle and Load) allowed.	
	Two-axle Vehicles.	Multi-axle Vehicles.
	Tons.	Tons.
First	10	15
Second	8	10
Third	$6\frac{1}{2}$	8
Fourth	$4\frac{1}{2}$	$6\frac{1}{2}$
Fifth	$2\frac{1}{2}$	$4\frac{1}{2}$

Prior to the 31st May, 1930, the multi-axled vehicles received preference on first-class roads only, but amending regulations on that day conferred the increased weight allowed on these vehicles as shown in the second column above.

In order to meet exceptional cases and to ensure that the classification may not, by undue inflexibility, inhibit the flow of heavy traffic that is economically necessary, road-controlling authorities may issue permits allowing heavier weights to be carried over any classified road than those provided for in each class above.

Although restrictions of this kind have existed from the earliest times, the necessity for a national scheme was not so acute in the pre-motor days, mainly owing to the relatively slower speeds and lighter weights of horse-drawn traffic and the consequently lower cost of maintenance and construction of roads. The rapid growth of motor transport in New Zealand has been accompanied on the one hand by higher speeds and heavier weights of the traffic units, and on the other by a greater density of traffic on our roads. The combined effect of these developments has been an enormous increase in the expenditure on roads and bridges, which, including maintenance and construction costs as well as interest and sinking-fund charges, now exceeds £8,500,000 per annum.

Great strides have been made in providing road-surfaces to carry motor traffic, but owing to the relatively small population and the comparative youth of the Dominion it would be an economic impossibility to provide the 40,000-odd miles with surfaces capable of carrying the maximum gross loads allowed by the law—viz., 10 tons on two-axled and 15 tons on multi-axled vehicles. As a result New Zealand has had to choose between two courses—(*a*) allowing unrestricted use of all roads by motor-vehicles, subject, of course, to restrictions as to speed, weight, lighting, &c.; or (*b*) restricting the gross loads that might be carried over any given road. The damage to the roads that followed their unrestricted use by motor traffic, and the inordinately high road expenditure resulting therefrom to keep them in reasonably good order, compelled recourse to the second action—viz., the restriction under a scheme of road-classification.

Experience has shown that, where the necessary volume of freights exists, traffic up to the maximum weights allowed by the law develops. In New Zealand it is estimated that this volume is found on approximately 15,000 miles of the total length of the rural roads. When it is considered that there are under 100 miles of rural roads capable of carrying regular 10-ton traffic, it is seen that road-classification is necessary to prevent the destruction of the bulk of the rural roads by a relatively few heavy vehicles.

Road-classification means Lower Real Costs of Transport.

It is true that roads yield certain advantages beyond those attached to the transportation of commodities over them. It is for this reason mainly that the real cost of each transportation service is not paid directly in respect of each such service. Apart from the vehicle costs, which, in the long-run, are met by the recipient of the service, and which in so far as they represent special motor-taxation constitute a proportion of the road costs, the remaining road expenditure is drawn from the general taxpayer and the local ratepayer. During the year ended 31st March, 1930, £8,670,000 was expended in connection with roads, streets, and bridges, the source of the moneys being as follows :—

	Amount. £	Percentage of Total.
General taxpayer	1,146,618	13·18
Local ratepayer	3,130,172	35·96
Special motor-taxation	1,866,647	21·47
Loan	2,557,638	29·39
Total	£8,701,075	100·00

As indicated by the foregoing figures, approximately only 20 per cent. of the annual expenditure on roads is met from special motor-taxation, and therefore incorporated in the direct costs of road transport. The remaining portion of the total bill—excluding, of course, loan-moneys—amounting to just over £4,000,000, is found out of either general or local taxation.

Although there is little doubt that direct transport charges do not lose their identity as such, the position is not quite as clear in respect of the moneys found per medium of the general and local taxation channels. The association between the operation of transport facilities and the burden of taxation (general and local) is not always recognized, although they are in fact cause and effect.

This diversification or spreading of road costs has had the effect of obscuring the full real costs, with the result that many road-controlling authorities in New Zealand did not realize the savings to be made in ultimate transport costs by a good scheme of restrictions on the gross loads allowed to be carried over the roads.

The maximum load that will result in the most economic use of any road can be determined from the following factors: (*a*) The nature of the road surface; (*b*) the transport requirements of the area served; (*c*) the other transport facilities available; and (*d*) the type of vehicle.

As the regulations empowering the classification of roads stand at present, the suitability of the road is the sole determining factor. Where, therefore, the roads are of such a nature as to carry the loads provided under their present classification (if any), there is no power to reduce the weight-limits allowed, even in any cases where it is clear that the road standards are, for various reasons, in excess of the transport requirements of the area. These cases, however, are rare. In the majority of areas dealt with by the Department during the year the question at issue has been the reduction of the classification. This enabled all relevant considerations, whether economic or technical, to be carefully weighed and taken into consideration.

As outlined hereunder, a number of important rural areas were investigated during the year. The *modus operandi* in these investigations was as follows:—

(*a*) An economic survey covering the nature of production carried on, and the transport requirements involved.
(*b*) An economic survey of the existing transport facilities and their adequacy or otherwise.
(*c*) An examination of the road surfaces.

These investigations yielded much valuable information on a number of aspects of the transport facilities in the areas covered. The main points of a general economic nature emerging were as follows:—

(*a*) The relatively high proportion of the farming production required to meet road costs.
(*b*) The absence of any conscious system of co-ordination between the road and railway facilities. It is a rather surprising fact that there are a number of localities without rail facilities which have considerably lower-standard roads than other localities with the railways.
(*c*) The important part played by motor-trucks in hauling the primary products from the farms to the ports or the railways.
(*d*) The absence of a full realization of the savings in actual road-maintenance and ultimate costs of transport that follow a well-devised scheme of road-classification.

Road-classification and Truck-development.

Truck-development in New Zealand since 1925 has been characterized by a rapid increase in the number of vehicles of between 1 and 2 tons capacity. This tendency has also been present in other countries. Many of the earlier users of heavy trucks have found them difficult to employ throughout the whole year; particularly has this been so in a country with such a marked seasonal tendency in the transportation of commodities as New Zealand. The economies gained by heavy haulage in the flush of the season are more than offset by the difficulty in employing these heavy vehicles throughout the whole year. The tendency has therefore been in the direction of the medium-sized trucks, which, while being able to deal reasonably efficiently with the heavy loads, are also capable of being employed to a greater extent than the heavy vehicles in the periods when the flow of commodities is on a much smaller scale.

The following table shows the development in the various classes of trucks since 1925, and directs attention to the rapid increase in the medium-sized vehicles:—

Number of Trucks registered in the Dominion (including Dormant Registrations).

