1932.
NEW ZEALAND.

GOVERNMENT RAILWAYS SUPERANNUATION FUND.

REPORT BY THE GOVERNMENT ACTUARY, SHOWING THE RESULTS OF AN INVESTIGATION
INTO THE POSITION OF THE FUND AS AT THE 31st MARCH, 1927.

Laid on the Table of the House of Representatives by Leave.

REPORT.

Government Actuary's Department, Wellington, 15th July, 1929.

1. In accordance with the instructions of the Hon. the Minister of Railways I have made an actuarial investigation of the Government Railways Superannuation Fund as at the 31st March, 1927, and have the honour to submit the following report.

2. The Fund, which was established on the 1st January, 1903, gave existing employees of the Railway Department the option to become contributors, but compulsorily brought within its scope all subsequent permanent employees. Those employees taken over with the Manawatu Railway, however, were given the option of becoming contributors. The Fund is administered by a Board consisting of nine members—namely, the Minister of Railways, the Solicitor-General, the Public Trustee, the Chairman of the Government Railways Board, and five contributors' representatives, two of whom are elected from the First Division and three from the Second Division.

3. The Fund, which was the first of the three existing Funds to be established for the superannuation of Government servants, differs somewhat from the other two. For example, the contributions of members who joined prior to 1908 (including employees of the Manawatu Railway Co.), at ages under 50, are lower by 2 per cent. per annum of salary than those in the other schemes, and furthermore, any contributor may retire at age 60 instead of age 65. On the other hand, the Fund becomes liable for the widow's and children's allowances only if the contributor dies while in service, whereas the other funds extend the benefits to the widow and children of a deceased pensioner. Again there is no provision for a statutory triennial actuarial valuation as in the other funds.

4. The Government Railways Superannuation Fund also differs from the other Government Superannuation Funds in that there is no statutory subsidy by the State, as employer. The original Act contained a guarantee to the effect that " in the event of the Fund at any time being unable to meet the charges upon it," the deficiency would be met by the Consolidated Fund. The obvious deficiency created by the free gift of that portion of the pension allowed for each year of service prior to the establishment of the Fund, together with the assessment of the contributions of the original members at rates inadequate to provide even for future service, was left entirely to the future, and the Fund proceeded to pay the pensions of the older members from the accumulations of the younger men instead of following the sound practice of keeping intact these accumulations, together with the interest earned thereon, to meet, as they matured, the pensions they were designed to furnish.

5. In 1911—after the scheme had been in operation for seven years—an annual subsidy of £25,000 was commenced. When the first actuarial examination of the Fund was made as at the 31st March, 1912, it was pointed out that an annual subsidy of £50,000 was necessary in respect merely of pensions and allowances in possession or accruing within the ensuing three years. No effect was given to the recommendation made, although the increased subsidy was paid for one year, 1915. As the result of the second actuarial investigation, made as at the 31st March, 1919, a recommendation was made that the future annual subsidy be increased to £170,000. The annual subsidy was, however, only raised from £25,000 to £75,000 with additional amounts of £50,000 in 1924 and £30,000 in 1925, and it was not until 1926 that the full amount recommended (£170,000) was commenced.

6. The contributions and the benefits provided by the Act, together with statements showing the progress of active membership, and of pensions for each year, will be found in Tables I to III of the Appendix to this report. The number of contributors at the date of the valuation, together with their ages, salaries, and contributions, and the pensions granted during the valuation period, with the ages at which they were granted, are shown in Tables IV and V of the Appendix.

7. The income and outgo of the Fund since the previous valuation, were as follow :—

CONSOLIDATED REVENUE ACCOUNT OF THE GOVERNMENT RAILWAYS SUPERANNUATION FUND FROM
1ST APRIL, 1919, TO THE 31ST MARCH, 1927.

Income.	£	s.	d.	Outgo.	£	s.	d.
Funds at 1st April, 1919	363,804	4	4	Pensions to members	1,223,892	13	2
Members' contributions	1,079,917	9	2	Allowances to widows and children ..	138,589	8	7
Government subsidy	870,000	0	0	Refund of contributions and compen-			
Additional subsidy on account of widows				sation	231,812	16	4
and children	25,073	13	10	Transfers to other funds	1,140	16	5
Subsidy from Amalgamated Society of				Public Trust commission	4,318	14	10
Railway Servants	214	13	4	Travelling-expenses	414	19	0
Interest	248,753	6	11	Fine remitted	1	5	0
Fines	3,162	2	6	Interest remitted	47	9	3
Donations	30	0	0	Audit fees	250	0	0
Other receipts	15	15	6	Office expenses	4,674	19	0
				Funds at 31st March, 1927	985,828	4	0
	£2,590,971	5	7		£2,590,971	5	7

8. *Income.*—On the income side, the chief items of importance are the average annual increases of about £58,600 and £16,500 in the contribution income and the interest earnings respectively as compared with the previous valuation period.

The net effective rate of interest credited to the Fund each year for the period under review is as follows :—

	£	s.	d.			£	s.	d.			£	s.	d.
1919–20	..	4	12	8	1922–23	..	4	15	1	1925–26	..	5	12	9
1920–21	..	5	3	3	1923–24	..	4	13	1	1926–27	..	5	12	10
1921–22	..	4	14	1	1924–25	..	5	7	11					

These interest rates are on the average over ½ per cent. per annum greater than those earned during the previous valuation period, a feature of great importance to the Fund, as a good margin between the rate of interest earned and that assumed in the valuation tends to counteract the adverse effect of any fall in the estimated mortality rates above the pension age.

9. *Outgo.*—The average annual outgo for pensions to members has increased by approximately £79,000 compared with the previous valuation period. The causes of this increased outgo are an increased number of pensioners, due partly to the normal experience of a Superannuation Fund in its early years, and partly to a number of enforced early retirements, and higher average pensions, resulting largely from the post-war rise in salaries. The cumulative effect is shown in the following figures in respect of new pensions granted (excluding those to contributors retired medically unfit).

Valuation Period.	Number of Retirements.	Annual Pensions.	Average Pension.
		£	£
1912–1919	435	48,282	111
1919–1927	719	158,452	220

10. The Consolidated Revenue Account shows that the funds have increased by over £600,000 during the period under review, but whether or not this is evidence of progress can be determined only by actuarial valuation of the liabilities, and noting if the increase in funds is keeping pace with the increase in net liabilities. As this aspect appears to cause a certain amount of confusion in the minds of otherwise well-informed persons, who regard increasing funds as a sign of prosperity or that money is being saved up for posterity, I have compiled the following table showing for specimen age groups the Fund's average net liability per contributor in the Railway service at the valuation date :—

Age Group.	Average Net Liability per Member.	
	First Division.	Second Division.
	£	£
20–24	207	40
30–34	564	169
40–44	1,289	469
50–54	2,204	928
60–64	2,353	1,272

The table shows, for example, that at the valuation date, while in respect of each contributor in the First Division, aged 20–24, the Fund should have in hand an average sum of £207 in order, with the assistance of his future contributions and the interest earnings of the Fund, to be able to pay his

pension on retirement or other subsidiary benefits, it requires £1,289 in respect of each First Division contributor aged 40–44 and no less than £2,353 for each First Division contributor aged 60–64 to effect the same purpose. The net liability for each member in a given age group will necessarily vary somewhat from valuation to valuation, according to the incidence of average salary, length of service, &c., but the figures clearly emphasize the danger of trenching on the accumulated contributions of members of any age group for other than their own pensions.

