

1932.
NEW ZEALAND.

PUBLIC SERVICE SUPERANNUATION FUND.

ACTUARIAL EXAMINATION AS AT 31st MARCH, 1930.

Laid before Parliament in pursuance of Section 49 (4) of the Public Service Superannuation Act, 1927.

REPORT

BY THE ACTUARY APPOINTED BY HIS EXCELLENCY THE GOVERNOR-GENERAL TO MAKE THE ACTUARIAL EXAMINATION OF THE PUBLIC SERVICE SUPERANNUATION FUND.

Government Actuary's Department,
Wellington, 25th November, 1931.

1. I HAVE the honour to submit the following report on the Public Service Superannuation Fund as at the 31st March, 1930, as required by section 49 of the Public Service Superannuation Act, 1927.
2. The scheme, which came into operation on the 1st January, 1908, embraces, with the few exceptions set out in section 54 of the Act, all permanent public servants outside the Government Railways Superannuation Fund and Teachers' Superannuation Fund.
3. The contributions and the benefits provided by the Act, together with the 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 income and outgo of the fund since the previous valuation were as follow :—

CONSOLIDATED REVENUE ACCOUNT OF THE PUBLIC SERVICE SUPERANNUATION FUND FROM THE 1ST APRIL, 1927, TO THE 31ST MARCH, 1930.									
<i>Income.</i>			£	s.	d.	<i>Outgo.</i>			
						£	s.	d.	
Funds at 1st April, 1927	..	..	2,493,790	7	11	Pensions to members	..	961,556	19 6
Members contributions	..	..	764,854	8	6	Pensions to widows and children	..	95,472	13 5
Transfers from other funds	..	..	1,463	13	10	Contributions returned	..	144,612	4 0
Government subsidy	..	..	358,000	0	0	Transfer to other funds	..	1,791	9 9
Subsidy from Cook Islands and Samoa Administrations	..	..	3,129	19	7	Loss on realization of securities	..	3,902	11 0
Government subsidy under section 114, Public Service Superannuation Act	..	..	42,661	19	8	Salaries	..	8,282	11 5
Interest on investments	..	..	448,004	1	5	Public Trust Office Commission	..	11,179	19 10
Interest on arrears of contributions	..	..	917	12	1	Travelling and office expenses	..	4,697	19 6
Fines	..	..	979	4	6	Funds at 31st March, 1930	..	2,882,504	1 11
Other receipts	..	..	199	2	10				
			£4,114,000	10	4				

5. It will be noted that the funds shown herein differ from those shown in the annual report of the Superannuation Fund Board by £64,500, which sum the Board regard as unearned subsidy, and therefore treat as a liability. In this connection I would point out that the accounts of a superannuation fund are obviously not designed to show the annual profit or loss of the fund, nor does the balance-sheet make any pretensions to show the real contingent liabilities of the fund in connection with pensions or other benefits. Under the circumstances, no good purpose is served by so understating the funds, and the Board is recommended to bring its accounting methods into line with the world-wide practice of financial institutions controlling life-assurance and other funds whose liabilities involve contingencies which cannot be measured by ordinary accountancy standards.

6. *Income*.—On the income side the chief item requiring comment is the Government subsidy. Compared with the annual subsidies reported as necessary in the last actuarial report, the subsidies paid in during the triennium exhibit a shortage of approximately £500,000, apart from the loss of interest thereon.

The effective rates of interest credited to the fund during each year of the triennium are given below together with those of the previous period for the purpose of comparison.

Year.	Rate per Cent.			Year.	Rate per Cent.		
	£	s.	d.		£	s.	d.
1924-25	5 15 1	1927-28	..	..	5 18 6
1925-26	5 17 11	1928-29	..	..	5 14 6
1926-27	5 17 9	1929-30	..	..	5 14 2

The drop in the interest yield for the last two years appears to have been due to a reduction of the amount invested in mortgage securities, and increased investments in debentures and Government securities.

7. *Outgo*.—Retiring-allowances are increasing, and will continue to do so for many years to come. It will be noted that the outgo for benefits during the triennium exceeds the total of the contribution income and the Government subsidy, and is about 75 per cent. of the combined income from contributions, interest, and Government subsidy. As was pointed out in my last valuation report, these high percentages are somewhat disturbing, since the liabilities are essentially of a deferred nature, and consequently funds should be increasing rapidly while the fund is young and the membership is expanding.

DATA.

8. The preliminary particulars required for this examination have been obtained from cards supplied by the Secretary of the Superannuation Fund—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.

9. 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 such children ;
- (i) Remarriage-rates of members' widows.

10. The rate of interest used in valuing benefits and contributions was $4\frac{1}{2}$ per cent., as the fund is State-guaranteed.

11. The mortality-rates adopted for pensioners were those used in the previous valuation, and 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.

12. Average salary scales in respect of males and females separately were constructed for the year immediately following the valuation date, and the resulting ratios of increase from age to age were applied to the actual salary of each contributor as at the 1st April, 1930.

13. The rates of mortality, withdrawal, and retirement of male contributors used in the valuation were based on an examination of the fund's experience during the triennium under review, together with that of each of the two preceding triennia.

As regards mortality, the experience of the whole three triennia was employed as the larger total of deaths recorded could reasonably be expected to minimize the effect of fluctuations, and so yield more reliable averages for each age.

The rates of withdrawal adopted were based solely on the experience of the triennium under review, as it was found that they showed a progressive decline during the three valuation periods.