At 31st December,	Pay-load Capacity.					
	1 Ton and under.	Over 1 Ton and not more than 2 Tons.	Over 2 Tons and not more than 3 Tons.	Over 3 Tons and not more than 4 Tons.	Over 4 Tons.	Total.
1925	9,671	2,077	879	713	333	13,673
1926	13,056	2,827	1,155	824	389	18,251
1927	15,601	3,643	1,322	850	399	21,815
1928	17,057	4,302	1,465	866	416	24,106
1929	18,792	6,453	1,668	852	424	28,189
1930	19,839	8,034	1,798	872	424	30,967
Relative Numbers (1925 = 100).						
1925	100	100	100	100	100	100
1926	135	136	131	116	117	133
1927	161	175	150	119	120	160
1928	176	207	167	121	125	176
1929	194	311	190	120	127	206
1930	205	387	205	122	127	226

The restriction of the maximum loads that may be carried on roads is in accord with developments in vehicle-design which are enabling greater loads to be carried on vehicles with less wear on the roads. Foremost among these developments are: (*a*) The multi-axle type, which reduces axle-loads, and impacts on the roads; (*b*) improved tires and springing.

The encouragement given to the development of the multi-axled vehicle in road-classification has a far-reaching effect in road transportation. It means, broadly, that road-classification will result in heavy loads being transported in multi-axled vehicles over roads that will require much less expenditure than would roads to carry the same loads on two-axled vehicles. It means also that where conditions warrant the haulage of heavy loads the restriction of the gross loads by road-classification is not prohibitive, since recourse can be had to the multi-axled vehicles.

Seasonal Nature of Heavy Loads.

The bulk of our manufacturing industries that operate more or less evenly throughout the year, and the transportation requirements of which do not fluctuate with the seasons, are in the bigger centres of population, where the question of limiting the gross loads on roads or streets does not generally arise owing to the structure of these roads and the greater density of population which results in a wider spreading of the roading-costs. On the rural roads—and it is on these roads that the restrictions mainly arise—there are marked seasonal characteristics in the nature and weight of the loads. The products of the dairying and pastoral industries are moving towards the exporting ports in the summer and autumn, road-metal and timber are being carted throughout the whole year, while manures are being hauled mainly during the winter and spring months.

Owing to the importance of meeting the heavy seasonal traffic in farming products, many counties have been apprehensive of placing restrictions on the gross loads to be carried over their roads, but in the majority of cases an investigation disclosed the fact that substantial savings in aggregate transport costs would result from a well-devised scheme of classification.

Investigations have shown that a study of the heavy-traffic requirements of a locality, the operating-costs of the different classes of trucks, and the cost of the roads generally, draws attention to the maximum load that will yield the most economic results.

Road-classification and Future Road Standards.

Road-classification is the result of economic pressure in the direction of coping with the road expenditure, which has displayed a marked tendency to increase with the growth of motor traffic. Unclassified roads permit of any traffic up to the statutory limit of 10 tons for two-axled vehicles. In several districts where classification has not been systematically enforced a relatively few heavy loads have caused undue damage to the roads. In several other districts, mainly those where road materials are relatively cheap, classification has not been adopted in any form on many roads, with the result that traffic up to the 10-ton limit has developed on all the unclassified roads, a small length only of which are capable of carrying such loads. The result has been additional expenditure for maintenance and the finding of additional moneys for construction purposes much sooner than would otherwise have been the case.

Taking into account the railway reticulation and the existence of coastal shipping, it would appear that unless road facilities are to duplicate these facilities, and thus foster unnecessary competition, maximum gross loads of 6½ tons on two-axled vehicles and 8 tons on multi-axled vehicles should meet the requirements for heavy loads on our rural roads. This would direct road-development as a complement in the whole national transport system. Road vehicles would, broadly speaking, carry the short-haul traffic, while the longer hauls would be left to the railways and coastal shipping, which under existing conditions can handle them more economically. Unclassified roads or roads where the classification is too high tend to foster long haulage by motor transport. Even on third-class roads goods-hauliers are operating over routes of more than 100 miles in length in competition with the railways.

Summary of Road Classification Activities during Year.

As indicated in last year's annual report, the Department has pursued a vigorous policy in regard to the general classification of the rural roads in the Dominion, and the efforts made in this direction have received general support from practically all the road-controlling authorities.

During the year conferences were held with local-body representatives in four of the highway districts, and the whole question of road-classification discussed in the light of a comprehensive economic survey of each district.

(1) *Conference at Masterton: No. 10 Highway District.*—Present, representatives from the following counties: Featherston, Wairarapa South, Masterton, Mauriceville, Castlepoint, Akitio, Eketahuna, Pahiatua.

After considerable discussion it was unanimously decided that the maximum classification of any road or highway in this district be second class. Since the conference a number of the counties have submitted proposals in line with the above recommendation.

(2) *Conference at Timaru: No. 15 Highway District.*—Present, representatives from the following counties: Ashburton, Geraldine, Levels, Mackenzie, Waimate. The District Engineer, Public Works Department, Christchurch, was also present.

The transport requirements and facilities of the district were reviewed, and after full discussion the delegates unanimously agreed on the following recommendation: "That the maximum classification of any road or highway in the No. 15 Highway District be second class." Since the conference all the counties represented have submitted classification proposals in line with this recommendation.

(3) *Conference at Eltham: No. 7 Highway District.*—Present, representatives from the following counties: Clifton, Taranaki, Egmont, Inglewood, Stratford, Eltham, Waimate West, Hawera; also the District Engineer, Public Works Department, Stratford.

After discussion, a resolution similar to that carried at Masterton and Timaru was put to the meeting and carried unanimously.

(4) *Conference at Whangarei: No. 1 Highway District.*—Present, representatives from the following counties: Mangonui, Whangaroa, Hokianga, Bay of Islands, Whangarei, Hobson, Otamatea, Rodney, Waitemata. Also present, the District Engineer, Public Works Department, Whangarei.

The whole question of transport in this area was fully discussed, and the following resolution was carried unanimously: "That the maximum classification in No. 1 Highway District be restricted as a general policy to 4½ tons, excluding therefrom an area within a radius of twenty miles of Auckland City."

Since the conference the classification of the roads in Whangaroa and Whangarei Counties has been reduced from third to fourth class in accordance with this resolution.

During the year fifty-five local authorities were visited, and various typical roads under their control inspected. The classification figures for the Dominion are now as follows:—

——	Total Formed Roads.	First Class.	Second Class.	Third Class.	Fourth Class.	Fifth Class.	Total Classified Roads.
North Island ..	24,606	323	1,081	2,831	5,054	2,544	11,833
South Island ..	20,888	96	1,057	1,529	1,121	247	4,050
Totals, 1931 ..	45,494	419	2,138	4,360	6,175	2,791	15,883
„ 1930 ..	44,558	436	1,274	3,530	4,582	2,544	12,366

THE PROBLEM OF MOTOR ACCIDENTS.