It would be possible, though very laborious, to ascertain what might be termed the " share " of each individual member in the total Fund, and proceed to deduce by how much such amount held in the Fund on his behalf was, on the average, insufficient or over-sufficient to provide his benefits. This when applied to all members, contributors, and pensioners, would give the same results as are achieved by the more direct process of actuarial valuation of the Fund.

DATA.

11. The preliminary particulars required for this actuarial examination have been obtained from cards supplied by the Chief Accountant of the Railway Department—a separate card being compiled for each member who was in the service at the valuation date or who had died or withdrawn since the inception of the Fund—and these particulars form the main basis of this investigation and valuation.

THE VALUATION.

12. The main object of an actuarial valuation is to ascertain whether the current funds, together with the present value of the future contributions, will be sufficient to meet the future liabilities. Before the valuation can be carried out it is necessary to make a careful estimate of the various factors on which the payment of the benefits and contributions is dependent. These factors may be briefly summarized as follow :—

(a) Rate of interest.
(b) Mortality-rates of pensioners.
(c) Average salary scales.
(d) Mortality-rates of contributors.
(e) Voluntary-withdrawal rates of contributors.
(f) Retirement-rates of contributors.
(g) Marriage-rates of contributors.
(h) Probability of a member leaving children under fourteen years of age, and the average number of children.
(i) Remarriage-rates of members' widows.

13. The rate of interest used in valuing benefits and contributions is $4\frac{1}{2}$ per cent. throughout. As this constitutes a departure from previous valuations, I deem it desirable to point out that the change must not be interpreted as questioning the wisdom of making previous valuations at 4 per cent., since I am fully in accord with the interest basis previously adopted. Compared with the previous valuation period, however, the average annual interest rate earned has increased by more than $\frac{1}{2}$ per cent., and moreover, judging by the investment results of the other Government Superannuation Funds, the limit of the earning-capacity of the Government Railways Superannuation Fund has not been reached. I accordingly decided that the nature and circumstances of the Fund warranted the valuation being made on a financial basis of $4\frac{1}{2}$ per cent. This must not be construed as an assumption that the present rates—or even $4\frac{1}{2}$ per cent.—will continue to be earned indefinitely, as it must be remembered that pension-fund membership covers a long period, in some cases over eighty years. My main justification in adopting a $4\frac{1}{2}$ per cent. valuation basis is that the Fund is State-guaranteed and is receiving an annual subsidy, and it will be many years before any additional subsidy will be required to cover interest earnings short of $4\frac{1}{2}$ per cent.

14. The mortality-rates adopted for pensioners were based on an investigation of the combined experience of the three Government Superannuation Funds (Public Service, Railways, and Teachers) for the period 1919–1927, and supplemented where necessary by the earlier experience of the Funds. From a careful study of the figures, combined with the results of concurrent investigations into similar funds and in the general population, it is clear that there is an improvement in vitality which has been progressive over a long period of time, and accordingly it has been deemed advisable in fixing the valuation bases to make some allowance for probable future improvements in the vitality of pensioners.

15. The next factors which entered into the calculations were the scales of average salaries in respect of the First and the Second Divisions for the year immediately following the valuation date. The salary scales constructed from the current experience of the Fund were not themselves assumed in making the valuation, but the ratios of increase from age to age were applied to the actual salary of each contributor as at the 1st April, 1927.

16. The rates of mortality, withdrawal, and retirement of contributors used in the valuation were based on an examination of the Fund's experience since the previous valuation, the First and the Second Divisions again being investigated separately. Details of the experience tables adopted and the life and service tables deduced therefrom are given in Tables VI and VII of the Appendix. The only feature calling for special comment was the great increase in the number of retirements from

ages 50 to 59, further reference to which will be made later in this report. As it is now apparently the fixed practice to retire a considerable number of officers after forty years' service, irrespective of age, I felt compelled to make the valuation bases reflect this policy change.

17. The factors necessary for the valuation of widows' and children's benefits were calculated from population statistics combined with the experience of the Fund itself.

RESULTS OF VALUATION.

18. Valuation of the Fund has been made on the bases above mentioned, and the Valuation Balance-sheet is given in detail in Table VIII of the Appendix. The results may be shortly summarized as follow :—

		£
Present value of existing pensions and allowances (£2,257,446), less the value of the subsidy from Working Railways Account in respect of increased allowances to existing widows and children (£97,567)		2,159,879
Present value of prospective benefits (£7,519,396), less the value of subsidies from Working Railways Account in respect of increased allowances to future widows and children (£144,669) ..	£ 7,374,727	
Less present value of members' contributions	1,738,574	
		5,636,153
Total net liabilities		7,796,032
Funds in hand ..		985,828
Present value of total liability of the State		6,810,204
Less present value of existing annual subsidy of £170,000 (if treated as a perpetuity)		3,777,778
Value of future subsidies to be provided for by the State over and above the present subsidy of £170,000		£3,032,426

19. The above statement shows a total State liability of £6,810,204, as compared with £3,959,455 at the last valuation, giving an increase of £2,850,749. This increase, which would have been still greater had the valuation been made at 4 per cent. as on the previous occasion, is due in some degree to the normal expansion of the Service, but the two main causes are the economic effect of the late war on salary levels and the policy of retiring officers with long service, irrespective of age.

20. In order to give some idea of the effect of the first of the causes above mentioned, I submit the following table showing the average salaries paid to contributors at the three valuation dates :—

Ages.	First Division.				Second Division.			
	Average Salaries.			Increase of 1927 over 1912 Level.	Average Salaries.			Increase of 1927 over 1912 Level.
	1912.	1919.	1927.		1912.	1919.	1927.	
	£	£	£	£	£	£	£	£
Under 40	150	198	241	91	141	196	232	91
40–49	253	349	389	136	164	214	265	101
50 and over ..	304	397	429	125	164	216	264	100
Total ..	182	240	291	109	147	202	243	96

The table, besides demonstrating the general nature of the salary increases, gives a clear indication of the increase in the estimated value of pensions as compared with the preceding valuations. For example, a Second Division contributor with forty years' service retiring now at age 60 has an expectation of sixteen years of life and will accordingly draw on the average approximately £500 more from the Superannuation Fund than a similar contributor retiring in 1919, and approximately double that amount more than a similar contributor retiring in 1912. The effect of the increased pensions, when applied to the large body of contributors, need not be stressed. It should be borne in mind in estimating the effect on the Fund of the increased salary scale, that pensions are based on the salary at retirement, and accordingly each employee now in the Service reaps for his whole period of service the full benefit of the increase, whereas the effect of the increased salary scale on contributions is limited only to his future service. It will be apparent that the longer the back service of the contributor at the time the salary is increased the smaller will be the proportion of the increase in pension liability which the increase in his contributions is able to meet. This lack of correlation between the value of contributions and pensions is not confined to the Government Railways Superannuation Fund, but is common to nearly all pension schemes based on terminal salary, and supplies one of the reasons why an employer's subsidy to such a scheme is essential. In individual cases large salary increases during the later years of service give pensions out of all proportion to contributions, but they are too few in number to be of material moment as regards extra subsidy. If, however, through economic inflation or other causes, there is a general increase in the salaries of practically the whole Service, the necessity for a substantial subsidy, particularly in respect of the service prior to the increase, becomes apparent.

