

SESSION II.  
1918.  
NEW ZEALAND.

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## PUBLIC SERVICE SUPERANNUATION FUND.

ACTUARIAL EXAMINATION FOR THE TRIENNium ENDED 31st DECEMBER, 1916.

*Laid before Parliament in pursuance of Section 48 (4) of the Public Service Classification and Superannuation Act, 1908.*

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### REPORT

BY THE ACTUARY APPOINTED BY HIS EXCELLENCY THE GOVERNOR-GENERAL TO MAKE THE ACTUARIAL EXAMINATION OF THE PUBLIC SERVICE SUPERANNUATION FUND FOR THE TRIENNIAL PERIOD ENDED 31st DECEMBER, 1916.

1. I HAVE the honour to submit the following report on the Public Service Superannuation Fund as at the 31st December, 1916, as required by section 48 of the Public Service Classification and Superannuation Act, 1908.

2. The scheme, which came into operation on the 1st January, 1908, embraces, with the few exceptions set out in section 52, all permanent public servants outside the Government Railways Superannuation Fund and the Teachers' Superannuation Fund.

3. The contributions and benefits provided by the Act, together with statements showing the progress of active membership, discontinuance of membership from various causes, and the progress of pensions for each year, will be found in Tables I to IV of the appendix to this report. The ages of the contributors at the date of the valuation, together with their contributions and other particulars, are shown in Table V, and the pensions granted during the triennium, with the ages at which they were granted, in Table VI.

4. The number of pensioners on the fund at 31st December, 1916, was 1,233, drawing pensions amounting to £88,392 per annum; the number of contributors at the same date was 13,313, with aggregate salaries amounting to £2,287,591 and paying contributions at the rate of £141,844 per annum.

5. The income and outgo of the fund during the three years are shown in the Consolidated Revenue Account, which is as follows :—

CONSOLIDATED REVENUE ACCOUNT OF THE PUBLIC SERVICE SUPERANNUATION FUND FROM THE 1ST JANUARY, 1914, TO THE 31ST DECEMBER, 1916.

<i>Income.</i>	£	s.	d.	<i>Outgo.</i>	£	s.	d.
Funds at 1st January, 1914	537,914	6	3	Pensions to members	207,741	1	7
Members' contributions	401,981	15	10	Pensions to widows and children	18,684	9	7
Government subsidy	144,000	0	0	Contributions returned	54,144	11	2
Transfers from other funds	1,641	6	10	Compensation	2,211	18	8
Interest	98,478	12	0	Transfers to other funds	856	3	0
Fines	545	7	9	Salaries	2,349	19	6
				Public Trust Office commission	1,057	17	1
				Travelling and office expenses	947	7	10
				Funds at 31st December, 1916	896,568	0	3
	<u>£1,184,561</u>	<u>8</u>	<u>8</u>		<u>£1,184,561</u>	<u>8</u>	<u>8</u>

6. During the triennium an important measure was enacted transferring the investment of the funds from the Public Trustee to the Public Service Superannuation Board, a change advocated in my last valuation report.

## VALUATION.

7. In making the valuation it has been assumed that the funds will produce an interest yield at the rate of 4 per cent. per annum net. Probably for some time to come a higher rate will be realized, particularly now that the investment of the funds has been placed in the hands of the Board; but for the long period involved in a pension scheme a greater average rate than 4 per cent. could not be assumed with safety.

8. The Experience Table (Table VII) contains the rates of withdrawal, mortality of contributors, and retirement on pension assumed in arriving at the liability. These rates, which are the same as those used on the previous occasion, were as far as possible based upon the experience of the fund itself up to 1913, the death-rates amongst males embracing also the experience of the Government Railways salaried division (1903–1912), and the rate of retirement amongst females the experience of female teachers in the Teachers' Fund. The death-rates of female contributors were adopted from the experience of female teachers in Britain (Mr. George King), after comparison with the somewhat meagre data of the fund itself. It may be mentioned here that owing to the disturbing influence of the war little use could be made of the statistics of the triennium 1914–1916.

The Life and Service Table deduced from these rates is given in Table VIII of the appendix, together with the average salaries from which were derived the ratios of increase to be applied to the present salary of each individual officer.

The rates of mortality assumed to rule among male pensioners were those of the actual experience of the fund to 1913 combined with that of the Railways and Teachers' Funds, whilst for female pensioners a table was constructed with the guidance of the limited experience available, giving rates somewhat below those of the New Zealand female population.

In valuing the benefits to widows and children the statistics of the fund itself up to 1913 were made use of as far as possible, but the rate of remarriage of widows has been taken from the statistics of the general population (widows and spinsters), and the death-rate of widows and children from Dr. Farr's Healthy English Mortality Tables.