In June, 1930, a conference was arranged by the Minister to consider ways and means of reducing the traffic-accident rate in New Zealand. The conference consisted of representatives of the Municipal and Counties Association, the North Island and South Island Motor Unions, the service-car and motor-lorry proprietors, the various insurance companies, and the Railways, Public Health, Census and Statistics, Justice, Education, State Accident, Police, Public Works (including Main Highways Board), and Transport Departments.

The conference made some very important recommendations to the Government, and the following is a brief indication of the nature of the more important of them, together with an indication of the action which is being taken in the meantime to deal with the recommendations.

After considering the available statistics concerning traffic accidents in New Zealand, the conference proceeded to review the present laws which are intended to limit these accidents. In connection with drivers' licenses, it was recommended that when a driver, through his negligence or intoxication, causes personal injury or death it shall be compulsory for his license to be cancelled for minimum periods of six months in cases of intoxication and three months in cases of negligence, and, later, when the Third-party Risks Act was under discussion, it was recommended that in cases of intoxication the amount of the insurance paid out may be recovered from the driver by the insurance company, and that also in all cases of negligent driving, including the foregoing, the conviction shall be endorsed on the license for three years from the date of the offence. To help in the latter, the old license is to be presented when any new license is obtained. It was also recommended that for second and subsequent offences of driving without possessing a license the Court be given power to inflict imprisonment.

These proposals are now under consideration in conjunction with other legislation for the present session.

Various alterations to the Motor-vehicle Regulations were considered, including suggestions for the bettering of the system of issuing motor-drivers' licenses, and the provision for compulsory driving tests framed by regulation applicable to all parts of New Zealand. The recent consolidation of the Motor-drivers' Regulations contained most of these alterations. An important recommendation of the conference under this heading was that an absolute speed-limit of forty-five miles per hour be fixed for rural localities and twenty-five miles per hour for urban localities, and in the latter case additional absolute restrictions of fifteen miles per hour in passing intersections, &c., and ten miles per hour when going round sharp bends, &c.

These recommendations are under consideration by the Government.

In connection with railway level crossings, the conference unanimously agreed that, in view of the finances available and the measures in hand, the best available steps were being taken by the Railway Department; and a similar resolution was carried in connection with roadworks of the Main Highways Board and Public Works Department. In connection with railway crossings, a resolution was carried unanimously that power be given to local authorities and the Government, through the local authorities, to remove growth, even if on private property, obscuring the view at railway level crossings. Proposals for the regulation of pedestrians and other road traffic were approved by the conference, which also recommended that the Stock Act, 1908, and other Acts relating to stock on roads be revised and brought into line with modern conditions.

These proposals would also require amendment of the law, and are under consideration.

After reviewing the existing laws, the conference proceeded to consider the methods of enforcement thereof, and it was clear that the majority of the conference was not satisfied with the present system of divided control, whereby some three hundred local authorities in New Zealand are responsible for

the enforcement in their own areas, and the police take a measure of responsibility in the more serious cases. It was generally considered that the present system was both inefficient, particularly in the country districts, and more expensive than should be the case for the results provided, and that, further, there was a complete absence of uniformity of enforcement.

After a full discussion a resolution was passed by a large majority in favour of a national and uniform system of traffic-law enforcement being instituted. This recommendation requires and is receiving very full investigation from the financial and other aspects before anything is done to give effect to it.

The conference also unanimously recommended that a system of chance mechanical inspection (more particularly of brakes) be instituted by Government patrol officers, as there was no doubt that a large percentage of vehicles were being run in an unsafe condition.

This proposal, although not so far-reaching as the previous one, also requires full investigation and consideration by the Government, more particularly as to cost, and steps are being taken as indicated under the previous recommendation.

The penalties at present inflicted for traffic offences were also considered, and, while a recommendation was made by the conference that the Justice Department consider methods of making the penalties for similar minor traffic offences more uniform, the conference was against any idea for dispensing with Court procedure in minor cases, even when guilt is admitted. It was also recommended that a system of addresses on traffic dangers be added to the curriculum of each school, and that various other methods be adopted for the reduction of danger to school-children, and the education of the public in traffic dangers through the radio and the press. In this connection conference expressed, by resolution, its appreciation of the assistance being rendered by the North and South Island Motor Unions in providing funds for "safety first" propaganda.

A method of establishing a scheme to obtain fuller traffic-accident statistics than are at present available was considered by the conference to be an important aspect of its deliberations. A sub-committee was set up to consider the possibility of obtaining the essential primary data from the insurance companies. This scheme promises well, but, owing to the financial stringency, it has not yet been put into operation.

Analysis of Fatal Accidents from 1st April, 1930, to 31st March, 1931, and Comparison with those of Last Year.

The fatal motor accidents occurring on public roads between the 1st April, 1930, and the 31st March, 1931, numbered, according to this Department's information, 221, giving rise to 247 deaths. The table below analyses these figures in the same way as in last year's annual report, and the figures in the latter are shown in brackets for purposes of comparison. It must be borne in mind that the fatalities cover a very small portion of the whole field of motor-accidents, and the value of any comparisons is accordingly limited to this extent.

The striking aspect in comparing the figures for the two periods is, unfortunately, the increase of accidents by 53 (over 30 per cent.) and the increase of deaths by 62 (over 33 per cent.). If lessons can be drawn from the figures, they may perhaps be that the increased safety provided by four-wheel brakes does not appear to equalize the danger provided by the speed possible from modern cars, and that laws are ineffectual unless properly obeyed and enforced.

Table.

(1) *Nature of Accident.*—Collisions: Motor-vehicle with—Pedestrian, (52) 55; motor-vehicle, (40) 75; train, (7) 11; tram, (1) 1; bicycle, (12) 7; horse-vehicle or horse under control, (4) 1; fixed object, (6) 8; straying stock, (1) 1. No collisions: Went over bank, (27) 29; otherwise, (22) 33. Total accidents, (172) 221.

The increase in motor collisions is noteworthy.

(2) *Persons killed classified in Ages.*—0–4 years, (10) 7; 5–9 years, (8) 9; 10–14 years, (2) 5; 15–19 years, (17) 24; 20–24 years, (30) 45; 25–54 years, (83) 101; 55 years and over, (36) 57: total deaths, (186) 247.

The adult ages show the greatest increase.

(3) *Types of Vehicle involved.*—Motor-cycle, (59) 64; private motor-car (105) 132; taxi-cab, (2) 4; service-car, (5) 5; motor-omnibus (3) 5; motor lorry or van, (39) 46; bicycle, (12) 7; tram, (2) 1; horse-drawn, (4) 0; train, (7) 9; other vehicle, (1) 0.

The private motor is apparently the class affected by the majority of the increased accidents.