21. As regards the second great factor in the increase of the State's liability during the valuation period under review—namely, the retirement of men with forty years' service, irrespective of age—the following table is illuminating :—

TABLE SHOWING FOR EACH OF THE THREE VALUATION PERIODS THE AGE INCIDENCE OF THE PENSIONS GRANTED (EXCLUDING RETIREMENTS MEDICALLY UNFIT).

Ages.	Number of Contributors retiring as the Result of attaining Pension Age, or Length of Service.			Number of Retirements at each Age or Age Group expressed as a Percentage of Total Retirements.		
	1903–1912.	1912–1919.	1919–1927.	1903–1912.	1912–1919.	1919–1927.
				Per Cent.	Per Cent.	Per Cent.
Under 55 ..	..	6	51	..	1·4	7·1
55	1	2	41	·1	·4	5·7
56	..	7	49	..	1·6	6·8
57	..	3	48	..	·7	6·7
58–59	2	16	65	·3	3·7	9·0
60	232	166	124	30·5	38·2	17·3
61	110	98	134	14·5	22·5	18·6
62–65	245	123	151	32·2	28·3	21·0
Over 65	170	14	56	22·4	3·2	7·8
	760	435	719	100·0	100·0	100·0

The table shows that in the first valuation period no contributors were retired under age 55, while in the second period 1·4 per cent. of the total retirements took place before this age, and in the valuation period under review no less than 7·1 per cent. of the total retirements were at ages under 55. It also shows that while for the period 1903–1912 the retirements under age 60 were less than ½ per cent. and from 1912–1919 a little under 8 per cent. of the total retirements, in the period 1919–1927 the percentage of such retirements under age 60 to the total retirements was in excess of 35 per cent.

If, on account of the special circumstances following the inception of the Superannuation Fund, the first period is ignored, and the experience of the second valuation period is taken as an indication of the extent to which contributors voluntarily elect to retire after forty years' service, the difference between the percentages in the last two columns of the above table gives a rough measure of the effect of the policy adopted by the Railway Department during the period of compulsorily retiring men after forty years of service irrespective of age.

22. The Government Railways Superannuation Fund certainly gives a contributor the right to elect to retire after forty years' service, but there is a vast difference between providing pensions for the small proportion of contributors who will be in a financial position so to retire and exercise their right, and bearing the burden of wholesale enforced retirements.

It is not my function to comment on policy matters, but I would be lacking in my responsibility if I did not point out the financial effect on the Superannuation Fund of any policy changes, and enunciate the general principle that any additional financial strain due to policy measures of the Railway Department should be a charge not on the Superannuation Fund, but on the Department, by way of special subsidy.

Such a method, I may mention, is followed in the South African Public Service Superannuation Scheme, where, if an officer is forced to retire on pension due to a retrenchment scheme or other policy measures, all pension payments up to the date of his attaining the normal pension age are paid out of public revenue, and not out of the Superannuation Fund.

The Commonwealth of Australia safeguards its Public Service Superannuation Fund by fixing age 65 as the normal pension age, with provision that if any officer is retired after age 60, either compulsorily or of his own wish, he is granted a reduced pension actuarially calculated.

It is important to note that although the problem is approached from different angles, both Governments agree in recognizing that the Superannuation Fund must be financially safeguarded against any departure from what might be termed its fundamental obligations to the contributors.

23. The importance of the ascertainment of the state of the Fund in the form given in paragraph 18 lies in the fact that the shortage in the Fund to be made good by the State—viz., £6,810,204—is equivalent to an annual interest income (at 4½ per cent.) of £306,459. It follows that if any less sum than £306,459 is paid in by the State as subsidy the present deficiency will increase, and the subsidy must accordingly by way of compensation rise later on to a much higher figure than £306,459 per annum in respect of present contributors alone. If, however, any annual amount in excess of £306,459 is paid in, the Fund would, in respect of present members, attain solvency within a definite period of time. It should be clearly understood that this amount of £306,459 is a perpetuity, and does not cease with the lifetime of the present members, nor does it include any subsidy to new entrants.

RECOMMENDATIONS.

24. Section 119 of the Government Railways Act, 1926, as amended in 1927, provides as follows :—
" In the event of the Fund at any time being unable to meet the charges upon it, and as often as such occurs, the following special provisions shall apply :—
" (a) The Board shall forthwith report the fact to the Minister of Finance, setting forth the amount of deficiency and the causes thereof.
" (b) If the Minister of Finance is satisfied that the deficiency exists, and that provision should be made therefor, there shall, without further appropriation than this section, be paid into the Fund out of the Working Railways Account, a sum sufficient to meet the deficiency."

25. I have shown above that to keep the Fund solvent the annual State subsidy must be fixed at some amount greater than £306,459, exclusive of such additional amount as is necessary to cover salaries and expenses charged to the Superannuation Fund. I also made it clear that this minimum amount only represents interest, and accordingly will not redeem the deficiency, but merely prevents it from increasing, nor does it include any subsidy in respect of new entrants. It will therefore be apparent that subject to future salary and other conditions remaining as at present, the payment of such minimum subsidy will mean that at each succeeding valuation of the Fund an increase in the annual subsidy will be required by reason of the number of new employees enrolled in the Fund at rates of contributions which in general are less than adequate to provide the benefits. In order to avoid large increases in the subsidy at intervals of, say, seven or eight years, it would be advisable to adopt an automatic basis that will provide a gradually increasing subsidy and reflect salary fluctuations, and accordingly I recommend for consideration an annual subsidy of 10 per cent., of the salary roll, which would give a commencing subsidy of about £340,000 per annum.

26. It may be asked whether, judged by ordinary commercial standards, this is too high a price for the State as employer to pay for the advantages it derives from the existence of a Staff Superannuation Fund. In order to enable comparisons to be made, I cannot do better than to quote the following extract from the report of a Commission on the Pension Funds of the City of New York :—

" The Commission has made a broad review of existing pension systems in operation, both in the United States and abroad, on which it was able to secure information. This inquiry has brought out the fact that the development of pension measures as a result of an experience of over a hundred years is in the direction of equal division of cost between the employer and the employed, and that this tendency applies equally to systems for public employees and for industrial workers."

My recommendation for the future State subsidy to be 10 per cent. of the salary roll does not differ very much from apportioning the cost equally between the employer and the employee when account is taken of the initial deficiency created in the Fund by the free gift of back service in calculating the pensions payable to employees in the service when the Fund was established, and the very considerable amount by which past subsidies have fallen short of the contributions paid by employees.

27. I have previously stated that, on account of the large deficiency in the Fund, the subsidy is in the nature of a perpetuity, and consequently my recommendation of an automatic subsidy equal to 10 per cent. of the pay roll will require modification if at any time the present constitution of the Fund is altered, as for example, by refusing or even making voluntary the enrolment in the Fund of new employees.

28. In recommending that the amount of the automatic subsidy be fixed at 10 per cent. of the pay roll I have endeavoured not only to place the Fund on a firmer footing, but also to keep the cost to the State as low as is reasonably possible. The valuation bases have been fixed after very careful consideration, but it is impossible that they will exactly coincide with the actual future experience of the Fund, since many of the factors involved are affected by social and economic conditions which can only be estimated approximately.