It has been assumed that all male and female contributors will retire at the ages of sixty-five and sixty respectively, if they have not retired before reaching those ages.

9. The valuation balance-sheet is given in detail in Table IX, a summary being as follows:—

<i>Liabilities.</i>		£
Value of contributors' pensions already granted for £80,343 per annum .. .. .	.. .. .	660,139
Value of widows' and children's pensions already granted for £8,049 per annum .. .. .	.. .. .	67,227
Value of prospective pensions (to present contributors) for back service .. .. .	.. .. .	2,139,877
Value of prospective pensions (to present contributors) for future service .. .. .	.. .. .	1,749,084
Value of prospective pensions to widows and children of present contributors .. .. .	.. .. .	453,696
Value of return of contributions on death or withdrawal .. .. .	.. .. .	480,817
		<u>£5,550,840</u>
<i>Assets.</i>		£
Accumulated funds .. .. .	.. .. .	896,568
Value of contributors' future contributions .. .. .	.. .. .	1,647,191
Value of present and future Government subsidies .. .. .	.. .. .	3,007,081
		<u>£5,550,840</u>

10. This shows a total liability on the Government of the value of £3,007,081, of which £1,200,000 is met by the subsidy of £48,000 per annum, whilst the remainder has yet to be provided for. At the last valuation the Government's liability amounted to £2,381,466. The increase on the present occasion is £625,615, which is made up to the extent of £147,500 by interest accumulations on the unprovided part of the liability, the balance of the increase being mainly due to the normal expansion in the number of contributors and salary charge.

The pensions have increased from £60,970 per annum to £88,392, the number of contributors from 10,809 to 13,313, and the salaries from £1,820,379 to £2,287,591. The average salary has increased from £168 to £172, and the additions being greater at the older ages have had greater effect upon the liability.

In this connection it is interesting to note that though the pensions, the number of contributors, and the total salaries all show a greater increase than in the previous triennium, the Government's liability nevertheless shows a smaller increase. This is doubtless due to the fact that as time goes on the proportion of contributors who more fully provide for their own pensions becomes greater.

11. The Act (section 48 (2)) requires the report to be so prepared "as to show the state of the fund at the close of the period, having regard to the prospective liabilities and assets and the probable annual sums required by the fund to provide the retiring and other allowances falling due in the ensuing three years without affecting or having recourse to the actuarial reserve appertaining to the contributors' contributions." This has been taken to mean that the estimated pensions falling due during the three years following the valuation are to be divided into two parts viz., (a) containing that part of the pensions provided for by the contributions, and (b) the remainder, which includes the pensions for service prior to joining the fund, and (as the contributions are insufficient to purchase full benefits for even future service) such part of the pensions for years of contribution as the contributions are not sufficient to provide for.

The first is clearly a liability which should be borne by the fund, but the second is not, and it is assumed that the intention of section 49 is that it should be paid for by a subsidy, to be increased from time to time, if necessary, according to the Actuary's report.

The estimated pensions falling due during 1917, 1918, and 1919, and the portions provided by the contributions and to be paid by subsidy respectively, are as follows:—

	1917.	1918.	1919.
	£	£	£
Required for —			
Current ordinary pensions .. .. .	75,626	71,058	66,623
New pensions and family pensions .. .. .	17,941	32,708	49,057
	93,567	103,766	115,680
Deduct amount of pensions provided by contributions .. .. .	14,973	18,519	22,784
Subsidies required for ensuing three years .. .. .	78,594	85,247	92,896

In pursuance of the foregoing paragraph, therefore, I have to report that, besides the annual subsidy of £48,000 now being paid, further subsidies of £31,000, £37,000, and £45,000 are required for the years 1917, 1918, and 1919, or an average of about £38,000 per annum. In my report for the triennium ended 31st December, 1913, an additional subsidy of £18,000 was stated to be necessary, but owing to the exigencies arising out of the war the recommendation has not yet been given effect to. Of the additional subsidy of £38,000 now required only £20,000 is therefore due to the present triennium. It is to be noted, by the way, that the proportion of pension provided by contributions of employees is steadily increasing.

12. The subsidies paid to the fund so far have in reality been principally old payments in a new guise, taking the place of compensation for loss of office and gratuities; for whilst the Government's total contribution to the fund for nine years has been £300,500, the compensation the pensioners would have been entitled to if they had not accepted pensions was £215,209, reckoning only to the date they joined the fund. To this latter figure must be added the further compensation which would have been payable in respect of service since they joined the fund.