The retirements were again heavy between ages 50 and 59, and as attention has been called in the last two actuarial reports to this feature and to the serious financial effect on the fund of its continuance, the practice of retiring irrespective of age a considerable number of officers with from thirty-five to forty years' service must, for valuation purposes, be regarded as a permanent feature of the fund. The persistence of these heavy rates of retirement between ages 50 and 59 were, as might naturally have been anticipated, accompanied by a flattening of the rates at ages over 60, and this appears to suggest that in future the officers over age 60 retained in the Service will be largely composed of those with only short service to their credit.

Rates of mortality, withdrawal, and retirement in respect of female contributors were constructed on similar principles.

Details of the Experience Tables adopted and the Life and Service Tables deduced therefrom are given in Tables VII and VIII of the appendix.

14. The factors necessary for the valuation of widows' and children's benefits were built up from population statistics combined with the experience of the fund itself.

RESULTS OF VALUATION.

15. The Act (section 49 (2)) requires the actuarial 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."

The valuation has accordingly been made and the results are shown in Table IX of the Appendix, but they may be shortly summarized as follow:—

	£	£
Present value of existing pensions and allowances .. ..	..	3,375,540
Present value of prospective benefits	11,157,495	
Less present value of members' contributions ..	£3,208,114	
And less present value of State subsidy under section 114 of the Act	570,978	
	<u>3,779,092</u>	<u>7,378,403</u>
Total net liabilities .. ..	..	10,753,943
Funds in hand .. ..	..	2,882,504
		<u>7,871,439</u>
Present value of total liability of State .. ..	..	7,871,439
Less present value of present subsidy of £86,000 (if treated as a perpetuity)	..	<u>1,911,111</u>
Value of future subsidies to be provided for by the State over and above the present subsidy of £86,000 .. ..	..	<u>£5,960,328</u>

16. The above statement shows a total State liability of £7,871,439, as compared with £6,659,770 at the last valuation, giving an increase of £1,211,669. This increase is mainly due to the accumulation at interest of that part of the State's liability which is unprovided for, and to the number of retirements of comparatively young officers with long service being in excess of the valuation assumptions.

17. As regards the first-mentioned source of valuation loss, it is scarcely necessary to point out that if a fund is in deficiency at one valuation, the amount of the deficiency at the succeeding valuation will, all other things being equal, increase at compound interest, since, in addition to the shortage in capital, the fund is deprived of the interest which that capital would have earned during the valuation period.

Reference has been made in previous valuation reports to the serious drain on the fund due to early retirements from causes other than medical unfitness. While in the case of those officers who are retired at ages ranging from 55 to 60 after completing forty years' service, the additional liability is self-evident not only from the greater number of years during which the Superannuation Fund is called upon to pay pensions, but also from the loss of contribution income until age 65, there appears to be a popular and fairly prevalent impression in many quarters that in the case of officers retired after thirty-five years' service, the fund is fully compensated by the fact that the pension is based on thirty-five-sixtieths of salary instead of the maximum of forty-sixtieths. It may not be out of place therefore, for me to state that in spite of the smaller annual pension, the net liability to the Superannuation Fund in respect of the retirement of a physically fit officer with thirty-five years' service is on the average at least 30 per cent. in excess of the net liability in respect of the same officer for a full pension after completing forty years' service.

18. The importance of the ascertainment of the state of the fund in the form given in paragraph 15 lies in the fact that the shortage in the fund to be made good by the State—viz., £7,871,439—is equivalent to an annual interest income (at $4\frac{1}{2}$ per cent.) of £354,215. It follows that if any less annual sum than £354,215 is paid in by the State as subsidy the total deficiency will increase, and the subsidy must accordingly by way of compensation rise later on to a much higher figure than £354,215 per annum in respect of present contributors alone. If, however, any annual amount in excess of £354,215 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 £354,215 is a perpetuity, and does not cease with the lifetime of the present members, nor does it include any subsidy to new entrants.

ASCERTAINMENT OF STATE SUBSIDY.

19. The Act, however, does not provide that the subsidy should be determined from the foregoing actuarial ascertainment. It directs the Actuary to show in his report "the probable annual sums required by the fund to provide the retiring and other allowances falling due within the ensuing three years without affecting or having recourse to the actuarial reserve appertaining to the contributors' contributions." I take this to mean that as the contributions are insufficient to provide the full benefits for service after joining the fund, the principle underlying the section is that the State shall postpone till it emerges the liability for pensions arising out of service before joining the fund, and for such part of the pensions arising out of subsequent service as is not covered by the contributors' contributions.

I estimate the pensions falling due during the financial years 1930-31, 1931-32, and 1932-33, the amounts provided by the contributions, and the subsidies payable on the basis laid down by the Act, to be as follow :—

	1930-31. £	1931-32. £	1932-33. £
Estimated pensions	385,447	394,189	406,900
Amount provided by contributions	141,180	147,362	155,060
Amount due to be paid by the State in respect of the three years mentioned (but see also next paragraph)	244,267	246,827	251,840

20. The above figures would give for the years 1930-31, 1931-32, and 1932-33 an average subsidy of approximately £248,000 per annum, or £162,000 more per annum than is at present being paid. The following considerations, however, must be taken into account :—

- (a) The actuarial recommendations made in the past in pursuance of the Act have not been fully carried out, the actual payments into the fund to the 31st March, 1930, being short by £1,301,000 of the amounts recommended. From Table X of the Appendix it will be seen that this shortage, accumulated at $4\frac{1}{2}$ per cent. interest to the end of this year, amounts to £1,776,357, and I consider that at least £80,000 per annum will require to be added to the future subsidies on this account.
- (b) The State subsidy should also provide year by year the amount charged to the superannuation fund in administration expenses, less possibly the amount of commission due in connection with investments which might be regarded as a deduction from interest. The payment of expenses from the fund is a definite departure from the original scope of the superannuation scheme, and my interpretation of section 49 (2) of the Act is that expenses amounting to say £4,000 per annum should form part of the subsidy.