In order to counteract any possible adverse fluctuations, it is essential that every endeavour should continue to be made to invest the funds at the most remunerative rate consistent with safety.

29. Should it be desired to go further than I have indicated, so as to more rapidly redeem the deficiency, a higher subsidy than 10 per cent. could be fixed, or alternatively the Fund could be strengthened by suitable amendments to the Government Railways Act. For example, the following alterations in the scheme would considerably lessen the liabilities of the Fund without unduly prejudicing contributors :—

(a) Abolish the employee's right to retire after forty years' service, and substitute a provision that any employee compulsorily retired after forty years' service for any reason other than his own misconduct, shall be entitled to a pension ; but in such case all pension payments between the date of retirement and the attainment of age 60 shall be paid out of the Working Railways Account, and not out of the Superannuation Fund. Many officers join the Service round about age 15—the average entry age of the whole First Division is a little under 17—and I have already indicated that it is very costly to cause, or even allow, them to retire on the maximum rate of pension at as early an age as 55. To make the early retirement rates of the valuation period under review—12·8 per cent. of the total retirements took place at or before age 55—a permanent feature of the Fund's experience will bankrupt the Fund, short of a prohibitive subsidy. Quite apart from the financial strain on the Fund, many of the officers so retired are, by their ability and experience, at their maximum of usefulness to the State, and it is one of the objects of a good superannuation scheme to retain men of outstanding ability. It is important to recognize that such a modification affecting the employee's right of voluntarily retiring would in no way lessen the power of the Railway Department to decide that an employee was to be retired in the interests of efficiency, but it is only right in such a case that the Superannuation Fund should not have to foot the entire bill. I have suggested above that in such cases the Railway Department relieve the Superannuation Fund of pension payments prior to age 60, but the Department might prefer the alternative method of the Fund paying reduced pensions to those compulsorily retired on pension before age 60.

In the case of new employees joining the service after, say the 1st January, 1930, at ages under 20, the right to retire after forty years' service could be automatically abolished by the simple expedient of deferring membership of the Superannuation Fund until the attainment of age 20. Such a plan not only makes it impossible for the maximum rate of pension to enure before the attainment of age 60,

but also removes any grievance of members under age 20 that for the same rate of contribution and pension benefit at age 60, they are called upon to pay contributions for a longer period than those entering at age 20.

(b) Increase by 2 per cent. of salary in respect of their future service the contributions of contributors who joined prior to the 1st January, 1908, at ages under 50. It may be pointed out that as compared with contributors who joined the scheme on or after the 1st January, 1908, the class of contributors under review received a free gift of that portion of their pension based on service prior to the establishment of the Fund, and they have the further advantage, as compared with those joining the Service after 24th December, 1909, of not being subject to the arbitrary pension limitation of £300 per annum on retirement. Accordingly, it is anomalous that for a greater benefit they should be paying 2 per cent. less on salary by way of contributions. As the suggestion is to charge these contributors only the same rates of contribution as are paid by their fellow-officers and further, is not made retrospective, but only in respect of their future service, no reasonable objection could be raised by the contributors concerned.

(c) Increase the present contribution scale by 1 per cent. of salary in respect of all new employees between ages 25 and 50 joining the Service on or after, say, the 1st January, 1930. This would not only help the finances of the Fund, but would give a much better graduated scale than is now in force.

GENERAL REMARKS.

30. No report on the Government Railways Superannuation Fund would be complete without reference to the arbitrary pension limitation of £300 per annum imposed on contributors joining the Service after the 24th December, 1909. Arbitrary pension limitations, which to the best of my knowledge are quite unknown in the pension schemes of other Governments or of large commercial institutions, have no justification in theory, and in practice lead to many contributors being called upon to pay more in contributions than their pensions are worth. No staff pension scheme carrying an employer's subsidy can be considered a good one if every member does not get, at the very least, full value for his own payments. Of far greater importance, however, than the injustice to individual State employees is the fact that the imposition of an arbitrary limitation of £300 on pensions undermines the very purpose for which a staff pension scheme is usually established—namely, to assist in securing the highest efficiency in the Service. A good superannuation scheme not only attracts and retains the best type of officer, but also helps to keep clear the lanes of promotion by facilitating the retirement of the older officers on a pension in some way commensurate with the degree of comfort previously enjoyed by them.

31. It is quite clear that neither of these aids to efficiency is secured if able officers now joining the Service can only be offered the prospect, after attaining the highest administrative positions in the Railway Service, including that of General Manager, of being compelled to retire on an annual pension of £300, approximately equivalent to the salary paid to the average junior clerical officer after completing ten years of service.

The position regarding the retirement of high officials on small pensions cannot be more forcibly stated than in the following extract from the evidence given before the Imperial Board of Trade Commission on Railway Superannuation Funds by Mr. George King, F.I.A., F.F.A., probably the greatest living authority on pension funds :—

" With such a man, either the Railway Administration would be constrained to keep him in the Service when perhaps his health was such as to unfit him for duty, and they would have to pay some one else to do his work ; or they would be obliged to retire him on a small pension and supplement it from other sources ; or they would be obliged to retire him on a small pension without supplementing it, and leave a valued officer in comparative penury in his old age. A man of that calibre could do much better for himself in other walks of life and with such a poor prospect before him he would leave the Service in the early years on realizing his own powers and the Service and the public would suffer."

32. Up to the present the position has been masked by the fact that those who have already retired were not subject to any pension limitation, since it only applies to officers joining less than twenty years ago. Obviously the bulk of these are many years short of the retiring-age and of the balance joining the Service late in life, none of those who have retired on salaries up to £900 per annum could possibly have been affected by the restriction.

I am strongly of opinion that the abolition of the present arbitrary pension limitation would be in the best interests of the Railway Department.

33. In conclusion, I have to acknowledge the assistance of the small but efficient staff engaged in carrying out the heavy work of the valuation.

C. GOSTELOW,
Fellow of the Institute of Actuaries (London),
Government Actuary.

APPENDIX.

TABLE I.

The Benefits and Contributions provided for by the Act.

The contributions vary according to the age at the time when the first contribution becomes payable, and are as follows :—

Contributions

For contributors who joined prior to the 1st January, 1908—

Age 30 and under	3 per cent. of pay.
Over 30 and not exceeding 35	4 ,,
,, 35 ,, 40	5 ,,
,, 40 ,, 45	6 ,,
,, 45 ,, 50	7 ,,
,, age 50	10 ,,

For contributors who joined the scheme on or after the 1st January, 1908—

Age 30 and under	5 per cent. of pay.
Over 30 and not exceeding 35	6 .,
,, 35 ,, 40	7 ,,
,, 40 ,, 45	8 ,,
,, 45 ,, 50	9 ,,
,, age 50	10 ,,

Benefits

I. *On attainment of Pension Age 60, or after Forty Years' Service.*

(1) A pension of one-sixtieth of yearly salary for each year's service, with a limit of forty-sixtieths (two-thirds) of salary. Maximum pension for entrants after 24th December, 1909, £300.

(2) Or the option, in lieu thereof, of a return of contributions, together with any compensation the contributor may be entitled to under section 76 of the Government Railways Act, 1887.

With the consent of the Minister a contributor may retire after thirty-five years' service.

II. *On retirement before Pension Age (on the Grounds of being Medically Unfit for Future Duty).*

(1) A pension of one-sixtieth of yearly salary for every year of service, limited to forty-sixtieths. In the case of entrants after 24th December, 1909, maximum pension £300.