There has also been a great saving in gratuities; for while these amounted to £37,091 for the eight years prior to the establishment of the fund, for the next succeeding eight years they only amounted to £6,065, or a decrease of over £31,000.

13. Since the close of the triennium legislation has been passed postponing retirements until after the war. This will operate to a certain extent as a relief to the fund. The change in the control of investments, coupled with the hardening tendency in the rate of interest, will also for some time to come probably bring to the fund an accretion of income beyond that anticipated in the valuation basis.

#### GENERAL REMARKS.

14. As previously reported, the present subsidy is based on the current pensions paid in excess of what the contributions therefor have purchased. The pension list is a growing one, and the subsidy required will increase for many years, and it is very desirable that these additions should be secured in some automatic manner without the necessity, as at present, for new legislation. The suggestion that the subsidy should take the form of a fixed percentage of the annual salaries was discussed and favourably commented on in my last report.

Another and somewhat similar method is that of a subsidy on the contributions actually paid by the public servants themselves. For instance, a subsidy of 67 per cent. on the contributions of males and 78 per cent. on the contributions of females would extinguish the deficiency in approximately seventy-five years, assuming the expansion of the Dominion to continue at the same rate as hitherto. After that the subsidy would drop to a very much smaller figure. The annual cost at the outset by this simple method would be about £96,000 per annum, compared with £86,000 now required under the present method, and it is worthy of remark that this is a less percentage of the contributions of members than was paid by the Government directly or indirectly to the support of the National Provident Fund for the year ended 31st December, 1916. The simpler method, though costing a little more at the outset, would cost less later on.

Although £96,000 may seem a large sum, it is not so relatively, inasmuch as it comes to less than 5 per cent. of the salaries paid. Judging by ordinary commercial standards this is but a moderate price for the State as employer to pay for the considerable advantages it derives from the existence of a superannuation fund. It is, of course, erroneous to suppose that the fund exists only for the benefit of the public servants, or that in paying the above subsidy the State would be doing anything more than any large employer would and does find it to his advantage to do.

In this connection the following remarks by the late Mr. H. W. Manly, past President of the Institute of Actuaries, London, a world-wide authority on pension funds, are particularly applicable: "A fund maintained in a sound financial condition is, in my opinion, a blessing to both employer and employed. The employer secures a continuity of service, for the employee will think twice before he leaves a service where he has a number of years to his credit for pension, for a small additional income; and if he (the employer) makes a proper contribution to the fund, in addition to guaranteeing a good rate of interest, he secures efficiency in the service by superannuating his servants with a reasonable pension when they are no longer useful. His salary list is a good 5 per cent.—I am inclined to think in many cases nearer 10 per cent.—less than it would be if there were no fund, and I do not think, therefore, that he can reasonably object to subscribe 5 or 6 per cent. of salaries to the fund." (J.I.A. 45/183.)

An annual subsidy of 67 per cent. and 78 per cent. of the contributions in the case of males and females respectively, amounting as it does to less than 5 per cent. of the salaries, would therefore be quite a normal amount to pay for the benefits accruing to the State from the existence of a sound pension fund; and though from the actuarial point of view it would not greatly matter whether the subsidy were based upon salaries or upon contributions, the latter method has the merit of making fairly clear what each party is doing. In this connection it may be mentioned that up to the end of 1916 the employees had contributed £1,023,080 as against the £300,500 contributed by the State. The percentages I have quoted are subject to the proper flow of new entrants. If the fund were closed to these at any time the position would have to be reviewed.

Wellington, 25th May, 1918.

PERCY MUTER, F.I.A.,  
Actuary to the Government Insurance Department.

## APPENDIX.

TABLE I.

### THE BENEFITS AND CONTRIBUTIONS PROVIDED FOR BY THE ACT.

Contributions	The contributions vary according to the age at the time when the first contribution becomes payable, and are as follows:—					
	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 "
	" 50 ..	..	..	..	..	10 "

### I. On Attainment of Pension. Males at Age 65, or after Forty Years' Service; Females at Age 55, or after Thirty 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 total contributions.

(NOTE.—The Minister in charge of a Department may retire contributors on pension in the following cases:—

(a.) Where the age of a male contributor is not less than 60, or of a female contributor not less than 50.

(b.) Where the age of a male contributor is not less than 55, if his length of service is not less than thirty years.

(c.) Where the length of service of a male contributor is not less than thirty-five years.

In any such exceptional cases the Minister may impose upon the retiring contributor such terms and conditions as to payments into the Fund or otherwise as he thinks fit.)