(4) *Hour of Accident.*—Midnight–1 a.m., (0) 4; 1–6 a.m., (7) 8; 6–7 a.m., (1) 1; 7–8 a.m., (1) 7; 8–9 a.m., (6) 5; 9–10 a.m., (4) 4; 10–11 a.m., (5) 10; 11–12 a.m., (11) 15; 12–1 p.m., (4) 5; 1–2 p.m., (10) 4; 2–3 p.m., (8) 13; 3–4 p.m., (2) 16; 4–5 p.m., (24) 18; 5–6 p.m., (23) 20; 6–7 p.m., (23) 24; 7–8 p.m., (11) 16; 8–9 p.m., (12) 20; 9–10 p.m., (5) 7; 10–11 p.m., (8) 14; 11–12 p.m., (7) 10.

Generally the figures show, as last year, that between 4 p.m. and 7 p.m. is the peak period.

(5) *Day of Week of Accident.*—Sunday, (26) 33; Monday, (23) 28; Tuesday, (17) 24; Wednesday, (28) 25; Thursday, (21) 23; Friday, (22) 33; Saturday, (35) 55.

The increase in week-end accidents is noteworthy.

(6) *Persons killed classified by Location.*—Pedestrians, (53) 55; on motor-cycles, (51) 58; on other motor-vehicles, (68) 119; on other vehicles or horses, (14) 16.

Here again the increase is principally in the four-wheel motor-vehicle.

(7) *Conditions of Light.*—Daylight, (86) 89; dusk, (19) 34; artificial lighting, (22) 20; darkness or moonlight, (45) 78.

The increase is principally in the hours of darkness.

(8) *Nature of Thoroughfare.*—Intersection, (19) 18; railway-crossing, (7) 9; nature or condition of road (bad surface or bend, &c.) helped accident, (48) 51; road conditions not a factor, (98) 143.

Although the railway-crossing accidents are only 2 more than last year, they account for 20 deaths.

(9) *Location.*—(*a*) North Island: Auckland City and environs, (29) 25; Wellington City and environs, (16) 19; other towns, (20) 31; country, (57) 88. (*b*) South Island: Christchurch City and environs, (13) 14; Dunedin City and environs, (4) 8; other towns, (8) 11; country, (25) 25.

This shows that the increase lies chiefly in the North Island country districts.

(10) *Causes of Accident.*—Breaches of law: Excessive speed in circumstances—(*a*) But not exceeding 20 miles per hour, (33) 6; (*b*) exceeding 20 miles per hour, but not exceeding 35 miles, (35) 25; (*c*) exceeding 35 miles, (18) 32.*

On wrong side of road, (24) 38. Did not comply with "off-side" rule, (7) 7. Passing standing tram, (3) 0. Other passing breaches, (9) 4. Failure of driver to signal—Motor-vehicles, (3) 0; other vehicles, (2) 0. Breaches of law relating to railway intersections, (7) 11. Vehicle without rear reflector or with inefficient one, (2) 2. Faulty brakes, (8) 9. No lights or inefficient lights (including horse-vehicles and bicycles), (22) 17. Glaring headlights, (4) 10. Faulty steering-gear, (3) 4. Faulty tires or wheels, (4) 8. Driver's mild intoxication a factor in accident, (12) 26. Driver's severe intoxication a factor in accident, (3) 7. Driver unlicensed or inexperienced, (5) 2. Straying stock, (1) 1. Other breaches of law, (5) 2.

Other causes: Bad weather conditions, (19) 4. Vehicle being reversed, (3) 2. Sun-dazzle, (2) 0. Obstruction to view by parked motor-vehicle, (4) 5. Driver's physical defect a direct cause, (4) 0.

Motorist and pedestrian—Motorist at fault, (17) 9; pedestrian (not intoxicated) crossing or on road, without care or getting confused, (17) 30; pedestrian intoxicated, (5) 5; children on streets, (2) 7; infant (under six) not under proper control, (9) 1; other causes of pedestrian accidents, (6) 1.

Causes not included above, (4) 22.

The larger number of accidents apparently occurring at the higher speeds and due to not keeping to the left is noteworthy; also the increase in cases of driver's intoxication and glaring headlights.

MECHANICAL DEVELOPMENTS DURING YEAR.

The Electric Trolly-bus.

Until quite recently the trackless trolly-bus as a class of public passenger-vehicle has been represented in New Zealand by one small vehicle only of an early type. The inauguration during the year of trolly-bus service for several miles outwards from Christchurch with large capacity single-deck vehicles of modern design and attractive appearance draws attention to the potentialities of this type of vehicle.

The trolly-bus is growing in popularity both in Great Britain and in the United States of America, and in this latter connection statistical figures recently published show that the percentage increases for the United States of America for the year 1930 compared with the previous year have been as follows: 83 per cent. increase in the number of companies operating trolly-buses, 174 per cent. increase in the number of buses, 143 per cent. increase in the number of routes, and 170 per cent. increase in the mileage run.

Tires.

Perhaps no section of motor-vehicle production has made more progress within the year than the tire-manufacturing branch has done. Not only are they extending the life of tires of ordinary types and sizes by improved methods of construction, but are also offering, on the one hand, "balloon" tires of exceptionally large carrying-capacity—viz., 4 tons per tire—and, on the other hand, tires of moderate load-capacity at relatively low air-pressures, which in turn give safety and added comfort to the traveller.

The system of rating the gross load capacity of commercial vehicles per medium of their respective tires and in keeping with the tire load and inflation schedules as published and recommended by associations representing the interests of both chassis-makers and tire-manufacturers is likely to become general throughout Great Britain and the United States of America.

Oversea Mechanical Transport Council.

An outline of the activity and objective of the Oversea Mechanical Transport Directing Committee was given in my annual report for last year, and it is pleasing to now report that the committee has been able to carry on with, and has achieved some success in, the work of developing mechanical transport for the economic benefit of our Empire.

In the first quarterly bulletin issued during the year it is reported that, after considering the respective merits of alternative designs for the 40-ton pay-load unit, it was decided to proceed with the combination tractor with two 20-ton trailers, and much experimental work has been and is still being done on a section and on parts of the patented track proposed for the job.

Naturally, more progress has been made with the lighter tractor, with 15-ton pay-load multi-axle trailer unit, and it is expected that a detailed report upon the experiments and investigations of this useful type of vehicle will be available shortly.

* As in many cases the only source of information *re* speed was the driver himself, these figures are not a reliable guide.

The Three-axle Vehicle.

