1929.
NEW ZEALAND.

TEACHERS' SUPERANNUATION FUND.

ACTUARIAL EXAMINATION FOR THE TRIENNIAL PERIOD ENDING 31ST JANUARY, 1927.

Laid before Parliament in pursuance of Section 38 (4) of the Public Service Classification and Superannuation Amendment Act, 1908.

REPORT

BY THE ACTUARY APPOINTED BY HIS EXCELLENCY THE GOVERNOR-GENERAL TO MAKE THE ACTUARIAL EXAMINATION OF THE TEACHERS' SUPERANNUATION FUND FOR THE TRIENNIAL PERIOD ENDING 31ST JANUARY, 1927.

Government Actuary's Department, Wellington, 9th August, 1929.

1. I HAVE the honour to submit the following report on the Teachers' Superannuation Fund as at the 31st January, 1927, required by section 38 of the Public Service Classification and Superannuation Amendment Act, 1908, as amended by section 54 of the Finance Act, 1922.

2. The fund was originally constituted under the Teachers' Superannuation Act, 1905, but has since been varied by legislative enactments, the most important being the Public Service Classification and Superannuation Amendment Acts, 1908 and 1912. Subsequent to the date of this valuation the several enactments affecting the fund have been consolidated by the Public Service Superannuation Act, 1927.

3. All persons automatically become contributors to the fund who are first permanently employed after the passing of the Act—

(*a*) In the Education service as a teacher in any public school;
(*b*) In any branch of the Education service which is also a branch of the Government service:
(*c*) Under the University of New Zealand, Auckland University College, Victoria College, University of Otago, Canterbury College, or the Canterbury Agricultural College.

Other persons first permanently employed in the Education service not included above have the option of joining the fund within six months of the date of their appointment.

"Education service" means service in any capacity for not less than twenty hours a week—

(*a*) Under an Education Board; or
(*b*) Under the governing body of a secondary school; or
(*c*) Under the Managers of associated classes under Part VII of the Education Act, 1908; or
(*d*) Under the Education Department in the case of Inspectors of Schools, or of Inspectors, Managers, or visiting officers of industrial schools, or of teachers of any schools under that Department; or
(*e*) Under the University of New Zealand, or under the Auckland University College, Victoria College, University of Otago, Canterbury College, or the Canterbury Agricultural College.

4. During the triennium under review the constitution of the fund was modified by legislation, the most important alterations being covered by the following extract from the twenty-first annual report of the Teachers' Superannuation Board:—

"Under the provisions of section 29 of the Finance Act, 1925, the value of a residence or board and quarters provided, or an allowance paid in lieu thereof, is now to be taken into account for the purpose of computing contributions and retiring-allowance. The new provision applies automatically to all who join the fund on or after the 1st October, 1925, but does not apply to those already on the fund unless they definitely elected that it should so apply. Upon election, back contributions with interest became payable on any house allowance, &c., received in the past period of membership. In the case of annuitants making the election, the allowance is recomputed as from the date of retirement, and it can be readily understood that in many cases the arrears of allowance due to such annuitants would largely exceed the arrears of contributions and interest due by them. Under the 1925 Act the time allowed for the making of the election closed on the 31st March, 1926, but under section 32 of the Finance Act, 1926, the time was extended until the 31st March, 1927. In all, 1,124 contributors and 374 annuitants have made the election, the increase in retiring-allowance in respect of the latter being at the rate of £7,750 per annum.

"Under the provisions of section 38 of the Finance Act, 1926, the Board can now allow contributors who served with the Forces in the Great War to count service prior to the date on which membership commenced. A considerable number of 'soldier teachers' have taken advantage of this provision, paying into the fund the equivalent of contributions for the additional period of service admitted, with interest thereon."

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

6. The preliminary particulars required for this actuarial examination have been obtained from cards supplied by the Secretary of the Teachers' Superannuation Board—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.

7. The number of pensioners on the fund at the 31st January, 1927, according to the cards supplied, was 1,003, drawing pensions amounting to £166,867 per annum, exclusive of 268 pensions, amounting to £4,399 per annum, granted to widows and children of deceased members. The number of contributors in active service at the 1st February, 1927, was 8,371, with aggregate salaries amounting to £2,308,561 per annum, and paying contributions at the rate of £126,725 per annum.