### II. On Retirement before Pension Age (on the Grounds of being medically unfit for Future Duty).

Benefits .. (1.) At any time, on the certificate of two doctors approved by the Board, a pension of one-sixtieth of yearly salary for each year's service, limited to forty-sixtieths.

(2.) Or the option, in lieu thereof, of a return of total contributions.

(Where officers of the Police Force are incapacitated by injuries received on duty the Board may increase the pension up to three-fifths of salary.)

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

(1.) On voluntary retirement or dismissal for misconduct, a return of total contributions.

(2.) On compulsory retirement for any reason other than misconduct, after twenty years' service, a return of total contributions with  $3\frac{1}{2}$  per cent. compound interest.

### IV. At Death, whether before or after becoming entitled to a Retiring-allowance.

(1.) Leaving no widow or children: A return of total contributions less any sums received from the Fund during lifetime.

(2.) Leaving a widow:—

(a.) £18 yearly during widowhood; or

(b.) A return of total contributions, together with such compensation (if any) as the contributor would have been entitled to receive from the Consolidated Fund on compulsory retirement, less any sums received from the Fund during lifetime. (If death occurs before retirement the compensation is paid from the Consolidated Fund; if after retirement, from the Superannuation Fund.)

(3.) Leaving children: 5s. weekly to each child until age 14.

(NOTE.—The contributions and pensions are payable monthly, and the pensions are computed on the average salary for the last three years.)

TABLE II.  
STATEMENT OF PROGRESS OF ACTIVE MEMBERSHIP.\*

Year.	New Members.			Increase by Promotion.		Discontinued.			Total in Force at End of Year.		
	Number.	Salaries.	Annual Contributions.	Salaries.	Annual Contributions.	Number.	Salaries.	Annual Contributions.	Number.	Salaries.	Annual Contributions.
		£	£	£	£		£	£		£	£
1908 ..	7,546	1,112,099	80,526	37,769	2,301	310	42,521	3,463	7,236	1,107,347	79,364
1909 ..	717	77,877	5,290	58,268	3,425	630	103,414	8,575	7,323	1,140,078	79,504
1910 ..	1,520	205,427	12,814	73,936	4,509	472	61,322	4,238	8,371	1,358,119	92,589
1911 ..	1,253	134,065	8,196	81,431	4,906	484	69,174	5,021	9,140	1,504,441	100,670
1912 ..	1,471	145,396	8,980	96,863	5,730	584	80,469	5,540	10,027	1,666,231	109,840
1913 ..	1,428	123,493	7,047	118,571	7,022	646	87,916	5,903	10,809	1,820,379	118,006
1914 ..	1,777	170,471	9,996	135,220	7,990	783	103,170	7,062	11,803	2,022,900	128,930
1915 ..	1,916	163,335	9,248	103,462	5,916	939	121,152	7,870	12,780	2,168,545	136,224
1916 ..	1,593	129,628	7,326	120,532	6,711	1,060	131,114	8,417	13,313	2,287,591	141,844
Totals	19,221	2,261,791	149,423	826,052	48,510	5,908	800,252	56,089	..	..	..

TABLE III.  
PARTICULARS OF DISCONTINUANCE OF ACTIVE MEMBERSHIP.\*

Year.	By Death.			By Withdrawal or Dismissal.		By Pensions.						By Transfer to other Funds.		Total discontinued.		
	Number.	Amount paid on Retire- ment.	Pen- sion.	Number.	Amount paid on Retire- ment.	Old Age or Length of Service.			Medically unfit.			Number.	Amount paid on Transfer.	Number.	Amount paid on Retire- ment.	Pensions en- tered upon.
						Number,	Amount paid on Retire- ment.	Pensions en- tered upon.	Number.	Amount paid on Retire- ment.	Pensions en- tered upon.					
		£	£		£	£	£	£	£	£	£	£	£	£	£	£
1908 ..	24	41	437	190	421	74	..	6,658	20	..	1,838	2	22	310	484	8,933
1909 ..	37	148	676	417	3,454	154	21	17,039	19	..	1,958	3	5	630	3,628	19,673
1910 ..	28	768	380	387	4,964	42	..	4,147	13	..	1,101	2	13	472	5,745	5,628
1911 ..	33	1,634	292	354	5,853	73	215	8,631	19	..	1,314	5	10	484	7,712	10,237
1912 ..	45	2,222	784	450	8,388	64	..	6,992	19	61	1,017	6	21	584	10,692	8,793
1913 ..	40	1,149	1,043	516	9,364	73	115	8,716	13	78	591	4	5	646	10,711	10,350
1914 ..	53	2,207	1,015	610	9,659	106	471	11,243	11	..	637	3	37	783	12,374	12,895
1915 ..	99	4,850	1,574	741	12,497	75	974	8,272	21	98	1,345	3	78	939	18,497	11,191
1916 ..	134	5,535	1,260	821	13,920	71	636	11,692	14	..	751	20	742	1,060	20,833	13,703
Totals	493	18,554	7,461	4,486	68,520	732	2,432	83,390	149	237	10,552	48	933	5,908	90,676	101,403