Transport conditions vary greatly not only in different parts of the world, but also in the different parts of any country such as ours, and consequently the requirements in motor-vehicles to meet those needs will likewise vary, but there is, and always will be, throughout the civilized world a universal desire for a high standard of efficiency in transportation with a relatively low cost in "road construction cum maintenance." In this latter connection, few would deny that the pneumatic tire of to-day justifies special mention, while many authorities would be ready to place the rigid-frame three-axle vehicle next in order of merit. As proof of the suitability of this type of vehicle for the general needs of transport, and as an indication of the present demand, it may suffice to state that in the recently compiled motor-truck schedules of England and of the United States of America many makes of such vehicles are included, and even the 30 cwt. pay-load class is represented. Everybody interested in transport is familiar with the advantages of the pneumatic tire, and likewise it is now generally known to road-controlling authorities that the rigid-frame three-axle vehicle does much less damage to the roadway through impact than the orthodox two-axle motor-truck of the same or of considerably less gross weight. Any owner of the former type of truck could confidently expect his "vehicle-maintenance charge per ton-mile" to be similarly less, and he could also profit through the extra gross-weight allowance given to this type of vehicle on roads with a restrictive load-classification. It has been predicted that in a few years' time the six-wheel vehicle will outnumber the four-wheel vehicle, owing to its ability to carry a greater pay-load for a given gross weight and to its less destructive effect on the roads.

The "Diesel" Engine.

The design, tests, and future prospects of the so-called "Diesel" engine for service in the motor-vehicle have been popular subjects for serious discussion in the engineering and transport world during the past year, while much valuable information and experience obtained from the many experimental vehicles actually engaged in daily service has been published.

It is to be expected that the development of such engines would be gradual, in spite of the phenominally low cost of the fuel consumed and of many other attractive features. Marked progress has been and is still being made with the "Diesel" engine, but the weight of evidence thus far available has not yet given the manufacturer of the competitive petrol-engine cause to reorganize his works or take other drastic action in anticipation of an immediate wholesale demand for compression-ignition units.

A company operating a large fleet of motor omnibuses in the Auckland area has imported and is about to commission a Diesel-engined unit which, when fully laden, will have a gross weight of over 8 tons. As this is the first of its kind to be operated within the Dominion, it will attract much attention, and its performance and the comparative cost of operation will doubtless be watched with interest.

APPENDIX.

TABLE 1.—MOTOR-VEHICLE REGISTRATIONS, 1925–1930.

Table showing the Total Number of Vehicles registered under the Motor-vehicles Act, 1924, at 31st December, in the Years 1925 to 1930.

(N.B.—Dormant, but not Cancelled, Registrations are included in this Table.)

31st December,	Cars.	Trucks (classified according to Pay-load Capacity).								Omnibuses.	Traction Engines.	Trailers.		Tractors.	Others.	Motor-cycles.	Grand Total.
		Not more than 1-ton.	Over 1-ton and not more than 2-ton.	Over 2-ton and not more than 3-ton.	Over 3-ton and not more than 4-ton.	Over 4-ton and not more than 5-ton.	Over 5-ton and not more than 6-ton.	Over 6-ton.	Total.			Three or More Wheels.	Two Wheels.				
1925 ..	81,662	9,671	2,077	879	713	268	48	17	13,673	1,285	386	198	291	193	369	25,339	123,396
1926 ..	101,462	13,056	2,827	1,155	824	314	48	27	18,251	1,590	465	241	432	328	455	32,101	155,325
1927 ..	111,641	15,601	3,643	1,322	850	340	41	18	21,815	1,143	477	314	535	345	422	34,593	171,285
1928 ..	125,656	17,057	4,302	1,465	866	347	48	21	24,106	1,190	421	269	689	422	460	36,116	189,329
1929 ..	143,814	18,792	6,453	1,668	852	349	51	24	28,189	1,271	372	262	945	449	501	37,349	213,152
1930 ..	155,189	19,894	8,068	1,807	873	350	51	23	31,066	1,308	306	261	1,325	465	505	37,582	228,007

TABLE 2.—MOTOR-VEHICLE REGISTRATIONS, BY HIGHWAY DISTRICTS.

TABLE SHOWING ACCORDING TO HIGHWAY DISTRICTS THE NUMBER OF MOTOR-CABS, OMNIBUSES, AND MOTOR-TRUCKS (INCLUDING DORMANT, BUT NOT CANCELLED, REGISTRATIONS) REGISTERED AT 31ST DECEMBER IN THE YEARS 1926, 1927, 1928, 1929, AND 1930.

Highway District.	District No.	Motor-cars.					Omnibuses.					Motor-trucks.				
		1926.	1927.	1928.	1929.	1930.	1926.	1927.	1928.	1929.	1930.	1926.	1927.	1928.	1929.	1930.
Auckland North	1	12,987	14,838	5,394*	6,310*	6,863*	412	264	21*	37*	43*	3,575	4,241	1,600*	1,893*	2,104*
Auckland South	2	9,454	10,656	23,826*	28,015*	30,586*	165	78	329*	343*	341*	1,970	2,457	5,836*	6,663*	7,173*
Tauranga	3	2,079	2,359	2,704	3,222	3,562	52	26	25	23	26	469	624	698	835	951
Gisborne	4	2,471	2,837	3,225	3,648	3,863	40	29	30	36	38	361	426	458	546	609
Hawke's Bay	5	7,217	7,857	8,728	9,834	10,382	94	69	73	72	75	1,274	1,553	1,649	1,896	2,072
King-country	6	1,134	1,257	1,478	1,826	1,989	44	24	22	28	30	357	463	523	721	787
Taranaki	7	5,787	6,332	7,221	8,184	8,789	52	40	43	42	43	891	1,055	1,223	1,491	1,648
Wanganui	8	4,820	5,313	5,897	6,652	6,962	40	37	39	41	39	905	1,027	1,110	1,263	1,326
Wellington West	9	12,535	13,715	15,830	18,503	20,328	187	184	187	192	198	2,596	2,988	3,340	3,800	4,119
Wellington East	10	4,048	4,146	4,646	5,223	5,564	31	36	35	39	39	634	699	745	881	947
Nelson	11	3,198	3,566	3,945	4,513	4,892	66	48	49	49	49	469	577	637	778	902
West Coast	12	1,197	1,392	1,590	1,891	2,183	60	44	52	58	61	326	421	459	567	670
Canterbury North	13	1,128	1,103	1,243	1,416	1,499	6	9	9	10	11	138	149	179	226	268
Canterbury Central	14	11,466	12,582	13,870	15,475	16,528	84	58	65	72	72	1,573	1,841	2,001	2,339	2,605
Canterbury South	15	8,266	8,835	9,695	10,684	11,208	83	83	91	97	100	744	911	1,008	1,235	1,422
Otago Central	16	1,447	1,459	1,647	1,869	1,977	21	16	16	18	19	181	203	238	291	329
Otago South	17	6,130	6,771	7,491	8,485	9,028	85	58	63	67	73	1,162	1,377	1,494	1,707	1,832
Southland	18	6,098	6,623	7,226	8,064	8,431	68	40	41	47	51	626	803	908	1,057	1,203
Totals	..	101,462	111,641	125,656	143,814	154,634	1,590	1,143	1,190	1,271	1,308	18,251	21,815	24,106	28,189	30,967

* Alterations in boundaries invalidate horizontal comparisons for the North Auckland and South Auckland Districts beyond 1927.