21. I have therefore to report that in accordance with the system laid down by the Act the annual subsidy required for each year of the period ending 31st March, 1933, is as follows :—

	£
Subsidy now being paid	86,000
Further annual subsidy required—	£
Paragraph 20	162,000
Paragraph 20 (a)	80,000
Paragraph 20 (b)	4,000
	246,000
Annual subsidy required for the years 1930-31, 1931-32, and 1932-33 ..	£332,000

When making provision for this annual subsidy it is important to see that it is back-dated to 1930, and that interest at the rate of $4\frac{1}{2}$ per cent. per annum is added to any portion paid late.

22. In my last actuarial report I drew attention to the method laid down by the Act of arriving at the State's subsidy, and suggested in lieu thereof an automatic basis which, although requiring increased payments at the outset, would minimize the rate of increase in future subsidies.

It is not necessary to add anything further to the remarks made in that report, beyond pointing out that the suggested subsidy of 8 per cent. of the salary roll would now need to be increased by reason of the short-payment in subsidies during the intervening three years.

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

(a) Modify the present right of members to retire by length of service by restricting it to those who have attained a specified age—*e.g.*, age 60 in the case of males, and age 55 in the case of females—and also increase by 5 years the minimum age or length of service at which a female contributor has the right to retire. To enable the matter to be more readily visualized I have set down side by side the present position and that proposed :—

Present Rights.		Proposed Rights.
	<i>Males.</i>	
(i) After age 65.		(i) After age 65.
(ii) After forty years' service.		(ii) After age 60 if combined with forty years' service.
(iii) At any age if medically unfit.		(iii) At any age if medically unfit.
	<i>Females.</i>	
(i) After age 55.		(i) After age 60.
(ii) After thirty years' service.		(ii) After age fifty-five if combined with thirty-five years' service.
(iii) At any age if medically unfit.		(iii) At any age if medically unfit.

(b) Eliminate all existing powers of extending the provisions of the Act to provide for early retirements. Such powers appear in the past to have been wrongfully regarded by contributors as options to retire with the Minister's consent, but were clearly designed to cover only exceptional cases.

Some provision should, of course, be made to obviate possible hardship in the case of those compulsorily retired through no fault of their own, especially if such retirements are the result of a general retrenchment policy.

Two methods of meeting this contingency suggest themselves—namely, to grant pensions based on service on the understanding that the Consolidated Fund pays the necessary retiring-allowances until the attainment of the earliest normal retiring-age set out in (a) above; or, secondly, to provide such actuarially calculated pensions as will throw no additional strain on the Superannuation Fund. It will be seen that the Superannuation Fund is safeguarded by either method, the only difference being that in the first case the extra liability is borne by the State and in the second case by the officer compulsorily retired.

(c) (i) Alter the basis of calculation of "final salary" to the average salary of the last seven or ten years instead of three years as at present; or

(ii) Disregard for pension (and contribution) purposes any salary increases after a specified age, say age 55.

Of these two the former has the merit of correlating to some extent the retiring-allowance and the average salary received in the years preceding retirement, while from the viewpoint of the fund the latter alternative has the advantage of being as effectual as the former in minimizing violent fluctuations in the pension liabilities due to salary increases immediately preceding retirement, and at the same time does not penalize those retiring medically unfit to the same extent as the former basis would. In making this suggestion I am fully conscious that it violates one of the canons of a good pension-fund scheme, but, having regard to the constitution of the Public Service Superannuation Fund, and its present parlous financial position, I feel compelled to recommend it for urgent consideration.

GENERAL REMARKS.

24. It is not my function to comment on policy matters, but I would be lacking in my responsibility if I did not enunciate the general principle that any additional financial strain on the Superannuation Fund due to policy measures of Government should be a charge on the Consolidated Fund 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 in the event of any departure from what might be termed its fundamental obligations to the contributors.

25. 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

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).

(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 3½ per cent. 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) £31 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 : 10s. weekly to each child until age 14.

Benefits

(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.
		£	£	£	£		£	£		£	£
1908–11..	11,036	1,529,468	106,826	251,404	15,141	1,896	276,431	21,297	9,140	1,504,441	100,670
1912–16..	8,185	732,323	42,597	574,648	33,369	4,012	523,821	34,792	13,313	2,287,591	141,844
1917–21..	9,401	1,181,356	68,762	1,906,126	108,419	6,932	1,131,248	71,005	15,782	4,243,825	248,020
1922–23†	1,200	152,922	8,362	43,092	2,298	1,993	658,874	41,271	14,989	3,780,965	217,409
1923–24..	1,219	159,496	8,917	139,589	7,369	1,187	257,682	16,003	15,021	3,822,368	217,692
1924–25..	1,921	278,898	16,035	228,471	12,140	1,160	248,856	15,264	15,782	4,080,881	230,603
1925–26..	1,682	231,794	12,870	204,658	11,035	1,136	254,497	15,512	16,328	4,262,836	238,996
1926–27..	1,518	193,451	10,487	157,749	8,328	932	204,675	12,176	16,914	4,409,361	245,635
1927–28..	1,000	150,212	8,298	146,611	7,585	912	207,138	12,496	17,002	4,499,046	249,022
1928–29..	1,046	164,175	8,931	162,631	8,427	871	204,057	12,048	17,177	4,621,795	254,332
1929–30..	1,665	215,032	11,737	174,518	9,031	866	203,199	11,716	17,976	4,808,146	263,384
Totals ..	39,873	4,989,127	303,822	3,989,497	223,142	21,897	4,170,478	263,580	..	..	..