TABLE IV.  
STATEMENT OF PROGRESS OF PENSIONS.\*

Year.	Attainment of Pension Age or Length of Service. (Sec. 35, &c.)						Retired medically unfit. (Sec. 36, &c.)					
	Granted or transferred.		Void by Death or Expiry.		In Force.		Granted or transferred.		Void by Death or Expiry.		In Force.	
	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.
		£		£		£		£		£		£
1908 ..	74	6,658	1	57	73	6,601	20	1,838	..	..	20	1,838
1909 ..	153	17,038	4	324	222	23,315	19	1,959	4	677	35	3,120
1910† ..	84	8,737	12	945	294	31,107	56	4,706	5	680	86	7,146
1911 ..	72	8,631	23	2,593	343	37,145	19	1,314	10	621	95	7,839
1912 ..	64	6,992	22	2,124	385	42,013	18	1,017	9	526	104	8,330
1913 ..	71	8,716	18	2,003	438	48,726	11	591	14	903	101	8,018
1914 ..	100	11,243	28	2,911	510	57,058	11	637	13	730	99	7,925
1915 ..	68	8,272	24	2,072	554	63,258	20	1,345	5	307	114	8,963
1916 ..	67	11,693	30	3,726	591	71,225	14	751	9	596	119	9,118
Totals ..	753	87,980	162	16,755	..	..	188	14,158	69	5,040	..	..

  

Year.	Death of Contributor or Pensioner. Family Pension. (Sections 42 and 43, &c.)						Total Pensions.					
	Granted or transferred.		Void by Death or Expiry.		In Force.		Granted or transferred.		Void.		In Force.	
	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.	Number.	Pension.
		£		£		£		£		£		£
1908 ..	30	455	1	13	29	442	124	8,951	2	70	122	8,881
1909 ..	47	751	3	39	73	1,154	219	19,748	11	1,040	330	27,589
1910† ..	40	635	6	98	107	1,691	180	14,078	23	1,723	487	39,944
1911 ..	40	625	11	163	136	2,153	131	10,570	44	3,377	574	47,137
1912 ..	72	1,086	14	197	194	3,042	154	9,095	45	2,847	683	53,385
1913 ..	90	1,355	12	171	272	4,226	172	10,662	44	3,077	811	60,970
1914 ..	90	1,365	12	176	350	5,415	201	13,245	53	3,817	959	70,398
1915 ..	130	1,945	22	311	458	7,049	218	11,562	51	2,690	1,126	79,270
1916 ..	99	1,507	34	507	523	8,049	180	13,951	73	4,829	1,233	88,392
Totals ..	638	9,724	115	1,675	..	..	1,579	111,862	346	23,470	..	..

\* Compiled from Annual Reports.

† Includes pensioners transferred from Police Provident Fund.

TABLE V.