(2) Or the option, in lieu thereof, of a return of contributions, together with any compensation the contributor may be entitled to under section 76 of the Government Railways Act, 1887.

III. *On Retirement before Pension Age (on other Grounds than Medical Unfitness).*

(1) On voluntary retirement or dismissal for any other reason than misconduct, a return of contributions, together with any compensation the contributor may be entitled to under section 76 of the Government Railways Act, 1887.

(2) On dismissal for misconduct, return of contributions.

IV. *At Death, before becoming entitled to a Retiring-allowance.*

(1) Leaving no widow or children : A return of contributions, together with any compensation the contributor is entitled to under section 76 of the Government Railways Act, 1887.

(2) Leaving a widow :—
 (*a*) £31 per annum during widowhood, or, if she so elects,
 (*b*) A return of such portion of the contributions and of the compensation to which the contributor was entitled as the Board, having regard to the rights of the children, thinks fit.

(3) Leaving children : 10s. weekly to each child until age 14.

V. *At Death, after becoming entitled to a Pension.*

Return of the contributions and compensation (if any) less any sums received from the Fund.

Pensions are payable by monthly instalments, and are computed on the final salary, unless the contributor has during the previous three years served in any inferior grade to that held at the time of retirement, in which case the average salary for the last three years, or the final salary he was receiving prior to such promotion (whichever is the greater) is taken.

TABLE II.

STATEMENT OF PROGRESS OF ACTIVE MEMBERSHIP.

Year.	New Members.				Discontinued.										Members Contributing at End of Financial Year.		
	Joining Scheme.		Transferred from other Funds.	Total.	By Death.		By Withdrawal or Dismissal.	By Pensions.			Medically Unfit.	By Transfer to other Funds.	Total discontinued.				
	M.	F.	M.		M.	F.	M.	Old Age or Length of Service.			M.	M.			M.	F.	Total.
								M.	F.	Total.							
Part 1903 ..	3,425	1	..	3,426	6	..	7	8	..	8	5	..	26		3,399	1	3,400
1903–04 ..	3,452	3	..	3,455	42	..	212	156	..	156	28	..	438		6,413	4	6,417
1904–05 ..	708	..	..	708	34	..	205	99	1	100	15	..	354		6,768	3	6,771
1905–06 ..	663	..	..	663	36	..	231	57	..	57	12	..	336		7,095	3	7,098
1906–07 ..	841	..	..	841	37	..	343	58	..	58	12	..	450		7,486	3	7,489
1907–08 ..	1,174	2	..	1,176	33	..	413	73	..	73	14	..	533		8,127	5	8,132
1908–09 ..	1,325*	..	..	1,325	39	..	406	56	..	56	9	..	510		8,942	5	8,947
1909–10 ..	554	..	2	556	42	..	394	123	..	123	6	..	565		8,933	5	8,938
1910–11 ..	733	..	3	736	37	..	504	77	..	77	17	7	642		9,027	5	9,032
1911–12 ..	857	..	4	861	32	..	539	52	..	52	14	8	645		9,243	5	9,248
1912–13 ..	1,388	..	2	1,390	38	..	577	81	..	81	15	2	713		9,920	5	9,925
1913–14 ..	1,223	..	3	1,226	46	..	580	75	..	75	10	3	714		10,432	5	10,437
1914–15 ..	1,298	..	1	1,299	34	..	550	83	..	83	15	1	683		11,048	5	11,053
1915–16 ..	1,450	..	5	1,455	87	..	805	59	..	59	27	12	990		11,513	5	11,518
1916–17 ..	1,267	..	4	1,271	160	..	895	69	..	69	25	2	1,151		11,633	5	11,638
1917–18 ..	632	..	2	634	197	1	1,000	39	..	39	31	2	1,270		10,998	4	11,002
1918–19 ..	716	..	3	719	241	1	773	29	..	29	19	1	1,064		10,654	3	10,657
1919–20 ..	1,044	..	1	1,045	24	..	1,213†	95	..	95	35	5	1,372		10,328	2	10,330
1920–21 ..	1,660	..	3	1,663	25	..	1,080	77	..	77	26	3	1,211		10,780	2	10,782
1921–22 ..	1,329	..	1	1,330	26	..	566	90	..	90	28†	..	710		11,401	1	11,402
1922–23 ..	864	..	1	865	30	..	475	80	..	80	31	2	618		11,648	1	11,649
1923–24 ..	1,426	..	4	1,430	33	..	698	74	..	74	32	1	838		12,240	1	12,241
1924–25 ..	1,309	..	4	1,313	26	..	620	116	..	116	22	2	786		12,767	1	12,768
1925–26 ..	1,216	..	7	1,223	36	..	609	70	..	70	26	4	745		13,245	1	13,246
1926–27 ..	618	..	5	623	37	..	386	117	..	117	19	3	562		13,306	1	13,307
Adjustments to agree with cards supplied	−16	..	..	−16	+149	..	−166	..	..	..	..	−2	−19		+3	..	13,310
Totals ..	31,156	6	55	31,217	1,527	2	13,915	1,913	1	1,914	493	56	17,907		..	..	..

* Includes 335 ex-employees of Wellington and Manawatu Railway Co.   † Includes one female.

TABLE III.

STATEMENT OF PROGRESS OF PENSIONS.

Year.	Attainment of Pension Age or Length of Service.						Retired Medically Unfit.					
	Granted.		Void by Death.		In Force.		Granted.		Void by Death or Expiry.		In Force.	
	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.
		£		£		£		£		£		£
1903–04	161	9,950	1	66	160	9,884	33	1,700	5	256	28	1,444
1904–05	100	5,848	8	425	252	15,307	15	1,046	4	483	39	2,007
1905–06	56	3,788	10	672	298	18,422	12	632	3	135	48	2,503
1906–07	59	3,911	17	1,020	340	21,314	12	712	9	466	51	2,750
1907–08	74	5,626	12	683	402	26,257	14	852	8	416	57	3,185
1908–09	53	4,816	18	1,233	437	29,840	8	485	8	444	57	3,226
1909–10	123	10,066	9	502	551	39,404	7	420	2	130	62	3,517
1910–11	80	6,305	27	1,598	604	44,111	17	1,325	8	421	71	4,421
1911–12	54	5,229	24	1,666	634	47,674	14	605	5	237	80	4,789
1912–13	81	7,650	30	2,766	685	52,558	15	903	10	450	85	5,242
1913–14	74	7,958	27	1,926	732	58,590	9	790	4	148	90	5,884
1914–15	84	9,344	26	1,668	790	66,266	15	1,314	7	396	98	6,802
1915–16	59	6,823	30	2,448	819	70,641	27	1,945	10	603	115	8,144
1916–17	69	7,977	34	2,806	854	75,812	25	1,862	10	498	130	9,508
1917–18	39	4,440	34	2,927	859	77,325	32	1,885	10	506	152	10,887
1918–19	29	4,090	46	3,841	842	77,574	19	1,659	12	805	159	11,741
1919–20	95	16,262	53	4,356	884	89,480	35	2,998	14	928	180	13,811
1920–21	77	15,614	50	3,998	911	101,096	26	2,969	14	1,684	192	15,096
1921–22	90	18,686	38	3,611	963	116,171	28	3,228	9	485	211	17,839
1922–23	80	17,342	55	5,916	988	127,597	31	4,204	4	415	238	21,628
1923–24	74	16,827	54	5,019	1,008	139,405	32	3,016	10	1,032	260	23,612
1924–25	116	32,401	57	6,207	1,067	165,599	22	3,044	9	1,089	273	25,567
1925–26	68	17,357	46	5,390	1,089	177,566	26	3,283	14	1,105	285	27,745
1926–27	119	23,614	72	7,405	1,136	193,775	19	2,089	15	1,370	289	28,464
Adjustments to agree with cards supplied	..	..	3	801	1,133	192,974	..	..	5	—84	284	28,548
Totals	1,914	261,924	781	68,950	..	..	493	42,966	209	14,418	..	..