* Compiled from Annual Reports.

† Fifteen months.

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 Retirement.	Pen- sion.	Number.	Amount paid on Retirement.	Old Age or Length of Service.		Medically Unfit.				Number.	Amount paid on Transfer.	Number.	Amount paid on Retirement.	Pensions entered upon.
						Number.	Amount paid on Retirement.	Number.	Amount paid on Retirement.	Pensions entered upon.	Number.	Amount paid on Retirement.	Number.			
		£	£		£		£		£	£		£			£	£
1908-11 ..	122	2,591	1,785	1,348	14,692	343	236	36,475	71	6,211	12	501	1,896	17,569	44,471	
1912-16 ..	371	15,963	5,676	3,138	53,828	389	2,196	46,915	78	237	36	883	4,012	73,107	56,932	
1917-21 ..	719	42,530	7,863	5,618	161,160	487	5,398	86,769	84	6,353	24	862	6,932	209,950	100,985	
1922-23† ..	63	7,672	1,117	1,573	69,145	320	1,853	69,620	33	2,405	4	204	1,993	78,874	73,142	
1923-24 ..	55	6,261	761	986	44,644	128	1,126	32,259	13	1,380	5	681	1,187	52,099	34,400	
1924-25 ..	55	5,499	1,220	992	54,465	91	..	20,086	11	1,085	11	272	1,160	60,236	22,391	
1925-26 ..	61	8,850	1,167	900	42,198	150	..	40,793	16	1,418	9	185	1,136	51,233	43,378	
1926-27 ..	68	8,496	1,473	739	36,092	98	..	21,601	22	1,865	5	28	932	44,616	24,939	
1927-28 ..	66	14,228	1,976	726	35,292	93	..	18,734	24	2,617	3	465	912	49,985	23,327	
1928-29 ..	65	10,074	2,003	656	32,945	115	..	25,626	29	2,805	6	516	871	43,535	30,434	
1929-30 ..	78	10,906	1,903	661	37,321	101	..	24,997	23	3,011	3	810	866	49,037	29,911	
Totals ..	1,723	133,070	26,944	17,337	581,782	2,315	10,809	423,875	404	237,33,491	118	4,343	21,897	730,241	484,310	

* Compiled from Annual Reports.

† Fifteen months.

TABLE IV.
STATEMENT OF PROGRESS OF PENSIONS.*

Year.	Attainment of Pension Age or Length of Service. (Section 26.)						Retired Medically Unfit. (Section 32.)					
	Granted.		Void by Death.		In Force.		Granted.		Void by Death or Expiry.		In Force.	
	Num-ber.	Pension.	Num-ber.	Pension.	Num-ber.	Pension.	Num-ber.	Pension.	Num-ber.	Pension.	Num-ber.	Pension.
		£		£		£		£		£		£
1908-11† ..	383	41,064	40	3,919	343	37,145	114	9,817	19	1,978	95	7,839
1912-16 ..	370	46,916	122	12,836	591	71,225	74	4,341	50	3,062	119	9,118
1917-21 ..	470	86,769	183	21,082	878	136,912	84	6,354	48	3,162	155	12,310
1922-23† ..	322	69,640	63	9,516	1,137	197,036	33	2,405	30	2,087	158	12,628
1923-24 ..	128	32,259	49	5,922	1,216	223,373	13	1,380	10	872	161	13,136
1924-25 ..	91	20,086	54	8,811	1,253	234,648	11	1,084	10	895	162	13,325
1925-26 ..	150	44,279	57	7,587	1,346	271,340	16	1,689	17	1,425	161	13,589
1926-27 ..	98	21,666	56	8,152	1,388	284,854	22	1,873	8	812	175	14,650
1927-28 ..	93	18,733	48	7,969	1,433	295,618	24	2,618	10	813	189	16,455
1928-29 ..	115	25,625	70	12,897	1,478	308,346	29	2,805	9	901	209	18,359
1929-30 ..	101	24,997	92	15,757	1,487	317,586	23	3,012	13	948	219	20,423
Totals ..	2,321	432,034	834	114,448	..	..	443	37,378	224	16,955	..	..

Year.	Death of Contributor. Family Pension. (Section 42, &c.)						Total Pensions.					
	Granted.		Void by Death or Expiry.		In Force.		Granted.		Void.		In Force.	
	Num-ber.	Pension.	Num-ber.	Pension.	Num-ber.	Pension.	Num-ber.	Pension.	Num-ber.	Pension.	Num-ber.	Pension.
		£		£		£		£		£		£
1908-11† ..	157	2,466	21	313	136	2,153	654	53,347	80	6,210	574	47,137
1912-16 ..	481	7,258	94	1,362	523	8,049	925	58,515	266	17,260	1,233	88,392
1917-21 ..	663	9,979	270	3,895	916	14,133	1,217	103,102	501	28,139	1,949	163,355
1922-23† ..	132	2,001	85	1,200	963	14,934	487	74,046	178	12,803	2,258	224,598
1923-24 ..	93	1,464	71	1,013	985	15,385	234	35,103	130	7,807	2,362	251,894
1924-25 ..	134	2,032	88	1,244	1,031	16,173	236	23,202	152	10,950	2,446	264,146
1925-26 ..	80	15,718	96	2,606	1,015	29,285	246	61,686	170	11,618	2,522	314,214
1926-27 ..	116	3,336	78	2,123	1,053	30,498	236	26,875	142	11,087	2,616	330,002
1927-28 ..	106	3,046	101	2,736	1,058	30,808	223	24,397	159	11,518	2,680	342,881
1928-29 ..	125	3,605	74	2,034	1,109	32,379	269	32,036	153	15,833	2,796	359,084
1929-30 ..	152	4,417	97	2,667	1,164	34,129	276	32,425	202	19,371	2,870	372,138
Totals ..	2,239	55,322	1,075	21,193	..	..	5,003	524,734	2,133	152,596	..	..