## PRESENT ANNUAL PAY AND CONTRIBUTIONS OF OFFICERS NOW IN SERVICE.\*

Age attained.	Number.		Present Annual Pay.		Present Annual Contributions.		Age attained.
	Male.	Female.	Male.	Female.	Male.	Female.	
70 .. ..	3	2	£ 630	£ 205	£ 63	£ 20	70
69 .. ..	2	..	760	..	76	..	69
68 .. ..	4	..	1,960	..	196	..	68
67 .. ..	3	..	1,612	..	161	..	67
66 .. ..	9	..	3,108	..	311	..	66
65 .. ..	27	..	8,126	..	800	..	65
64 .. ..	58	..	17,418	..	1,715	..	64
63 .. ..	49	1	14,428	175	1,429	17	63
62 .. ..	56	..	16,691	..	1,646	..	62
61 .. ..	57	..	17,510	..	1,734	..	61
60 .. ..	84	2	24,195	234	2,326	23	60
59 .. ..	92	7	29,255	830	2,738	83	59
58 .. ..	106	2	32,210	290	2,920	29	58
57 .. ..	101	7	29,149	1,031	2,630	97	57
56 .. ..	87	11	27,176	1,185	2,405	110	56
55 .. ..	103	5	31,750	660	2,856	62	55
54 .. ..	113	7	32,300	995	2,774	88	54
53 .. ..	109	3	31,099	397	2,553	34	53
52 .. ..	115	9	32,517	887	2,642	73	52
51 .. ..	137	8	37,737	1,230	3,046	101	51
50 .. ..	136	13	34,896	1,848	2,767	150	50
49 .. ..	165	17	44,127	2,412	3,385	194	49
48 .. ..	170	8	45,194	1,115	3,230	86	48
47 .. ..	169	19	42,714	2,800	3,036	208	47
46 .. ..	164	17	42,584	2,436	2,961	179	46
45 .. ..	172	14	42,081	1,904	2,913	138	45
44 .. ..	192	21	46,579	2,685	3,118	189	44
43 .. ..	203	17	45,852	2,219	2,866	150	43
42 .. ..	204	27	48,193	3,834	3,025	249	42
41 .. ..	229	26	52,910	3,535	3,270	223	41
40 .. ..	275	23	64,732	3,000	3,950	186	40
39 .. ..	261	29	59,657	4,104	3,483	257	39
38 .. ..	246	24	52,352	3,282	2,886	186	38
37 .. ..	276	39	59,432	5,264	3,245	300	37
36 .. ..	306	28	63,378	4,123	3,429	229	36
35 .. ..	305	37	64,920	4,905	3,414	261	35
34 .. ..	291	41	59,325	5,218	3,090	271	34
33 .. ..	293	38	57,922	4,634	3,004	236	33
32 .. ..	329	55	64,798	6,947	3,302	351	32
31 .. ..	349	59	68,803	6,325	3,486	322	31
30 .. ..	352	54	68,270	5,910	3,419	296	30
29 .. ..	330	49	61,248	4,830	3,062	241	29
28 .. ..	297	64	53,344	6,144	2,672	307	28
27 .. ..	354	73	60,348	7,577	3,017	379	27
26 .. ..	385	62	63,207	5,642	3,160	282	26
25 .. ..	340	83	51,831	7,830	2,592	392	25
24 .. ..	332	89	46,153	7,759	2,308	388	24
23 .. ..	328	73	41,830	5,930	2,092	296	23
22 .. ..	322	76	37,732	5,852	1,887	293	22
21 .. ..	400	64	40,615	4,931	2,031	247	21
20 .. ..	469	71	41,465	5,309	2,073	265	20
19 .. ..	529	49	39,385	3,595	1,969	180	19
18 .. ..	603	29	38,630	1,792	1,932	90	18
17 .. ..	497	10	27,658	630	1,383	32	17
16 .. ..	229	1	11,806	66	590	3	16
15 .. ..	33	..	1,670	..	84	..	15
Totals ..	11,850	1,463	2,135,272	154,506	133,169	8,793	

\* Compiled from cards.

† Adjustment for errors discovered on cards after summary completed.

CLASSIFICATION OF PENSIONS GRANTED FROM 1ST JANUARY, 1914, TO 31ST DECEMBER, 1916, INCLUSIVE,  
SHOWING THE AGES AT WHICH THEY WERE GRANTED.\*

\* Compiled from cards.

TABLE VII.  
EXPERIENCE TABLE.  
RATES PER CENT. PER ANNUM OF WITHDRAWAL, MORTALITY, AND RETIREMENT.