Year.	Death of Contributor. Family Pension.						Total Pensions.					
	Granted.		Void by Death or Expiry.		In Force.		Granted.		Void.		In Force.	
	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.
		£		£		£		£		£		£
1903–04	80	1,190	6	78	74	1,112	274	12,840	12	400	262	12,440
1904–05	68	989	6	78	136	2,023	183	7,883	18	986	427	19,337
1905–06	55	815	11	143	180	2,695	123	5,235	24	950	526	23,620
1906–07	61	893	16	218	225	3,370	132	5,516	42	1,704	616	27,434
1907–08	57	836	12	176	270	4,030	145	7,314	32	1,275	729	33,472
1908–09	62	916	25	355	307	4,591	123	6,217	51	2,032	801	37,657
1909–10	91	1,313	25	365	373	5,539	221	11,799	36	997	986	48,460
1910–11	66	983	30	410	409	6,112	163	8,613	65	2,429	1,084	54,644
1911–12	43	644	21	293	431	6,463	111	6,478	50	2,196	1,145	58,926
1912–13	40	605	37	521	434	6,547	136	9,158	77	3,737	1,204	64,347
1913–14	88	1,279	38	564	484	7,262	171	10,027	69	2,638	1,306	71,736
1914–15	50	735	46	643	488	7,354	149	11,393	79	2,707	1,376	80,422
1915–16	57	856	46	643	499	7,567	143	9,624	86	3,694	1,433	86,352
1916–17	118	1,744	53	734	564	8,577	212	11,583	97	4,038	1,548	93,897
1917–18	114	1,707	49	672	629	9,612	185	8,032	93	4,105	1,640	97,824
1918–19	314	4,602	52	746	891	13,468	362	10,351	110	5,392	1,892	102,783
1919–20	55	830	54	747	892	13,551	185	20,090	121	6,031	1,956	116,842
1920–21	92	1,316	72	1,036	912	13,831	195	19,899	136	6,718	2,015	130,023
1921–22	77	1,136	59	862	930	14,105	195	23,050	106	4,958	2,104	148,115
1922–23	85	1,245	83	1,184	932	14,166	196	22,791	142	7,515	2,158	163,391
1923–24	98	1,429	62	901	968	14,694	204	21,272	126	6,952	2,236	177,711
1924–25	65	965	88	1,224	945	14,435	203	36,410	154	8,520	2,285	205,601
1925–26	104	2,869	81	2,201	968	15,103	198	23,509	141	8,696	2,342	220,414
1926–27	93	2,578	94	2,529	967	15,152	231	28,281	181	11,304	2,392	237,391
Adjustments to agree with cards supplied	..	12,191*	4	..	963	27,343*	..	12,191	12	717	2,380	*248,865
Totals ..	2,033	44,666	1,070	17,323	..	..	4,440	349,556	2,060	100,691	..	..

* Includes additional allowances paid to widows and children out of Working Railways Account.

TABLE IV.

Present Annual Pay and Contributions of Officers now in Service.*

Age attained.	First Division.			Second Division.			Age attained.
	Number.	Present Annual Pay.	Present Annual Contributions.	Number.	Present Annual Pay.	Present Annual Contributions.	
		£	£		£	£	
15	3	240	12	2	177	9	15
16	29	2,395	120	25	2,298	115	16
17	125	11,790	589	96	9,110	456	17
18	156	16,320	816	156	17,800	890	18
19	133	16,040	802	193	27,573	1,379	19
20	116	16,015	801	234	40,375	2,019	20
21	77	12,510	625	333	75,806	3,790	21
22	73	14,860	743	313	74,342	3,717	22
23	71	15,765	788	355	82,226	4,111	23
24	79	21,630	1,081	327	76,378	3,819	24
25	85	24,945	1,247	357	83,406	4,171	25
26	130	38,180	1,909	327	77,370	3,868	26
27	143	42,360	2,118	355	85,335	4,267	27
28	113	33,500	1,675	316	75,881	3,794	28
29	91	27,080	1,354	391	95,035	4,752	29
30	96	28,878	1,444	354	85,745	4,287	30
31	74	21,850	1,092	325	78,870	3,972	31
32	58	18,235	912	323	79,498	4,054	32
33	46	13,900	695	315	77,800	4,058	33
34	45	15,100	765	300	74,520	3,913	34
35	74	23,490	1,070	276	68,655	3,554	35
36	74	24,090	982	303	76,488	3,919	36
37	56	18,260	630	299	75,962	3,995	37
38	48	17,530	602	285	72,770	3,671	38
39	54	18,660	593	332	86,271	4,147	39
40	46	17,390	595	308	79,370	3,883	40
41	50	19,030	602	281	73,848	3,445	41
42	59	21,643	686	260	69,229	3,136	42
43	76	29,355	977	243	64,709	2,972	43
44	57	22,115	687	248	67,725	2,876	44
45	43	16,600	522	231	61,095	2,666	45
46	47	18,005	597	219	58,258	2,588	46
47	37	15,340	470	220	58,776	2,464	47
48	20	8,420	263	186	48,502	2,048	48
49	40	16,990	565	175	45,765	1,889	49
50	37	17,205	548	151	39,208	1,567	50
51	42	17,650	543	159	41,345	1,678	51
52	64	26,745	833	148	39,250	1,590	52
53	70	32,345	991	112	29,730	1,121	53
54	48	20,995	690	105	27,445	1,075	54
55	35	13,835	563	96	25,847	1,107	55
56	40	15,945	638	70	18,669	800	56
57	15	5,900	243	77	20,652	872	57
58	12	4,820	193	66	17,593	749	58
59	16	6,750	303	53	13,879	638	59
60	5	2,075	104	42	11,130	574	60
61	7	3,040	156	18	4,771	244	61
62	1	615	31	6	1,590	82	62
63	5	2,425	121	7	1,937	97	63
64	..	..	..	3	657	40	64
65	3	1,350	81	3	796	48	65
66	..	..	..	3	815	49	66
67	..	..	..	1	289	17	67
68	1	410	25	1	289	17	68
69	..	..	..	..	..	..	69
70	..	..	..	1	275	19	70
Totals	2,925	850,616	35,492	10,385	2,523,135	121,078	..

* Compiled from cards.

TABLE V.