8. The income and outgo of the fund since the previous valuation were as follows:—

CONSOLIDATED REVENUE ACCOUNT OF THE TEACHERS' SUPERANNUATION FUND FROM THE 1ST FEBRUARY, 1924, TO THE 31ST JANUARY, 1927.

Income.	£ s. d.	*Outgo.*	£ s. d.
Funds at 1st February, 1924	858,661 18 10	Retiring-allowances	462,580 13 4
Members' contributions	364,412 10 3	Arrears of retiring-allowances under Finance Acts, 1925 and 1926	17,616 12 6
Arrears of contributions under Finance Act, 1925	20,278 12 6	Contributions refunded	65,514 9 1
Government subsidy	204,000 0 0	Transfers to other funds	1,209 13 5
Subsidy, Fiji Government	546 5 4	Commission	5,381 14 4
Subsidy under Finance Act, 1925	6,108 19 4	Bad debts	355 3 0
Transfers from other funds	487 0 3	Reserve for doubtful debts	6,800 0 0
Interest on investments	172,544 4 1	Other payments	3,835 12 0
Interest on arrears of contributions	2,179 13 10	Funds at 31st January, 1927	1,083,155 2 11
Interest on back contributions under Finance Act, 1925	17,229 16 2		
	£1,646,449 0 7		£1,646,449 0 7

9. The effective rates of interest earned by the fund each year of the triennium were £6 2s. 1d. per cent. for 1924–25, £6 1s. 11d. per cent. for 1925–26, and £6 1s. 1d. per cent. for 1926–27, as compared with an average rate of £5 16s. per cent. per annum for the previous valuation period. Subject always to the security of the investments, the highly satisfactory margin between the rate of interest earned and that assumed in the valuation should be ample under normal circumstances to cover any departures in the fund's experience from the valuation bases. No matter how carefully these latter may be fixed, it is not to be expected they will exactly coincide with the actual future experience of the fund. The progressive decline during recent years in the mortality-rates amongst pensioners will, if it continues, necessitate a good interest margin being earned on the funds.

10. The average annual outgo for pensions has increased by about £70,000 as compared with the previous valuation period. While this is to some extent due to an increased number of pensioners, which is the normal experience of a superannuation fund in its early years, it is mainly due to the increase in pensions resulting from the post-war rise in salaries and the addition of house allowances to salary for the purpose of computing the pensions. The effect on pensions of these salary-increases

will be more fully apparent in the next and succeeding triennia, but some idea of the increased liability may be gained by the fact that the average normal pension granted during the triennium under review was £233 per annum, as compared with £189 during the previous valuation period.

11. It is somewhat disturbing to note that the outgo for benefits during the triennium exceeded 90 per cent. of the total contribution income and the Government subsidy, and was more than 70 per cent. of the combined income from contributions, interest, and Government subsidy. This is not what might normally be expected in a young superannuation fund, since the liabilities are essentially of a deferred nature, and consequently the funds should at this stage be increasing very rapidly. Possibly the most convincing method of demonstrating this elementary fact—so often questioned by otherwise well-informed persons—is to take groups of actual contributors and ascertain what sum the fund requires to have in hand to be able, with the assistance of their future contributions and interest-earnings, to pay their retirement pensions and other subsidiary benefits, and, by dividing such sum by the number of members in the group, thence obtain the fund's average net liability per member.

12. I submit hereunder a table showing for specimen age-groups the average net liability per member for teachers actually in the Service at the valuation date:—

Age-group.	Average Net Liability per Member. Males.	Females.
	£	£
15–19	80	56
25–29	209	166
35–39	537	560
45–49	1,113	1,148
55–59	2,158	1,464

The net liability for each member in a given age-group will not necessarily remain constant from valuation to valuation, since changes are likely to occur in the incidence of average salary, length of service, and other factors, but the amount of variation is found in actual practice to be fairly small under normal circumstances, and the figures may be considered sufficiently close to the future experience to base general conclusions. For example, the table shows that to be solvent the fund required to have in hand at the valuation date a sum of £209 in respect of each male teacher aged 25–29, and during the next ten years should, from the balance of contributions, interest, and subsidy after paying for benefits falling in for death, physical breakdown, &c., accumulate an additional amount of approximately £328 in respect of each such male teacher still in the Service. It will be seen, therefore, that increasing funds do not mean progress unless the amount of such increase keeps pace with the increase in the liabilities.