Contributing Members : Males.				Contributing Members : Females.			
Age.	Rate of Withdrawal (Public Service Super-annuation Fund).	Rate of Mortality (Combined New Zealand Super-annuation Funds).	Rate of Retirement (Public Service Super-annuation Fund).	Rate of Withdrawal (Public Service Super-annuation Fund).	Rate of Mortality (Assumed).	Rate of Retirement (Combined New Zealand Super-annuation Funds).	Age.
15	6.50	0.20	..	3.00	0.22	..	15
16	6.40	0.20	..	3.15	0.23	..	16
17	6.28	0.20	..	3.40	0.24	..	17
18	6.16	0.20	..	3.90	0.25	..	18
19	6.03	0.20	..	5.50	0.26	..	19
20	5.90	0.21	..	7.40	0.27	..	20
21	5.75	0.21	..	9.30	0.29	..	21
22	5.61	0.22	..	11.10	0.30	..	22
23	5.46	0.23	0.10	12.80	0.31	..	23
24	5.30	0.24	0.10	13.70	0.31	..	24
25	5.13	0.25	0.10	13.90	0.32	..	25
26	4.95	0.26	0.10	13.90	0.32	..	26
27	4.76	0.27	0.10	13.70	0.32	..	27
28	4.55	0.28	0.10	13.30	0.32	..	28
29	4.30	0.29	0.10	12.80	0.32	..	29
30	4.10	0.30	0.10	12.00	0.32	..	30
31	3.90	0.32	0.12	11.00	0.32	..	31
32	3.73	0.34	0.14	10.00	0.32	..	32
33	3.57	0.36	0.16	9.20	0.32	0.25	33
34	3.43	0.38	0.18	8.60	0.32	0.25	34
35	3.32	0.40	0.20	8.10	0.33	0.25	35
36	3.22	0.42	0.20	7.75	0.33	0.25	36
37	3.12	0.44	0.20	7.40	0.33	0.25	37
38	3.02	0.46	0.21	7.10	0.33	0.30	38
39	2.92	0.49	0.22	6.90	0.34	0.40	39
40	2.82	0.52	0.23	6.70	0.34	0.50	40
41	2.72	0.53	0.24	6.50	0.36	0.60	41
42	2.62	0.54	0.25	6.20	0.38	0.70	42
43	2.52	0.55	0.26	5.90	0.40	0.88	43
44	2.42	0.57	0.27	5.50	0.44	1.08	44
45	2.32	0.59	0.28	5.10	0.48	1.38	45
46	2.22	0.60	0.29	4.55	0.52	1.83	46
47	2.12	0.63	0.30	3.85	0.57	2.58	47
48	2.01	0.67	0.41	..	0.63	3.63	48
49	1.91	0.70	0.53	..	0.69	4.63	49
50	1.81	0.73	0.68	..	0.76	5.90	50
51	1.70	0.78	0.88	..	0.83	7.43	51
52	1.60	0.82	1.12	..	0.90	9.25	52
53	1.50	0.86	1.37	..	0.98	11.88	53
54	1.40	0.92	1.69	..	1.07	14.63	54
55	1.30	0.98	2.07	..	1.15	17.38	55
56	1.20	1.05	2.52	..	1.25	19.88	56
57	1.09	1.15	3.05	..	1.34	21.30	57
58	0.98	1.25	3.74	..	1.45	22.50	58
59	0.88	1.37	4.57	..	1.56	25.00	59
60	0.73	1.52	5.81	..	..	..	60
61	0.52	1.69	7.91	..	..	..	61
62	..	1.88	13.00	..	..	..	62
63	..	2.12	21.20	..	..	..	63
64	..	2.40	29.50	..	..	..	64



TABLE VIII.

## LIFE AND SERVICE TABLE.

BASED UPON THE RATES PER CENT. PER ANNUM OF WITHDRAWAL, MORTALITY, AND RETIREMENT  
GIVEN IN TABLE VII APPLIED TO 100,000 ENTRANTS AT AGE 15.