CLASSIFICATION OF PENSIONS GRANTED, SHOWING THE AGES AT WHICH THEY WERE GRANTED FOR PERIOD FROM 1ST APRIL, 1919, TO 31ST MARCH, 1927, INCLUSIVE.*

Age at which Pension granted.	Attainment of Pension Age or Length of Service (Section 102).		Retired Medically Unfit (Section 111).		Widows and Children (Section 113, &c.).		Total.			
	Number.	Amount of Pension.	Number.	Amount of Pension.	Number.	Amount of Pension.	Number.			Amount of Pension.
	M.	£ s. d.	M.	£ s. d.		£	M.	F.	Total.	£ s. d.
72 ..	1	108 3 0	..	..	..	..	1	..	1	108 3 0
71 ..	1	167 7 0	..	..	..	..	1	..	1	167 7 0
70 ..	..	..	..	..	..	..	..	..	..	..
69 ..	1	103 13 0	..	..	..	..	1	..	1	103 13 0
68 ..	2	356 5 0	..	..	..	..	2	..	2	356 5 0
67 ..	13	2,008 3 0	..	..	..	..	13	..	13	2,008 3 0
66 ..	38	7,044 0 0	..	..	..	..	38	..	38	7,044 0 0
65 ..	51	9,929 19 0	..	..	..	..	51	..	51	9,929 19 0
64 ..	32	7,742 3 0	..	..	..	..	32	..	32	7,742 3 0
63 ..	29	5,583 7 0	1	124 9 0	..	..	30	..	30	5,707 16 0
62 ..	39	7,885 5 0	..	..	2	62	39	2	41	7,947 5 0
61 ..	134	24,698 10 0	2	263 2 0	..	..	136	..	136	24,961 12 0
60 ..	124	23,614 10 0	8	1,133 1 0	1	31	132	1	133	24,778 11 0
59 ..	35	10,271 13 0	13	2,730 14 0	..	..	48	..	48	13,002 7 0
58 ..	30	8,391 0 0	16	2,240 12 0	1	31	46	1	47	10,662 12 0
57 ..	48	14,602 2 0	12	1,668 17 0	3	93	60	3	63	16,363 19 0
56 ..	49	12,852 2 0	11	1,714 9 0	2	62	60	2	62	14,628 11 0
55 ..	41	11,085 2 0	10	1,988 12 0	5	155	51	5	56	13,228 14 0
54 ..	21	4,984 16 0	7	1,273 10 0	3	93	28	3	31	6,351 6 0
53 ..	17	3,776 0 0	8	1,360 1 0	1	31	25	1	26	5,167 1 0
52 ..	8	2,159 19 0	9	1,241 12 0	3	93	17	3	20	3,494 11 0
51 ..	5	1,088 2 0	8	897 13 0	6	186	13	6	19	2,171 15 0
50 ..	..	..	5	552 5 0	3	93	5	3	8	645 5 0
49 ..	..	..	8	901 7 0	4	124	8	4	12	1,025 7 0
48 ..	..	..	5	603 0 0	5	155	5	5	10	758 0 0
47 ..	..	..	4	544 17 0	5	155	4	5	9	699 17 0
46 ..	..	..	6	690 4 0	6	186	6	6	12	876 4 0
45 ..	..	..	5	313 7 0	9	279	5	9	14	592 7 0
44 ..	..	..	4	391 2 0	2	62	4	2	6	453 2 0
43 ..	..	..	2	296 5 0	10	310	2	10	12	606 5 0
42 ..	..	..	6	588 2 0	6	186	6	6	12	774 2 0
41 ..	..	..	3	257 10 0	9	279	3	9	12	536 10 0
40 ..	..	..	5	471 18 0	8	248	5	8	13	719 18 0
39 ..	..	..	2	129 18 0	4	124	2	4	6	253 18 0
38 ..	..	..	8	578 4 0	6	186	8	6	14	764 4 0
37 ..	..	..	5	357 6 0	10	310	5	10	15	667 6 0
36 ..	..	..	2	59 14 0	10	310	2	10	12	369 14 0
35 ..	..	..	3	167 18 0	9	279	3	9	12	446 18 0
34 ..	..	..	3	226 14 0	13	403	3	13	16	629 14 0
33 ..	..	..	4	163 8 0	5	155	4	5	9	318 8 0
32 ..	..	..	1	6 15 0	9	279	1	9	10	285 15 0
31 ..	..	..	4	150 9 0	11	341	4	11	15	491 9 0
30 ..	..	..	3	172 19 0	10	310	3	10	13	482 19 0
29 ..	..	..	5	197 2 0	6	186	5	6	11	383 2 0
28 ..	..	..	1	17 12 0	8	248	1	8	9	265 12 0
27 ..	..	..	1	37 13 0	7	217	1	7	8	254 13 0
26 ..	..	..	2	33 10 0	2	62	2	2	4	95 10 0
25 ..	..	..	2	43 1 0	3	93	2	3	5	136 1 0
24 ..	..	..	6	95 13 0	7	217	6	7	13	312 13 0
23 ..	..	..	1	19 10 0	6	186	1	6	7	205 10 0
22 ..	..	..	3	27 15 0	1	31	3	1	4	58 15 0
21 ..	..	..	..	..	1	31	..	1	1	31 0 0
20 ..	..	..	5	41 6 0	..	..	5	..	5	41 6 0
19 ..	..	..	..	..	1	31	..	1	1	31 0 0
14 ..	..	..	..	..	11	286				286 0 0
13 ..	..	..	..	..	28	728				728 0 0
12 ..	..	..	..	..	25	650				650 0 0
11 ..	..	..	..	..	37	962				962 0 0
10 ..	..	..	..	..	35	910				910 0 0
9 ..	..	..	..	..	33	858				858 0 0
8 ..	..	..	..	..	30	780				780 0 0
7 ..	..	..	..	..	27	702	233	207	440	702 0 0
6 ..	..	..	..	..	33	858				858 0 0
5 ..	..	..	..	..	41	1,066				1,066 0 0
4 ..	..	..	..	..	28	728				728 0 0
3 ..	..	..	..	..	32	832				832 0 0
2 ..	..	..	..	..	27	702				702 0 0
1 ..	..	..	..	..	35	910				910 0 0
0 ..	..	..	..	..	18	468				468 0 0
Totals	719	158,452 1 0	219	24,772 16 0	663	18,353	1,171	430	1,601	201,577 17 0

* Compiled from cards.

TABLE VI.

EXPERIENCE TABLE.