The net liabilities given for the youngest age-group, 15–19, are also interesting in that as each such member has only made an average contribution of about £6 to the fund, the figures give a very good idea of the initial deficiency introduced by each such new teacher—or, to put it another way, of the capitalized liability of the State to the Superannuation Fund in respect of each such new appointment.

The table is also of interest in demonstrating that in respect of those who do not withdraw from the Service the female teacher is a greater liability to the Superannuation Fund than the male, in spite of the fact that male teachers receive the higher salaries (on which pensions are based) and are, in addition, covered for widows' and children's benefits. This is clearly shown for the central ages, but it is to some extent masked at both ends of the table, for the following reasons: At ages under 30, due to marriage and other causes, the withdrawal-rate of female teachers far exceeds that in respect of males, and as the return of contributions paid to those who withdraw is considerably less than the value of their accrued pension benefits, and the net liability is an average based on the present value of withdrawal benefits and pension benefits in their expected proportions, it follows that for female teachers at these ages the net liability per member is a much smaller proportion of the pension liability per member who does not withdraw from the Service than in the case of males. By the time age 50 is reached the majority of female teachers have either retired or will do so within the next five years. Those remaining in the Service are in general only those with small salaries or short service, whereas in the case of males the effect of retirements on the average of the accrued pension benefits of members left in the age-group does not become marked until a later age, and moreover is counteracted to a great extent by the higher salaries paid and the greater prospects of future promotion prior to retirement.

The greater pension liability in respect of female teachers is due to the early ages at which they retire and the superior vitality of female pensioners generally, combined with the fact that they only pay, as contributions to the fund, the same percentages of salaries as do the males.

13. It would be possible, though very laborious, to ascertain what might be termed the "share" of each individual member in the total funds, and proceed to deduce by how much such amount held in the fund on his behalf was, on the average, insufficient or oversufficient to provide his benefits. The sum total of such an analysis in respect of all members—contributors and pensioners—would give the same results as are achieved by the more direct process of actuarial valuation of the fund.

The Valuation.

14. The main object of an actuarial valuation is to ascertain whether the current funds, together with the present value of the future contributions, are 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 follows:—

(a) Rate of interest;
(b) Mortality-rates of pensioners;
(c) Average salary scales;
(d) Mortality-rates of contributors;
(e) 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.

15. The rate of interest used in valuing benefits and contributions is $4\frac{1}{2}$ per cent. throughout. Judged by the present interest rates of over 6 per cent. earned by the fund, the valuation basis may appear conservative. The rapid increase in interest-rates since the late war, however, was only what was expected by every financial authority, and it is just as certain that a peak point will be reached—if it has not already been reached—and that interest rates will then fall, although the process of returning to normal must necessarily be slow. It might also not be out of place to point out that, in fixing a valuation rate of interest, due allowance must be made for the purposes for which the valuation is made. If, for example, actuarial valuation of a fund was being made mainly for the purpose of testing the adequacy of the contributions or of considering the extent to which increased benefits could be granted, the valuation rate of interest would require to be based on the expected rates over the full period of pension-fund membership—say, from sixty to eighty years—and in such a case $4\frac{1}{2}$ per cent. would be an optimistic forecast. When, however, as in this instance, valuation is being made of a deficiency fund requiring an annual State subsidy, and it is unlikely that for many years any additional subsidy will be required to cover interest short of $4\frac{1}{2}$ per cent., there is some justification for anticipating a portion of the interest profit in order that the taxpayer of the day should only shoulder his fair share of the burden. 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.

16. 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 1919–27, 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 of 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.

17. The next factors which entered into the calculations were the scales of average salaries in respect of male and female teachers 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 February, 1927.

18. 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, males and females 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.

19. 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.