* Compiled from Annual Reports.

† Includes pensioners transferred from Police Provident Fund.

‡ Fifteen months.

TABLE V.
PRESENT ANNUAL PAY AND CONTRIBUTIONS OF OFFICERS NOW IN SERVICE.

Age attained.	Number as at 31st March, 1930.		Present Annual Pay as from 1st April, 1930.		Present Annual Contributions as from 1st April, 1930.		Age attained.
	Males.	Females.	Males.	Females.	Males.	Females.	
15	1	..	£ 86	£ ..	£ 4	£ ..	15
16	36	5	2,842	382	142	19	16
17	193	31	15,797	2,343	785	117	17
18	440	72	37,868	6,236	1,893	312	18
19	630	80	64,289	7,643	3,215	382	19
20	745	123	89,788	12,670	4,489	633	20
21	667	142	96,148	16,436	4,807	822	21
22	596	134	104,072	17,503	5,204	875	22
23	525	112	109,114	15,968	5,456	798	23
24	453	83	103,324	12,713	5,166	636	24
25	431	107	108,206	17,518	5,410	876	25
26	437	81	119,434	14,347	5,972	717	26
27	424	110	120,126	20,510	6,006	1,025	27
28	449	88	130,220	16,354	6,511	818	28
29	445	82	130,048	16,892	6,502	845	29
30	500	57	153,554	11,383	7,683	571	30
31	498	72	153,990	14,772	7,722	747	31
32	468	56	147,315	12,634	7,427	633	32
33	415	52	130,461	10,520	6,593	538	33
34	418	52	132,395	10,313	6,728	530	34
35	369	54	118,029	11,206	6,054	578	35
36	353	54	112,388	11,305	5,852	595	36
37	353	48	115,705	9,895	6,007	535	37
38	374	47	124,217	10,545	6,584	560	38
39	406	33	138,982	7,045	7,296	389	39
40	327	40	109,201	8,995	5,802	496	40
41	326	37	111,551	8,713	6,131	485	41
42	324	33	112,136	7,220	6,189	403	42
43	333	36	121,966	8,852	6,666	506	43
44	344	34	122,893	8,310	6,771	469	44
45	321	47	112,921	11,420	6,334	646	45
46	306	42	109,515	10,137	6,395	595	46
47	265	31	95,165	7,929	5,528	458	47
48	265	29	99,910	7,120	5,869	419	48
49	275	26	104,411	6,932	5,955	426	49
50	248	27	95,181	7,312	5,572	462	50
51	238	24	90,979	6,026	5,547	456	51
52	222	15	86,380	3,680	5,243	255	52
53	216	17	90,419	4,809	5,866	323	53
54	155	15	61,031	3,403	4,004	238	54
55	143	11	53,934	2,680	3,592	210	55
56	127	11	49,790	2,549	3,260	176	56
57	92	4	38,131	885	2,591	77	57
58	101	5	38,583	1,165	2,750	92	58
59	94	5	39,985	1,625	2,878	118	59
60	73	3	29,211	600	2,154	48	60
61	63	1	26,529	280	1,978	20	61
62	67	1	27,104	225	2,053	22	62
63	50	1	18,807	200	1,502	20	63
64	52	..	20,117	..	1,672	..	64
65	32	..	14,040	..	1,172	..	65
66	8	1	3,615	270	309	22	66
67	4	..	2,037	..	190	..	67
68	2	..	870	..	81	..	68
69	1	..	900	..	81	..	69
70	2	..	1,018	..	95	..	70
71	..	..	..	..	..	..	71
72	2	..	2,100	..	189	..	72
73	..	..	..	..	..	..	73
74	..	..	..	..	..	..	74
75	1	..	600	..	60	..	75
Totals	15,705	2,271	4,449,338	409,070	243,987	21,993	..

TABLE VI.

CLASSIFICATION OF PENSIONS GRANTED, SHOWING THE AGES AT WHICH THEY WERE GRANTED, FOR PERIOD FROM 1ST APRIL, 1927, TO 31ST MARCH, 1930 (INCLUSIVE).*