| | Contributing Members, First Division. | | | Contributing Members, Second Division. | | | |
| | Probabilities of Withdrawal. Death or Retirement within a Year (expressed as a Percentage of the Number existing in the Service at Beginning of the Year). | | | Probabilities of Withdrawal. Death or Retirement within a Year (expressed as a Percentage of the Number existing in the Service at Beginning of the Year). | | | |
Age.	Withdrawal.	Death.	Retirement.	Withdrawal.	Death.	Retirement.	Age.
15	7·60	0·18	..	11·00	0·19	..	15
16	7·50	0·18	..	10·95	0·19	..	16
17	7·20	0·18	..	10·90	0·19	..	17
18	6·55	0·18	..	10·80	0·19	..	18
19	5·90	0·18	..	10·60	0·19	..	19
20	5·25	0·19	..	10·30	0·20	..	20
21	4·60	0·19	..	9·90	0·21	..	21
22	4·00	0·19	..	9·40	0·22	..	22
23	3·50	0·19	..	8·85	0·23	0·10	23
24	3·10	0·19	..	8·35	0·24	0·10	24
25	2·80	0·19	..	7·85	0·25	0·10	25
26	2·60	0·19	..	7·35	0·26	0·10	26
27	2·44	0·20	..	6·87	0·27	0·10	27
28	2·30	0·21	0·10	6·41	0·28	0·10	28
29	2·17	0·22	0·10	5·98	0·29	0·10	29
30	2·04	0·23	0·10	5·58	0·30	0·10	30
31	1·91	0·24	0·10	5·21	0·31	0·10	31
32	1·78	0·25	0·10	4·86	0·32	0·11	32
33	1·65	0·26	0·10	4·53	0·33	0·11	33
34	1·52	0·27	0·10	4·22	0·34	0·11	34
35	1·40	0·28	0·10	3·93	0·35	0·11	35
36	1·28	0·29	0·10	3·66	0·36	0·12	36
37	1·16	0·30	0·10	3·41	0·37	0·12	37
38	1·05	0·31	0·10	3·18	0·38	0·12	38
39	0·94	0·32	0·10	2·97	0·39	0·13	39
40	0·83	0·33	0·11	2·77	0·41	0·13	40
41	0·73	0·34	0·12	2·57	0·43	0·13	41
42	0·63	0·35	0·13	2·38	0·45	0·14	42
43	0·53	0·36	0·14	2·20	0·47	0·15	43
44	0·43	0·38	0·15	2·02	0·50	0·17	44
45	0·34	0·40	0·17	1·84	0·53	0·20	45
46	0·26	0·42	0·22	1·67	0·57	0·25	46
47	0·19	0·44	0·30	1·51	0·61	0·33	47
48	0·14	0·46	0·42	1·36	0·66	0·45	48
49	0·11	0·48	0·60	1·22	0·71	0·62	49
50	0·09	0·51	0·90	1·08	0·76	0·84	50
51	0·07	0·54	1·40	0·95	0·82	1·12	51
52	0·05	0·57	2·20	0·82	0·88	1·47	52
53	0·03	0·61	3·30	0·70	0·94	1·90	53
54	0·01	0·65	4·70	0·58	1·00	2·40	54
55	..	0·70	6·50	0·46	1·07	3·00	55
56	..	0·76	9·00	0·34	1·14	4·00	56
57	..	0·83	12·50	0·22	1·22	5·50	57
58	..	0·91	17·50	0·11	1·30	7·50	58
59	..	1·00	25·00	..	1·39	10·00	59
60	..	1·11	40·00	..	1·48	50·00	60
61	..	1·24	40·00	..	1·58	32·50	61
62	..	1·40	40·00	..	1·68	30·00	62
63	..	1·60	40·00	..	1·79	30·00	63
64	..	1·85	40·00	..	1·90	32·50	64
65	..	..	100·00	..	..	100·00	65

TABLE VII.

LIFE AND SERVICE TABLE.

BASED UPON THE RATES PER CENT. PER ANNUM OF WITHDRAWALS, MORTALITIES, AND RETIREMENTS GIVEN IN TABLE VI APPLIED TO 100,000 ENTRANTS AT AGE 15.

	First Division.				Second Division.				Age.
Age.	Existing in Service.	Withdrawals.	Deaths.	Retirements.	Existing in Service.	Withdrawals.	Deaths.	Retirements.	
15	100,000	7,600	180	..	100,000	11,000	190	..	15
16	92,220	6,917	166	..	88,810	9,725	169	..	16
17	85,137	6,130	153	..	78,916	8,602	150	..	17
18	78,854	5,165	142	..	70,164	7,578	133	..	18
19	73,547	4,339	132	..	62,453	6,620	119	..	19
20	69,076	3,626	131	..	55,714	5,739	111	..	20
21	65,319	3,005	124	..	49,864	4,937	105	..	21
22	62,190	2,488	118	..	44,822	4,213	99	..	22
23	59,584	2,085	113	..	40,510	3,585	93	41	23
24	57,386	1,779	109	..	36,791	3,072	88	37	24
25	55,498	1,554	105	..	33,594	2,637	84	34	25
26	53,839	1,400	102	..	30,839	2,267	80	31	26
27	52,337	1,277	105	..	28,461	1,955	77	28	27
28	50,955	1,172	107	51	26,401	1,692	74	26	28
29	49,625	1,077	109	50	24,609	1,472	71	25	29
30	48,389	987	111	48	23,041	1,286	69	23	30
31	47,243	902	113	47	21,663	1,129	67	22	31
32	46,181	822	115	46	20,445	994	65	22	32
33	45,198	746	118	45	19,364	877	64	21	33
34	44,289	673	120	44	18,402	777	63	20	34
35	43,452	608	122	43	17,542	689	61	19	35
36	42,679	546	124	43	16,773	614	60	20	36
37	41,966	487	126	42	16,079	548	59	19	37
38	41,311	434	128	41	15,453	491	59	19	38
39	40,708	383	130	41	14,884	442	58	19	39
40	40,154	333	133	44	14,365	398	59	19	40
41	39,644	289	135	48	13,889	357	60	18	41
42	39,172	247	137	51	13,454	320	61	19	42
43	38,737	205	139	54	13,054	287	61	20	43
44	38,339	165	146	58	12,686	256	63	22	44
45	37,970	129	152	65	12,345	227	65	25	45
46	37,624	98	158	83	12,028	201	69	30	46
47	37,285	71	164	112	11,728	177	72	39	47
48	36,938	52	170	155	11,440	156	76	51	48
49	36,561	40	175	219	11,157	136	79	69	49
50	36,127	33	184	325	10,873	117	83	91	50
51	35,585	25	192	498	10,582	101	87	119	51
52	34,870	17	199	767	10,275	84	90	151	52
53	33,887	10	207	1,118	9,950	70	94	189	53
54	32,552	3	212	1,530	9,597	56	96	230	54
55	30,807	..	216	2,002	9,215	42	99	277	55
56	28,589	..	217	2,573	8,797	30	100	352	56
57	25,799	..	214	3,224	8,315	18	101	457	57
58	22,361	..	203	3,913	7,739	9	101	580	58
59	18,245	..	182	4,561	7,049	..	98	705	59
60	13,502	..	150	5,401	6,246	..	92	3,123	60
61	7,951	..	99	3,180	3,031	..	48	985	61
62	4,672	..	65	1,869	1,998	..	34	599	62
63	2,738	..	44	1,095	1,365	..	24	409	63
64	1,599	..	30	640	932	..	18	303	64
65	929	..	..	929	611	..	..	611	65

TABLE VIII.

SUMMARY OF GOVERNMENT RAILWAYS SUPERANNUATION RESULTS.

VALUATION BALANCE-SHEET AS AT 31ST MARCH, 1927.

Liabilities.

Value of—

	£
1,417 pensions for £221,521 13s. 4d. per annum already granted	2,034,431
461 pensions for £14,291 per annum granted to widows of deceased contributors	172,852
502 pensions for £13,052 per annum granted to children of deceased contributors	50,163
Prospective pensions for back service	3,883,914
Prospective pensions for future service	2,853,882
Prospective pensions for widows	221,771
Prospective pensions for children	103,336
Return of contributions on death	27,976
Return of contributions on withdrawal	428,517
	£9,776,842

Assets.

	£
Accumulated funds	985,828
Value of—	
Future contributions	1,738,574
Additional subsidy on account of widows and children	242,236
Subsidy of £170,000 per annum now being paid	3,777,778
Future increases in subsidy to be provided	3,032,426
	£9,776,842

Approximate Cost of Paper.—Preparation, not given; printing (950 copies), £20 10s.