20. The Act (section 38 (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 been made accordingly, and the results are shown in Table VIII of the appendix, but they may be shortly summarized as follows:—

	£	£
Present value of existing pensions and allowances		1,770,374
Present value of prospective benefits	5,388,605	
Less present value of members' contributions	1,428,026	
		3,960,579
Total net liabilities		5,730,953
Funds in hand		1,083,155
Present value of total liability of State		4,647,798
Less present value of present subsidy of £68,000 per annum (if treated as a perpetuity)		1,511,111
Value of future subsidies to be provided for by the State over and above the present subsidy of £68,000 per annum		£3,136,687

21. It will be seen from the above statement that there is a total State liability of £4,647,798. It may not be out of place on this occasion, when a valuation basis of $4\frac{1}{2}$ per cent. has been employed for the first time, to briefly explain the main causes of so large a deficiency.

22. In the first place, the fund commenced operations with an initial deficiency, which I estimate at not less than £800,000, due to the free gift of that portion of the pension based on service prior to the establishment of the fund. Short of paying a capital sum into the fund, the soundest method of dealing with this deficiency would have been to have provided for its redemption within a specified period. For example, a payment of about £50,000 a year would have redeemed the deficiency in thirty years. In addition to this, the teachers' contributions should have been subsidized by an annual amount approximating to a pound-for-pound subsidy in respect of females and 8s. in the pound in respect of males. When the required annual payment of £50,000, in addition to the above-mentioned subsidies in respect of teachers' contributions, is compared with the actual subsidies, equivalent to only about 5s. in the pound on total contributions, the reason for the deficiency increasing at each valuation becomes apparent.

23. A factor of no less importance than the preceding is that the rate of subsidy which would have been adequate when the scheme was established now requires to be considerably augmented on account of the great increase in pension liability due to the economic effect of the war on salary levels, and to the inclusion of house allowance as salary for the purpose of computing pensions. This aspect is so important that I make no apology for submitting the following table showing the average salaries paid to teachers at three valuation dates, which might be said to represent pre-war, war, and post-war conditions :—

Ages.	Males.				Females.			
	Average Salaries.			Increase of 1927 over 1913 Level.	Average Salaries.			Increase of 1927 over 1913 Level.
	1913.	1919.	1927.		1913.	1919.	1927.	
	£	£	£	£	£	£	£	£
Under 40	195	273	287	92	121	189	208	87
40-49	270	363	454	184	159	250	313	154
50 and over ..	288	390	491	203	162	265	323	161
Total ..	232	322	350	118	131	206	228	97

The table, which demonstrates the general nature of the salary-increases, gives a clear indication of the increase in the estimated pension payments as compared with those expected when the scheme was framed. For example, a female contributor with thirty-five years' service retiring now at age 55—over one-half of the total retirements of female teachers take place before age 55—has an expectation of twenty-one years of life, and will accordingly draw on the average approximately £700 more in cash from the Superannuation Fund than a similar contributor retiring in 1919, and approximately £2,000 more than a similar contributor retiring in 1913.

24. In order to fully appreciate the effect of the post-war salary-increases on the liabilities of the fund it is necessary to bear in mind that pensions are determined by the salaries only of the three years prior to retirement, whereas contributions are based on salaries throughout the whole period of service. In other words, the teacher reaps the same pension benefit for a given salary-increase irrespective of whether it is received early or late in life, whereas contributions on such increased salaries are limited only to future service. It follows, therefore, that when there is an all-round increase in salaries, those contributors near retirement will pay practically nothing for the consequent increase in pension benefit, those in middle age will make a larger contribution, and only those who are just commencing service under the increased salary-scale will contribute any material proportion of the cost of the increase in pension. This lack of correlation between the value of contributions and pensions is not confined to the Teachers' Superannuation Fund, but is common to nearly all pension funds based on terminal salary, and supplies one of the reasons why an employer's subsidy to such a scheme is essential.

25. The importance of the ascertainment of the state of the fund in the form given in paragraph 20 lies in the fact that the shortage in the fund to be met by the State—namely, £4,647,798—is equivalent to an annual interest income (at 4½ per cent.) of £209,151. It follows that if any less sum than £209,151 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 £209,151 per annum in respect of present contributors alone. If, however, any annual amount in excess of £209,151 be 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 minimum amount of £209,151 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.