Age at which Pension Granted.	Attainment of Pension Age or Length of Service. (Section 26.)			Retired Medically Unfit. (Sections 32 and 61.)			Widows and Children. (Sec. 42, &c.)		Total.			
	No.		Amount of Pension.	No.		Amount of Pension.	No.	Amount of Pension.	No.			Amount of Pension.
	M.	F.		M.	F.				M.	F.	Total.	
			£ s. d.			£ s. d.		£				£ s. d.
87	1	31	..	1	1	31 0 0
84	1	31	..	1	1	31 0 0
82	1	31	..	1	1	31 0 0
79	2	62	..	2	2	62 0 0
78	1	31	..	1	1	31 0 0
76	2	62	..	2	2	62 0 0
74	5	155	..	5	5	155 0 0
73	..	1	495 0 0	..	..	..	5	155	1	5	6	650 0 0
72	2	62	..	2	2	62 0 0
71	5	155	..	5	5	155 0 0
70	7	217	..	7	7	217 0 0
69	..	2	756 4 0	..	..	..	10	310	2	10	12	1,066 4 0
68	..	2	367 18 0	..	..	..	5	155	2	5	7	522 18 0
67	..	2	650 7 0	..	..	..	8	248	2	9	11	898 7 0
66	..	11	1,917 0 0	..	..	..	8	248	11	8	19	2,165 0 0
65	..	51	7,876 7 0	..	..	..	7	217	51	8	59	8,093 7 0
64	..	22	4,598 9 0	..	..	..	9	279	22	10	32	4,877 9 0
63	..	4	864 6 0	1	..	76 13 0	9	279	5	9	14	1,219 19 0
62	..	9	2,505 1 0	1	..	198 19 0	8	248	10	10	20	2,952 0 0
61	..	11	3,324 7 0	1	..	177 7 0	3	93	12	5	17	3,594 14 0
60	..	17	4,765 9 0	1	..	197 15 0	3	93	18	13	31	5,056 4 0
59	..	8	3,762 17 0	2	..	267 13 0	5	155	10	5	15	4,185 10 0
58	..	8	2,907 8 0	3	..	370 9 0	4	124	11	5	16	3,401 17 0
57	..	10	2,590 16 0	2	..	262 6 0	2	62	12	4	16	2,915 2 0
56	..	14	3,998 13 0	7	..	1,008 14 0	6	186	21	7	28	5,193 7 0
55	..	23	6,014 3 0	4	..	523 11 0	2	62	27	5	32	6,599 14 0
54	..	21	6,135 3 0	1	..	132 10 0	4	124	22	6	28	6,391 13 0
53	..	15	4,794 9 0	3	..	490 19 0	8	248	18	9	27	5,533 8 0
52	..	21	5,380 14 0	1	..	153 16 0	1	31	22	1	23	5,565 10 0
51	..	3	751 10 0	6	..	1,079 9 0	5	155	9	6	15	1,985 19 0
50	..	12	2,948 8 0	3	..	489 4 0	4	124	15	7	22	3,561 12 0
49	..	5	1,118 14 0	1	..	146 6 0	3	93	6	4	10	1,358 0 0
48	..	2	671 9 0	2	..	277 19 0	5	155	4	7	11	1,104 8 0
47	..	1	161 13 0	2	..	247 7 0	1	31	2	2	4	440 0 0
46	1	1	141 16 0	2	62	1	3	4	203 16 0
45	3	1	537 2 0	8	248	3	9	12	785 2 0
44	4	..	369 16 0	2	62	4	2	6	431 16 0
43	1	82 11 0	2	62	..	3	3	144 11 0
42	1	..	85 2 0	11	341	1	11	12	426 2 0
41	1	31	..	1	1	31 0 0
40	2	62	..	2	2	62 0 0
39	3	93	..	3	3	93 0 0
38	1	3	203 19 0	6	186	1	9	10	389 19 0
37	1	..	87 2 0	3	93	1	3	4	180 2 0
36	1	1	96 0 0	7	217	1	8	9	313 0 0
35	2	..	127 13 0	3	93	2	3	5	220 13 0
34	2	1	217 11 0	3	93	2	4	6	310 11 0
33	3	93	..	3	3	93 0 0
32	1	34 0 0	3	93	..	4	4	127 0 0
31	1	..	79 8 0	3	93	1	3	4	172 8 0
30	1	1	101 7 0	..	..	1	1	2	101 7 0
29	2	62	..	2	2	62 0 0
28	1	..	57 13 0	..	..	1	..	1	57 13 0
27	1	15 3 0	2	62	..	3	3	77 3 0
26	2	62	..	2	2	62 0 0
25	1	31	..	1	1	31 0 0
24	1	..	31 19 0	1	31	1	1	2	62 19 0
22	2	1	43 9 0	..	..	2	1	3	43 9 0
21	1	..	21 7 0	..	..	1	..	1	21 7 0
14	3	78	..	..	..	..
13	12	312	..	..	..	..
12	13	338	..	..	..	..
11	14	364	..	..	..	..
10	8	208	..	..	..	..
9	11	286	..	..	..	..
8	16	416	..	..	..	..
7	15	390	93	68	161	4,186 0 0
6	16	416	..	..	..	..
5	8	208	..	..	..	..
4	15	390	..	..	..	..
3	13	338	..	..	..	..
2	4	104	..	..	..	..
1	8	208	..	..	..	..
0	5	130	..	..	..	..
Totals	274	35	69,356 5 0	64	12	8,433 15 0	383	11,068	431	337	768	88,858 0 0

* Compiled from cards.

TABLE VII.
EXPERIENCE TABLE.
PROBABILITIES PER CENT. PER ANNUM OF WITHDRAWAL, DEATH, AND RETIREMENT USED IN THE
CALCULATION OF VALUATION FACTORS FOR THE PUBLIC SERVICE SUPERANNUATION FUND.