TABLE 3.—MOTOR-CYCLE REGISTRATIONS, BY HIGHWAY DISTRICTS.

TABLE SHOWING THE NUMBER OF MOTOR-CYCLES REGISTERED IN THE DOMINION, ACCORDING TO HIGHWAY DISTRICTS, AT 31ST DECEMBER, 1926, 1927, 1928, 1929, AND 1930.

Highway District.	District No.	1926.	1927.	1928.	1929.	1930.
Auckland North	1	3,241	3,923	1,890*	2,107*	2,266*
Auckland South	2	2,893	2,812	5,718*	6,236*	6,594*
Tauranga	3	556	646	688	736	753
Gisborne	4	329	432	480	518	531
Hawke's Bay	5	1,948	2,135	2,108	2,036	1,871
King-country	6	364	356	375	404	416
Taranaki	7	2,228	2,412	2,650	2,759	2,782
Wanganui	8	1,651	1,742	1,706	1,696	1,598
Wellington West	9	4,060	4,383	4,617	4,614	4,526
Wellington East	10	992	937	939	946	934
Nelson	11	1,298	1,426	1,434	1,486	1,487
West Coast	12	493	609	632	657	641
Canterbury North	13	336	311	335	352	358
Canterbury Central	14	5,127	5,411	5,495	5,686	5,717
Canterbury South	15	2,457	2,566	2,583	2,622	2,555
Otago Central	16	420	365	373	371	379
Otago South	17	1,996	2,291	2,317	2,346	2,303
Southland	18	1,712	1,836	1,776	1,777	1,693
Totals	..	32,101	34,593	36,116	37,349	37,404

* Alterations in boundaries invalidate horizontal comparisons for the North Auckland and the South Auckland Districts beyond 1927.

TABLE 4.—REGISTRATIONS CANCELLED AT 1ST JUNE, 1931.

TABLE SHOWING THE NUMBER OF "DORMANT"* 1928–29 REGISTRATIONS INCLUDED IN THE REGISTER OF MOTOR-VEHICLES ON THE 31ST MAY, 1931, AND WHICH WERE CANCELLED ON THE 1ST JUNE, 1931, IN ACCORDANCE WITH REGULATION 3, GAZETTED ON THE 8TH MARCH, 1928, UNDER THE MOTOR-VEHICLES AMENDMENT ACT, 1927.

Highway District.			Trucks (Pay-load Capacity).									Trailers.					
Name.	No.	Cars.	Not more than 1-ton.	Over 1-ton and not more than 2-ton.	Over 2-ton and not more than 3-ton.	Over 3-ton and not more than 4-ton.	Over 4-ton and not more than 5-ton.	Over 5-ton and not more than 6-ton.	Over 6-ton.	Motor-buses.	Traction-engines.	3 or more Wheels.	2 Wheels.	Tractors.	Other Motor-vehicles.	Cycles.	Totals.
Auckland North ..	1	251	108	26	4	2	1	..	..	12	1	..	5	1	..	188	599
Auckland South ..	2	909	304	79	34	13	4	1	..	21	2	3	8	4	5	615	2,002
Tauranga ..	3	203	49	8	3	3	1	..	..	4	..	..	2	3	2	110	388
Gisborne ..	4	138	25	7	2	2	2	..	..	1	2	..	3	..	..	50	232
Hawke's Bay ..	5	459	92	27	4	16	..	..	1	8	4	3	2	6	2	357	981
King-country ..	6	144	64	11	11	..	..	..	..	7	..	..	1	4	1	61	304
Taranaki ..	7	302	42	7	10	4	9	..	..	4	..	..	5	7	1	366	757
Wanganui ..	8	297	57	20	7	5	3	..	..	4	1	..	4	7	..	227	632
Wellington West ..	9	700	122	27	9	10	3	..	..	16	3	4	8	6	3	611	1,522
Wellington East ..	10	220	48	8	5	2	..	..	..	2	2	..	6	3	..	153	449
Nelson	11	154	35	5	8	2	1	1	..	6	2	1	2	4	1	169	391
West Coast ..	12	96	37	7	3	1	..	..	..	5	..	..	1	..	..	93	243
Canterbury North	13	35	8	..	..	1	..	..	..	1	4	2	1	4	..	41	97
Canterbury Central	14	545	95	20	13	7	1	..	..	2	16	4	26	5	3	758	1,495
Canterbury South	15	409	60	10	2	6	2	2	..	7	40	27	9	10	..	397	981
Otago Central ..	16	89	15	..	2	..	2	..	..	2	1	..	2	1	..	57	171
Otago South ..	17	356	76	7	5	4	..	..	..	3	5	1	9	3	..	327	796
Southland ..	18	362	40	10	4	5	..	..	..	1	2	2	2	3	..	314	745
Totals, 1931 ..	..	5,669	1,277	279	126	83	29	4	1	106	85	47	96	71	18	4,894	12,785
Totals, 1930 ..	..	3,605	720	171	65	42	16	1	1	53	77	45	69	67	21	3,385	8,338

* "Dormant" means vehicles which, although registered, were not licensed during the years 1929–30 and 1930–31.

TABLE 5.—MOTOR-VEHICLE REGISTRATIONS AT 31ST MARCH, 1931.

TABLE SHOWING THE NUMBER OF MOTOR-VEHICLE REGISTRATIONS, INCLUDING "DORMANT"*, BUT EXCLUDING CANCELLED REGISTRATIONS, UP TO AND INCLUDING THE 31ST MARCH, 1931.