26. The Act, however, does not provide that the subsidy should be determined from the foregoing actuarial ascertainment required by section 38 (2). The same clause directs the actuary to also show in his report "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 reserves appertaining to the contributors' contributions." As the contributions are insufficient to provide the full benefits in respect of service after joining the fund, I take this to mean that the

principle underlying the section is that the State need make no contribution till benefits are actually entered upon, and then pay for the full amount of pensions in respect of all service prior to the establishment of the fund and for such portion 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 1927–28, 1928–29, and 1929–30, the amounts provided by the contributions, and the subsidies payable on the basis indicated by the Act, to be as follows:—

	1927–28.	1928–29.	1929–30.
	£	£	£
Estimated pensions	184,524	193,788	204,894
Amount provided by contributions	48,815	53,163	58,532
Amount due to be paid by the State in respect of the three years mentioned (but see also next paragraph)	£135,709	£140,625	£146,362

27. The above figures would give for the years 1927–28, 1928–29, and 1929–30 an average subsidy of approximately £141,000 per annum, or £73,000 per annum more 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 January, 1927, being short by £420,251 of the amounts recommended. From Table IX of the appendix it will be seen that this shortage accumulated at 4½ per cent. interest to the end of this year amounts to £607,528, and I consider that £30,000 per annum requires 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 by the fund is a definite departure from the original scope of the superannuation scheme, and my interpretation of section 38 (2) of the Act is that expenses amounting to, say, £2,000 per annum should form part of the subsidy.

28. I have accordingly to report that pursuant to the system laid down by the Act the annual subsidy required for each year of the period ending 31st January, 1930, is as follows:—

		£
Subsidy now being paid		68,000
Further annual subsidy required—	£	
Paragraph 27	73,000	
Paragraph 27 (*a*) above	30,000	
Paragraph 27 (*b*) above	2,000	
		105,000
Annual subsidy required for the years 1927–28, 1928–29, 1929–30 ..		£173,000

When making provision for this annual subsidy it is important to see that it is back-dated to 1927 and that interest at 4½ per cent. is added to any portion paid late.

Remarks upon Method of arriving at State Subsidy.

29. As indicated in the preceding paragraph, the Act appears to lay down a certain method of arriving at the State's subsidy, the effect being that while teachers contribute upon the basis of paying their share of the liabilities in advance, the State pays its share only as the pensions mature from year to year. This principle of deferring payment is defensible in theory, but in practice suffers from the defect that it necessitates a rapidly increasing State subsidy for many years to come.

This is almost self-evident not only from the fact that in a young fund the number of pensioners increases year by year, but also because the longer the redemption of any financial obligation is postponed the greater will be the cash required by reason of the operation of interest. When, in addition to deferring payment, the State fails to pay the amount reported as necessary to meet its share of the current pensions, the burden thrown on the future increases still more rapidly.

The cumulative effect cannot be better exemplified than by the following table:—

Valuation Date.	Average Annual Subsidy required for Triennium succeeding Valuation Date.	
	Normal (for Pensions only).	Actual (allowing for Past Shortages in the State Subsidy).
	£	£
31st December, 1919	60,000	68,000
31st January, 1924	120,000	137,000
31st January, 1927	141,000	173,000

It has to be admitted that the two latter valuation periods have had to bear the brunt of economic and other forces not likely to recur in the near future, and that the rate of increase was in consequence abnormal, but even though the rate of future increase may not be so rapid, the subsidy must keep on rising.

30. It would be a great improvement if the present highly technical method of arriving at the subsidy were abolished in favour of a simple automatic basis that would not only be more in accordance with the actual deficiency, but would avoid sudden increases in the subsidy and reflect salary-fluctuations.

31. Before making a recommendation on these lines it may be helpful if I point out that the modern trend of pension-fund schemes is in the direction of equal division of cost between the employer and the employee. This applies not only to Government schemes, but also to funds established by large commercial institutions. As examples of Government funds I might mention that the Public Service Superannuation Fund of the Union of South Africa receives a pound-for-pound subsidy and is further protected by the Union in respect of early retirements due to policy measures. The Public Service superannuation scheme of the Commonwealth of Australia provides that when the retiring-age is reached by new entrants or members joining the scheme under age 30 only one-half of the pension is paid from the Superannuation Fund and the other half from the Consolidated Fund, while in the case of employees over age 30 when the scheme was introduced an equitable amount less than one-half of the employee's pension becomes payable by the Superannuation Fund, the Consolidated Fund finding the balance.