Contributing Members: Males.						Contributing Members: Females.					
Age.			Probabilities of Withdrawal, Death, or Retirement, within a Year (expressed as a Percentage of the Number Existing in the Service at the 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 the Beginning of the Year).			Age.		
			Withdrawal.	Death.	Retirement.	Withdrawal.	Death.	Retirement.			
			Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.			
15	..	..	5.50	0.17	..	4.00	0.13	..	15	..	..
16	..	..	5.48	0.18	..	4.80	0.13	..	16	..	..
17	..	..	5.40	0.18	..	6.20	0.13	..	17	..	..
18	..	..	5.20	0.18	..	8.00	0.13	..	18	..	..
19	..	..	4.90	0.18	..	10.00	0.13	..	19	..	..
20	..	..	4.50	0.18	..	12.10	0.13	..	20	..	..
21	..	..	4.14	0.19	..	13.90	0.13	..	21	..	..
22	..	..	3.82	0.19	..	15.20	0.13	..	22	..	..
23	..	..	3.54	0.19	0.08	15.90	0.13	..	23	..	..
24	..	..	3.30	0.19	0.08	16.10	0.14	..	24	..	..
25	..	..	3.10	0.20	0.09	16.10	0.15	..	25	..	..
26	..	..	2.94	0.20	0.09	15.90	0.16	..	26	..	..
27	..	..	2.81	0.20	0.09	15.50	0.17	..	27	..	..
28	..	..	2.70	0.21	0.09	14.90	0.18	..	28	..	..
29	..	..	2.60	0.22	0.10	14.10	0.19	0.10	29	..	..
30	..	..	2.51	0.23	0.10	13.20	0.20	0.10	30	..	..
31	..	..	2.43	0.24	0.10	12.30	0.21	0.11	31	..	..
32	..	..	2.35	0.25	0.10	11.40	0.22	0.12	32	..	..
33	..	..	2.28	0.26	0.10	10.50	0.23	0.13	33	..	..
34	..	..	2.22	0.27	0.10	9.60	0.24	0.14	34	..	..
35	..	..	2.16	0.28	0.10	8.70	0.25	0.15	35	..	..
36	..	..	2.10	0.29	0.10	7.80	0.26	0.17	36	..	..
37	..	..	2.04	0.30	0.10	6.90	0.27	0.19	37	..	..
38	..	..	1.98	0.31	0.10	6.10	0.28	0.21	38	..	..
39	..	..	1.92	0.32	0.10	5.40	0.29	0.23	39	..	..
40	..	..	1.86	0.33	0.10	4.70	0.30	0.25	40	..	..
41	..	..	1.80	0.35	0.10	4.10	0.31	0.28	41	..	..
42	..	..	1.74	0.37	0.10	3.50	0.32	0.32	42	..	..
43	..	..	1.67	0.39	0.11	3.00	0.33	0.38	43	..	..
44	..	..	1.60	0.42	0.13	2.50	0.34	0.48	44	..	..
45	..	..	1.53	0.46	0.15	2.00	0.35	0.72	45	..	..
46	..	..	1.46	0.51	0.19	1.50	0.37	1.45	46	..	..
47	..	..	1.39	0.57	0.26	1.10	0.39	2.30	47	..	..
48	..	..	1.32	0.64	0.52	0.70	0.41	3.20	48	..	..
49	..	..	1.25	0.72	0.90	0.40	0.43	4.20	49	..	..
50	..	..	1.17	0.81	1.46	0.20	0.46	5.30	50	..	..
51	..	..	1.09	0.90	2.10	0.10	0.49	6.45	51	..	..
52	..	..	1.01	0.99	2.86	..	0.52	7.65	52	..	..
53	..	..	0.93	1.08	3.60	..	0.55	8.80	53	..	..
54	..	..	0.85	1.17	4.30	..	0.58	9.80	54	..	..
55	..	..	0.76	1.26	4.90	..	0.61	10.60	55	..	..
56	..	..	0.66	1.35	5.46	..	0.64	11.20	56	..	..
57	..	..	0.55	1.45	6.00	..	0.67	11.70	57	..	..
58	..	..	0.42	1.55	6.46	..	0.71	12.10	58	..	..
59	..	..	0.27	1.65	6.84	..	0.75	12.50	59	..	..
60	..	..	0.10	1.75	7.14	..	..	100.00	60	..	..
61	..	..	..	1.85	7.34	..	..	..	..	..	..
62	..	..	..	1.95	7.58	..	..	..	..	..	..
63	..	..	..	2.05	8.30	..	..	..	..	..	..
64	..	..	..	2.15	14.00	..	..	..	..	..	..
65	..	..	..	..	100.00	..	..	..	..	..	..

TABLE VIII.
LIFE AND SERVICE TABLE.
BASED UPON THE RATES PER CENT. PER ANNUM OF WITHDRAWALS, MORTALITY, AND RETIREMENTS
GIVEN IN TABLE VII, APPLIED TO 100,000 ENTRANTS AT AGE 15.