Highway District.			Trucks (Pay-load Capacity).									Trailers.					
Name.	No.	Cars.	Not more than 1-ton.	Over 1-ton and not more than 2-ton.	Over 2-ton and not more than 3-ton.	Over 3-ton and not more than 4-ton.	Over 4-ton and not more than 5-ton.	Over 5-ton and not more than 6-ton.	Over 6-ton.	Motor-buses.	Traction-engines.	3 or more Wheels.	2 Wheels.	Tractors.	Other Motor-vehicles.	Cycles.	Totals.
Auckland North..	1	6,914	1,423	657	32	9	7	..	..	44	3	9	60	25	16	2,330	11,529
Auckland South..	2	31,019	4,773	1,830	370	194	65	10	6	342	9	23	118	28	98	6,736	45,621
Tauranga ..	3	3,602	675	240	35	14	4	..	..	26	..	..	13	25	11	767	5,412
Gisborne ..	4	3,891	313	216	57	22	4	..	..	38	5	..	12	15	3	539	5,115
Hawke's Bay ..	5	10,421	1,294	534	158	86	29	4	3	75	7	13	54	36	52	1,892	14,658
King-country ..	6	2,006	463	301	27	3	1	1	..	31	4	4	19	3	4	421	3,288
Taranaki ..	7	8,873	1,054	430	92	45	36	1	1	43	7	..	22	13	20	2,812	13,449
Wanganui ..	8	7,021	869	335	90	34	13	..	..	39	2	1	26	18	20	1,610	10,078
Wellington West..	9	20,614	2,405	1,099	349	206	75	7	7	199	6	15	95	76	76	4,585	29,814
Wellington East..	10	5,606	620	243	60	32	8	..	..	40	16	8	62	30	25	942	7,692
Nelson	11	4,936	579	232	61	26	13	6	..	50	13	1	30	29	18	1,502	7,496
West Coast ..	12	2,210	414	213	32	19	4	1	..	62	4	3	31	13	14	653	3,673
Canterbury North	13	1,506	166	84	11	5	5	1	..	11	9	5	6	14	4	367	2,194
Canterbury Central	14	16,683	1,810	570	155	53	31	10	3	75	55	60	358	47	54	5,812	25,776
Canterbury South	15	11,283	972	318	90	38	21	5	2	102	134	98	226	32	42	2,579	15,942
Otago Central ..	16	1,989	229	69	24	7	3	..	..	19	8	3	18	11	5	383	2,768
Otago South ..	17	9,100	1,200	450	120	52	20	4	..	74	24	20	144	37	27	2,335	13,607
Southland ..	18	8,506	743	372	59	33	13	1	1	51	9	3	66	27	19	1,711	11,614
Totals ..	..	156,180	20,002	8,193	1,822	878	352	51	23	1,321	315	266	1,360	479	508	37,976	229,726

* "Dormant" means vehicles which have been registered but not licensed for the current year.

TABLE 6.—REGISTRATIONS CANCELLED UP TO AND INCLUDING 30TH JUNE, 1931.

TABLE SHOWING THE NUMBER OF CANCELLED MOTOR-VEHICLE REGISTRATIONS UP TO AND INCLUDING THE 30TH JUNE, 1931.

Highway District.			Trucks (Pay-load Capacity).									Trailers.					
Name.	No.	Cars.	Not more than 1-ton.	Over 1-ton and not more than 2-ton.	Over 2-ton and not more than 3-ton.	Over 3-ton and not more than 4-ton.	Over 4-ton and not more than 5-ton.	Over 5-ton and not more than 6-ton.	Over 6-ton.	Motor-buses.	Traction-engines.	3 or more Wheels.	2 Wheels.	Tractors.	Other Motor-vehicles.	Cycles.	Totals.
Auckland North ..	1	1,046	358	70	22	15	4	..	..	53	2	6	24	16	26	749	2,391
Auckland South ..	2	3,057	896	215	93	49	10	1	..	97	18	11	26	42	39	2,049	6,603
Tauranga ..	3	499	143	26	12	4	2	..	..	12	..	..	10	8	5	292	1,013
Gisborne ..	4	478	69	25	5	5	6	..	..	14	2	2	11	2	11	180	810
Hawke's Bay ..	5	1,409	298	78	29	39	2	..	2	24	12	12	14	18	27	1,350	3,314
King-country ..	6	324	136	31	18	6	1	..	..	13	..	..	2	7	4	191	733
Taranaki ..	7	992	155	38	26	14	21	..	..	10	2	..	6	8	14	1,210	2,496
Wanganui ..	8	906	180	55	29	16	8	1	..	10	7	3	21	19	8	862	2,125
Wellington West ..	9	2,687	583	143	92	58	13	3	..	68	10	13	29	41	23	2,309	6,072
Wellington East ..	10	665	141	38	16	9	..	1	..	14	9	9	25	4	3	586	1,520
Nelson	11	521	105	20	13	5	3	2	..	18	17	6	5	15	5	650	1,385
West Coast ..	12	298	108	14	9	10	..	..	..	11	1	3	8	6	6	296	770
Canterbury North	13	116	23	4	1	3	..	..	..	1	11	11	4	10	3	146	333
Canterbury Central	14	1,945	319	50	28	17	4	..	..	13	69	65	65	13	32	2,541	5,161
Canterbury South	15	1,305	139	30	5	11	7	2	..	27	111	79	20	16	5	1,345	3,102
Otago Central ..	16	262	30	2	3	2	5	..	..	5	7	..	4	3	..	193	516
Otago South ..	17	1,272	287	38	16	13	5	..	2	10	31	8	14	6	11	1,163	2,876
Southland ..	18	1,251	139	19	11	15	9	..	..	10	23	3	11	8	6	1,172	2,677
Totals to June 1931	..	19,033	4,109	896	428	291	100	10	4	410	332	231	299	242	228	17,284	43,897
Totals to June, 1930	..	12,587	2,602	572	283	197	63	6	2	285	247	183	194	174	210	12,234	29,839

TABLE 7.—PETROL-TAX ALLOCATION TO BOROUGHS WITH 6,000 OR MORE POPULATION.

TABLE SHOWING THE DISTRIBUTION OF THE PETROL-TAX TO BOROUGHS WITH A POPULATION OF 6,000 AND OVER.