Males.						Females.					
Age.	Existing in Service.	Withdrawals.	Deaths.	Retirements.	Average Salary.*	Existing in Service.	Withdrawals.	Deaths.	Retirements.	Average Salary.*	Age.
					£					£	
15 ..	100,000	6,500	200	..	49·5	100,000	3,000	219	..	..	15
16 ..	93,300	5,971	186	..	52·2	96,781	3,049	222	..	63·8	16
17 ..	87,143	5,473	175	..	57·7	93,510	3,179	224	..	65·2	17
18 ..	81,495	5,020	163	..	65·6	90,107	3,515	225	..	66·9	18
19 ..	76,312	4,602	153	..	75·8	86,367	4,749	224	..	69·5	19
20 ..	71,557	4,222	150	..	88·0	81,394	6,024	220	..	72·5	20
21 ..	67,185	3,864	141	..	101·1	75,150	6,989	217	..	75·7	21
22 ..	63,180	3,545	139	..	114·4	67,944	7,542	204	..	79·1	22
23 ..	59,496	3,248	137	59	127·6	60,198	7,705	186	..	82·5	23
24 ..	56,052	2,970	135	56	140·3	52,307	7,166	163	..	86·0	24
25 ..	52,891	2,714	132	53	151·7	44,978	6,252	142	..	89·5	25
26 ..	49,992	2,475	130	50	162·3	38,584	5,363	122	..	93·2	26
27 ..	47,337	2,253	128	47	171·5	33,099	4,534	105	..	97·1	27
28 ..	44,909	2,044	126	45	179·5	28,460	3,785	91	..	101·2	28
29 ..	42,694	1,835	124	43	186·0	24,584	3,147	79	..	105·5	29
30 ..	40,692	1,668	122	41	191·2	21,358	2,563	68	..	109·9	30
31 ..	38,861	1,516	124	47	195·2	18,727	2,060	60	..	114·4	31
32 ..	37,174	1,387	126	52	198·5	16,607	1,661	53	..	119·0	32
33 ..	35,609	1,272	128	57	201·6	14,893	1,370	48	37	123·6	33
34 ..	34,152	1,171	130	61	204·8	13,438	1,156	43	34	127·9	34
35 ..	32,790	1,089	131	66	208·0	12,205	989	40	30	131·8	35
36 ..	31,504	1,015	132	63	211·4	11,146	864	36	28	134·1	36
37 ..	30,294	945	133	61	215·2	10,218	756	33	26	135·2	37
38 ..	29,155	880	134	61	219·2	9,403	668	31	28	135·8	38
39 ..	28,080	820	138	62	223·2	8,676	598	29	35	136·1	39
40 ..	27,060	763	141	62	227·0	8,014	537	28	40	136·6	40
41 ..	26,094	710	138	63	230·8	7,409	482	26	44	136·9	41
42 ..	25,183	660	136	63	234·6	6,857	425	26	48	137·1	42
43 ..	24,324	613	134	63	238·4	6,358	375	26	56	137·3	43
44 ..	23,514	569	134	63	242·4	5,901	324	26	64	137·5	44
45 ..	22,748	528	134	64	246·6	5,487	280	26	75	137·6	45
46 ..	22,022	489	132	64	251·2	5,106	233	27	93	137·7	46
47 ..	21,337	452	134	64	255·8	4,753	183	27	123	137·8	47
48 ..	20,687	416	139	85	260·4	4,420	..	28	160	137·9	48
49 ..	20,047	383	140	106	265·0	4,232	..	29	196	138·0	49
50 ..	19,418	351	142	132	269·8	4,007	..	30	237	138·0	50
51 ..	18,793	320	147	165	275·0	3,740	..	31	278	138·0	51
52 ..	18,161	290	149	203	280·0	3,431	..	31	317	138·0	52
53 ..	17,519	263	151	240	287·0	3,083	..	30	367	138·0	53
54 ..	16,865	236	155	285	292·0	2,686	..	28	393	138·0	54
55 ..	16,189	210	159	335	297·0	2,265	..	26	394	138·0	55
56 ..	15,485	186	163	390	300·2	1,845	..	23	367	138·0	56
57 ..	14,746	160	170	450	302·4	1,455	..	19	310	138·0	57
58 ..	13,966	136	175	522	303·6	1,126	..	16	254	138·0	58
59 ..	13,133	116	180	600	304·0	856	..	13	214	138·0	59
60 ..	12,237	90	186	711	304·0	629	..	..	629	138·0	60
61 ..	11,250	58	190	890	304·0	..	..	..	..	..	61
62 ..	10,112	..	190	1,315	304·0	..	..	..	..	..	62
63 ..	8,607	..	182	1,825	304·0	..	..	..	..	..	63
64 ..	6,600	..	158	1,947	304·0	..	..	..	..	..	64
65 ..	4,495	..	..	4,495	304·0	..	..	..	..	..	65

\* These salary scales are not in themselves assumed in making the valuation, but rather the ratios of increase derived herefrom are applied to the actual present salary of each contributor.

TABLE IX.  
SUMMARY OF PUBLIC SERVICE SUPERANNUATION RESULTS.  
VALUATION BALANCE-SHEET AS AT 31ST DECEMBER, 1916.

<i>Liabilities.</i>									
MALES—									
								£	£
Value of 671 pensions for £78,956 4s. 9d. per annum already granted .. ..								643,568	
" 250 pensions for £4,500 per annum granted to widows of contributors or pensioners .. ..								49,644	
" 273 pensions for £3,549 per annum granted to children of deceased contributors or pensioners .. ..								17,583	
" prospective pensions for back service .. ..								2,051,909	
" " for future service .. ..								1,654,235	
" " to widows .. ..								379,498	
" " to children .. ..								74,198	
" return of contributions on death .. ..								27,932	
" " on withdrawal .. ..								413,830	
									5,312,397
FEMALES—									
Value of 39 pensions for £1,386 13s. 3d. per annum already granted .. ..								16,571	
" prospective pensions for back service .. ..								87,968	
" " for future service .. ..								94,849	
" return of contributions on death or withdrawal .. ..								39,055	
									238,443
									<u>£5,550,840</u>
<i>Assets.</i>									
								£	
Accumulated funds .. ..								896,568	
Value of future contributions from males .. ..								1,583,470	
" " from females .. ..								63,721	
" subsidy of £48,000 per annum .. ..								1,200,000	
" future increases in subsidy to be provided .. ..								1,807,081	
									<u>£5,550,840</u>

*Approximate Cost of Paper.*—Preparation, not given; printing (750 copies), £19.

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