The Local Government and other Officers' Superannuation Fund Act, 1922, of the Imperial Government, designed to meet the pressing demand of local-government officials for a comprehensive superannuation scheme, followed in the main the recommendations of the strong Departmental Committee, including leading pension-fund authorities, which was set up to report, and accordingly may be taken as a good example of modern opinions. The Act, which provided benefits not differing very much from those granted by the Teachers' Superannuation Fund, required the local authority to subsidize the employees' contributions pound for pound, and, in addition, to make equalized annual payments to liquidate within a period not exceeding forty years any initial deficiency due to the grant of back-service rights.

Recommendations.

32. After carefully considering the position of the Teachers' Superannuation Fund I recommend that a State subsidy of 10 per cent. of the salary roll be provided and paid over monthly to the Superannuation Fund along with the deductions from contributors' salaries. The difference between the amount required by the Teachers' Superannuation Fund and an amount on the basis of an equal apportionment of the cost between the employer and the employee is due to the initial deficiency created 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 amounts by which past subsidies have fallen short of the contributions paid by employees.

33. A subsidy of 10 per cent. of the salary roll would mean an annual payment commencing at about £231,000 per annum; and although this is somewhat higher than the amount payable in accordance with the present method laid down by the Act, it may be said to represent the lowest possible cost to the State of placing the fund on a firm footing. It has the added advantage of subsidizing at the outset the contributions of new members, which must result in a steadier progression in future subsidies.

34. I should perhaps point out that the suggested automatic subsidy of 10 per cent. of the salary roll is in the nature of a perpetuity, and consequently my recommendation will require revision if at any time the present constitution of the fund is altered. For example, if the fund were to be closed to new appointees or membership were made voluntary, a subsidy of 10 per cent. of the salary roll would be insufficient.

35. Should it be desired to go further than I have indicated so as to more quickly redeem the deficiency, a higher subsidy than 10 per cent. of the salary roll could be fixed, or, alternatively, the fund could be strengthened by suitable amendments of the Act. For example, without unduly prejudicing contributors the fund's liabilities could be considerably lessened by eliminating the teacher's right to voluntarily retire after a definite period of service, and substituting a minimum voluntary retiring-age.

At the present time male teachers have the unqualified right to retire at age 65 or after forty years' service, and females at age 55 or after thirty years' service, and, in addition, the Superannuation Board, with the approval of the Minister of Education, has power to grant pensions earlier. How this has operated in practice may be seen from the following table showing for quinquennial age-groups the number of contributors retiring during the last four valuation periods as the result of attaining pension age or length of service, together with the percentages which the number of retirements at each group bears to the total retirements:—

Retirements (excluding the Medically Unfit), 1914–1927.

Retirement Age.	Males.		Females.	
	Number of Retirements.	Per Cent. to Total Retirements.	Number of Retirements.	Per Cent. to Total Retirements.
		Per Cent.		Per Cent.
50 and under ..	..	..	126	27·8
51–54	4	1·4	124	27·3
55–59	83	29·8	164	36·1
60–64	84	30·1	33	7·3
65 and over	108	38·7	7	1·5
	279	100·0	454	100·0

The extent of the use made of the options to retire before what might be termed the standard pension age is shown by the fact that 61·3 per cent. of the total retirements of male teachers took place before age 65, and 55·1 per cent. of the female teachers who retired entered on their pensions before age 55. The table also shows that in respect of males 31·2 per cent., and in respect of females 91·2 per cent., of the total retirements take place before age 60.

36. I am not in a position to state how many of these retirements are voluntary and how many are influenced by pressure from the Education Department in the interests of efficiency. Although the effect on the Superannuation Fund is independent of the motive underlying retirement, it is scarcely necessary to point out that the suggested amendment to the Act to abolish the right of voluntary retirement before specified ages (not necessarily those at present in the Act) would in no way lessen the power of the Education Department to take whatever steps it deems necessary in the interests of efficiency, and to grant a pension to worn-out teachers with long service. The rights given by the Superannuation Act might be said to assume that in general the period of inability to render efficient service is reached by female teachers ten years earlier than in the case of male teachers. Whether this is in accordance with the facts—the Education Department alone can express an authoritative opinion on this point—it seems quite clear that actual length of service can have little or no effect on efficiency, and that the main factors are age and physical fitness. There is conclusive evidence that the early ages at which female teachers retire are responsible for a considerable portion of the fund's deficiency, and that if the rate of contributions which they are paying were increased throughout by 2 per cent. of salary it would do no more than place them on a parity with the male teachers.