Boroughs.	Year ended 31st March, 1931. Amount of Tax, Quarter ended										Total since Inception of Petrol-tax up to 31st March, 1931.			
	June.			September.			December.			March.			Total.			
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£ s. d.
Wellington ..	3,862	0	7	3,000	9	6	3,143	13	8	3,098	12	4	13,104	16	1	37,580 17 10
Auckland ..	3,687	12	3	2,864	19	5	3,001	14	3	2,958	13	7	12,512	19	6	36,336 5 8
Christchurch ..	3,150	2	8	2,447	7	10	2,564	4	1	2,527	8	10	10,689	3	5	31,167 13 6
Dunedin	2,397	6	1	1,862	10	2	1,951	8	0	1,923	8	7	8,134	12	10	23,770 12 8
Wanganui ..	889	17	4	691	7	1	724	7	0	713	19	4	3,019	10	9	8,842 18 0
Mount Albert ..	718	13	2	558	6	9	584	19	9	576	12	0	2,438	11	8	7,021 18 5
Mount Eden ..	703	14	2	546	14	5	572	16	4	564	12	1	2,387	17	0	6,950 4 2
Invercargill ..	713	9	10	554	6	7	580	15	8	572	9	2	2,421	1	3	7,007 0 0
Palmerston North ..	717	4	8	557	4	8	583	16	6	575	9	2	2,433	15	0	6,988 9 3
Napier	575	4	3	446	17	10	468	4	5	461	10	2	1,951	16	8	5,698 15 2
Timaru	586	8	6	455	12	1	477	6	11	470	10	1	1,989	17	7	5,754 16 4
New Plymouth ..	547	5	5	425	3	8	445	9	6	439	1	10	1,857	0	5	5,364 15 6
Hamilton ..	536	4	8	416	12	2	436	9	11	430	4	9	1,819	11	6	5,283 10 8
Gisborne	491	11	3	381	18	1	400	2	8	394	7	11	1,667	19	11	4,862 11 3
Onehunga ..	395	16	3	307	10	3	322	3	10	317	11	5	1,343	1	9	3,926 3 2
Lower Hutt ..	457	15	0	355	12	8	372	12	2	367	5	4	1,553	5	2	4,174 19 7
Hastings ..	400	15	11	311	7	8	326	4	11	321	11	5	1,359	19	11	3,891 0 1
Nelson	378	14	7	294	4	10	308	5	8	303	17	3	1,285	2	4	3,743 8 11
Petone	383	7	1	297	16	8	312	1	0	307	11	6	1,300	16	3	3,736 5 10
Devonport ..	366	19	8	285	2	3	298	14	5	294	8	10	1,245	5	2	3,642 1 2
Masterton ..	303	8	11	235	15	0	247	0	1	243	9	3	1,029	13	3	3,004 5 11
St. Kilda.. ..	290	9	1	225	13	2	236	8	7	233	0	9	985	11	7	2,892 8 7
Oamaru	267	6	4	207	13	8	217	11	11	214	9	6	907	1	5	2,648 2 5
Whangarei ..	257	14	1	200	4	4	209	15	5	206	15	3	874	9	1	2,523 10 1
Takapuna ..	245	19	2	191	1	10	200	4	3	197	6	10	834	12	1	2,434 16 2
Greymouth ..	217	2	7	168	13	10	176	14	10	174	4	2	736	15	5	1,440 14 2
One Tree Hill ..	281	18	2	219	0	5	229	9	6	226	3	8	956	11	9	956 11 9
Totals ..	23,824	1	8	18,509	6	10	19,392	15	3	19,114	15	0	80,840	18	9	231,644 16 3

TABLE 8.—TAXATION OF MOTOR-VEHICLES, 1923–1931.

TABLE SHOWING THE ANNUAL YIELD FOR THE YEARS ENDED 31ST MARCH, 1923 TO 1931, IN RESPECT OF (*a*) CUSTOMS DUTIES ON MOTOR-VEHICLES AND PARTS; (*b*) TIRE-TAX; (*c*) MOTOR-SPIRITS TAX; (*d*) FEES, ETC., UNDER THE MOTOR-VEHICLES ACT, 1924; (*e*) HEAVY-TRAFFIC FEES; AND (*f*) DRIVERS' LICENSES.

Year ended 31st March,	Customs Duties in respect of Motor-vehicles and Parts.*	Tire-tax.	Motor-spirits Tax.	Fees, &c., under Motor-vehicles Act, 1924.	Heavy-traffic Fees.	Drivers' Licenses.	Total.
1923 ..	206,344	121,092	..	..	..	..	327,436
1924 ..	586,808	123,568	..	..	..	..	710,376
1925 ..	767,778	152,303	..	257,500	..	..	1,177,581
1926 ..	949,794	228,711	..	86,681†	114,009	33,162	1,412,357
1927 ..	1,022,553	190,575	..	395,797	220,616	50,650	1,880,191
1928 ..	821,472	227,451	143,516	345,510	157,651	52,495	1,748,095
1929 ..	1,004,288	196,747	802,232	244,598	190,789	36,830	2,475,484
1930 ..	1,349,885	155,910	961,907	391,368	183,486	56,578	3,099,134
1931 ..	849,856	130,408	1,300,050	393,798	184,084	50,000‡	2,908,196
Totals up to 31st March, 1931	7,558,778	1,526,765	3,207,705	2,115,252	1,050,635	279,715	15,738,850

* Calendar year. † Alteration in licensing period. ‡ Estimated.

TABLE 9.—NUMBER OF VEHICLES AND HEAVY-TRAFFIC LICENSE FEES, 1930–1931.

TABLE SHOWING FOR THE YEAR ENDED 31ST MARCH, 1931, THE NUMBER OF VEHICLES IN RESPECT OF WHICH HEAVY-TRAFFIC LICENSE FEES WERE PAID, AND THE AMOUNTS OF THESE FEES PAID.

Class. (Gross Weight.)	Number of Vehicles.				Amount of Fees.			
	Pneumatic Tires on all Wheels.	Solid Tires on all Wheels.	Both Solid and Pneumatic Tires.	Total.	Pneumatic Tires on all Wheels.	Solid Tires on all Wheels.	Both Solid and Pneumatic Tires.	Total.
(a) Goods Vehicles.								
						£	£	£
A—Over 2 tons–not more than 2½ tons	2,534	71	30	2,635	10,934	350	145	11,429
B „ 2½ „ „ 3 „	2,338	48	7	2,393	14,714	384	43	15,141
C „ 3 „ „ 3½ „	1,927	60	7	1,994	15,046	559	74	15,679
D „ 3½ „ „ 4 „	1,210	101	17	1,328	12,564	1,377	229	14,170
E „ 4 „ „ 4½ „	721	98	8	827	8,989	1,693	130	10,812
F „ 4½ „ „ 5 „	426	105	12	543	6,406	1,900	231	8,537
G „ 5 „ „ 5½ „	324	97	10	431	5,529	2,223	109	7,861
H „ 5½ „ „ 6 „	301	136	7	444	6,194	3,545	195	9,934
I „ 6 „ „ 6½ „	177	118	8	303	4,019	3,475	182	7,676
J „ 6½ „ „ 7 „	211	114	6	331	4,783	3,726	206	8,715
K „ 7 „ „ 7½ „	93	73	4	170	2,386	2,415	143	4,944
L „ 7½ „ „ 8 „	98	103	9	210	3,619	3,703	214	7,536
M „ 8 „ „ 8½ „	52	77	1	130	1,948	3,471	22	5,441
N „ 8½ „ „ 9 „	31	70	1	102	1,205	3,057	51	4,313
O „ 9 „ „ 9½ „	16	57	2	75	583	2,332	105	3,020
P „ 9½ „ „ 10 „	35	170	7	212	1,778	9,977	301	12,056
Q „ 10 „ „ 15 „ (Six Wheelers)	6	15	..	21	259	779	..	1,038
	10,500	1,513	136	12,149	100,956	44,966	2,380	148,302
(b) Passenger Vehicles.								
Not more than twenty passengers ..	1,331	3	..	1,334	14,613	20	..	14,633
Over twenty and not more than thirty passengers	280	..	..	280	10,696	..	..	10,696
Over thirty passengers	183	..	..	183	10,453	..	..	10,453
Totals	1,794	3	..	1,797	35,762	20	..	35,782

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