Males.					Females.				
Age.	Existing in Service.	With- drawals.	Deaths.	Retire- ments.	Existing in Service.	With- drawals.	Deaths.	Retire- ments.	Age.
15	100,000	5,500	170	..	100,000	4,000	130	..	15
16	94,330	5,169	170	..	95,870	4,602	125	..	16
17	88,991	4,806	160	..	91,143	5,651	118	..	17
18	84,025	4,369	151	..	85,374	6,830	111	..	18
19	79,505	3,896	143	..	78,433	7,843	102	..	19
20	75,466	3,396	136	..	70,488	8,529	92	..	20
21	71,934	2,978	137	..	61,867	8,600	80	..	21
22	68,819	2,629	131	..	53,187	8,084	69	..	22
23	66,059	2,338	126	53	45,034	7,160	59	..	23
24	63,542	2,097	121	51	37,815	6,088	53	..	24
25	61,273	1,899	123	55	31,674	5,100	48	..	25
26	59,196	1,740	118	53	26,526	4,218	42	..	26
27	57,285	1,610	115	52	22,266	3,451	38	..	27
28	55,508	1,499	117	50	18,777	2,798	34	..	28
29	53,842	1,400	118	54	15,945	2,248	30	16	29
30	52,270	1,312	120	52	13,651	1,802	27	14	30
31	50,786	1,234	122	51	11,808	1,452	25	13	31
32	49,379	1,160	123	49	10,318	1,176	23	12	32
33	48,047	1,095	125	48	9,107	956	21	12	33
34	46,779	1,038	126	47	8,118	779	19	11	34
35	45,568	984	128	46	7,309	636	18	11	35
36	44,410	933	129	44	6,644	518	17	11	36
37	43,304	883	130	43	6,098	421	16	12	37
38	42,248	837	131	42	5,649	345	16	12	38
39	41,238	792	132	41	5,276	285	15	12	39
40	40,273	749	133	40	4,964	233	15	12	40
41	39,351	708	138	39	4,704	193	15	13	41
42	38,466	669	142	38	4,483	157	14	14	42
43	37,617	628	147	41	4,298	129	14	16	43
44	36,801	589	155	48	4,139	103	14	20	44
45	36,009	551	166	54	4,002	80	14	29	45
46	35,238	514	180	67	3,879	58	14	56	46
47	34,477	479	197	90	3,751	41	15	86	47
48	33,711	445	216	175	3,609	25	15	115	48
49	32,875	411	237	296	3,454	14	15	145	49
50	31,931	374	259	466	3,280	7	15	174	50
51	30,832	336	277	647	3,084	3	15	199	51
52	29,572	299	293	846	2,867	..	15	219	52
53	28,134	262	304	1,013	2,633	..	14	232	53
54	26,555	226	311	1,142	2,387	..	14	234	54
55	24,876	189	313	1,219	2,139	..	13	227	55
56	23,155	153	313	1,264	1,899	..	12	213	56
57	21,425	118	311	1,286	1,674	..	11	196	57
58	19,710	83	306	1,273	1,467	..	10	178	58
59	18,048	49	298	1,234	1,279	..	10	160	59
60	16,467	16	288	1,176	1,109	..	..	1,109	60
61	14,987	..	277	1,100	..	..	..	..	..
62	13,610	..	265	1,032	..	..	..	..	..
63	12,313	..	252	1,022	..	..	..	..	..
64	11,039	..	237	1,545	..	..	..	..	..
65	9,257	..	..	9,257	..	..	..	..	..

TABLE IX.
SUMMARY OF PUBLIC SERVICE SUPERANNUATION RESULTS.
VALUATION BALANCE-SHEET AS AT 31ST MARCH, 1930.

<i>Liabilities.</i>							£	£
MALES—								
Value of—								
1,503 pensions for £321,052 18s. per annum already granted							2,879,873	
773 pensions for £23,963 per annum granted to widows of contributors or pensioners..							259,724	
391 pensions for £10,166 per annum granted to children of deceased contributors or pensioners							36,772	
Prospective pensions for back service							4,803,315	
Prospective pensions for future service							3,878,383	
Prospective pensions to widows							843,480	
Prospective pensions to children							179,916	
Return of contributions on death							61,379	
Return of contributions on withdrawal							637,403	
								13,580,245
FEMALES—								
Value of—								
203 pensions for £16,956 8s. 2d. per annum already granted							199,171	
Prospective pensions for back service							366,316	
Prospective pensions for future service							295,252	
Return of contributions on death							8,990	
Return of contributions on withdrawal							83,061	
								952,790
								£14,533,035
<i>Assets.</i>								
								£
Accumulated funds								2,882,504
Value of—								
Future contributions from males								3,044,153
Future contributions from females								163,961
Subsidy of £86,000 per annum now being paid								1,911,111
Subsidy under section 114, Public Service Superannuation Act								570,978
Future increases in subsidy to be provided								5,960,328
								£14,533,035

TABLE X.
STATEMENT SHOWING SUBSIDIES PAID AS COMPARED WITH SUBSIDIES REQUIRED UNDER THE SYSTEM INDICATED IN THE ACT.

Year ended.	Subsidy required.	Subsidy paid.	Shortage.	Shortage accumulated at 4½ per Cent. to 1931.
	£	£	£	£
31st December, 1908 ..	(Say) 20,000	20,000	..	..
.. 1909 ..	20,000	20,000	..	..
.. 1910 ..	22,500	22,500	..	..
.. 1911 ..	48,000	23,000	25,000	60,294
.. 1912 ..	48,000	23,000	25,000	57,696
.. 1913 ..	48,000	48,000	..	..
.. 1914 ..	66,000	48,000	18,000	38,041
.. 1915 ..	66,000	48,000	18,000	36,403
.. 1916 ..	66,000	48,000	18,000	34,835
.. 1917 ..	86,000	48,000	38,000	70,373
.. 1918 ..	86,000	48,000	38,000	67,345
.. 1919 ..	86,000	86,000	..	..
.. 1920 ..	125,000	86,000	39,000	63,291
.. 1921 ..	125,000	86,000	39,000	60,566
.. 1922 ..	125,000	86,000	39,000	57,958
.. 1923 ..	172,000	86,000	86,000	122,300
1st January to 31st March, 1924* ..	43,000	34,000	9,000	12,661
31st March, 1925 ..	240,000	136,000	104,000	140,007
.. 1926 ..	240,000	86,000	154,000	198,391
.. 1927 ..	240,000	86,000	154,000	189,846
.. 1928 ..	285,000	86,000	199,000	234,756
.. 1929 ..	285,000	86,000	199,000	224,647
.. 1930 ..	285,000	186,000	99,000	106,947
Totals	2,827,500	1,526,500	1,301,000	1,776,357

* Taken as one-fourth of a full year's factors.

Approximate Cost of Paper.—Preparation, not given; printing (2,050 copies), £22 10s.

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