37. I also suggest consideration of an amendment to the Act providing that no new teacher appointed after, say, the 1st January next be admitted to membership of the Superannuation Fund until the attainment of a specified age—say, age 25 in the case of males and age 20 in the case of females. The simple expedient of only counting service after these ages would automatically secure that any enforced retirement before age 65 (or age 60 for females) was at a pension less than the maximum rate of two-thirds of the terminal salary.

GENERAL.

38. The question arises periodically whether the State is under any obligation to contribute towards the pensions of its servants. The correct answer in my opinion is that any such contribution by the State is not in the nature of a gratuity but rather the price it is compelled to pay to attract the best type of officer and conduct the services efficiently. The world-wide increase in the establishment of subsidized pension-fund schemes by banks, insurance companies, and other commercial institutions appears to indicate that the employer is satisfied he is receiving value for the amount of his subsidy. Possibly in no field is a pension fund so necessary for efficiency as in a Government teaching service. It is of vital importance that those entrusted to mould the minds and characters of future citizens should be the best talent obtainable, and that in the interests of both students and teachers there should be a satisfactory method of dispensing with their services as soon as their efficiency is impaired by age or physical disability. The following extract from Bulletin No. 12 of the Carnegie Foundation for the Advancement of Teaching is only one of many carefully-weighed expressions of opinion that can be quoted to the effect that a pension scheme benefits employer and employee alike and makes for efficiency and true economy:—

> "There are many reasons for teachers' pensions. Economically, the work of an organization is not effective unless there is a satisfactory method of retiring aged or infirm workers, with the consequent freedom from anxiety concerning such risks on the part of the workers. Only a satisfactory pension system can prevent either the dismissal of aged or infirm teachers without resources, or the sacrifice of the best interests of the schools in order to continue the employment of teachers who are not longer capable. Socially, men and women of character and intelligence are willing to undertake difficult public service that is poorly paid; but it is too much to expect them also to sacrifice the prospect of security and dignity in old age and disability. Educationally, there is great need to attract and retain and advance able people in teaching as a permanent career. A good pension system helps to do this."

39. The Teachers' Superannuation Fund compares more than favourably in many respects with other pension funds, but its usefulness as a means of attracting the very best talent offering is seriously impaired by the arbitrary pension limitation of £300 per annum imposed on teachers joining the service after the 24th December, 1909. Arbitrary pension limitations which, so far as I am aware, do not feature in the pension schemes of other Governments or of large commercial institutions have no theoretical justification, and lead in practice to many contributors being called upon to pay more than their benefits are worth. To the broader, and to my mind the more important, aspect that such a limitation defeats one of the main objects of a pension scheme I referred in my last report, and I need hardly add anything further beyond the confident statement that the abolition of the present pension limitation would be in the best interests of the Education Department.

40. In conclusion I have to acknowledge the assistance of the small but efficient staff engaged in carrying out the 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.

(These benefits are slightly modified in the case of persons employed in service under the universities on the 7th November, 1912, who joined the scheme before the 1st July, 1913.)

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 "

Benefits

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 the 24th December, 1909, £300.

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

(NOTE.—The Board may, with the approval of the Minister of Education, 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 Board may, with the approval of the Minister of Education, impose upon the retiring contributor such terms and conditions as to payments into the fund or otherwise as the Board thinks fit.)

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

(1) At any time after fifteen years' service, 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.

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.

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.)

In addition to the widows' and children's benefits shown above, section 27 of the Finance Act, 1925, provides for additional allowances of £13 per annum in respect of the widow and of each child, to be paid from the Consolidated Fund. Subsequent to the valuation date, section 114 of the Public Service Superannuation Act, 1927, established these as definite benefits of the fund, to be recovered from the Consolidated Fund by special subsidy. These additional benefits do not therefore fall to be valued till the 31st January, 1930, but they cannot, of course, affect the financial position of the fund.

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.
		£	£	£	£		£	£		£	£
1906-7 ..	2,939	444,950	33,652	..	..	127	18,095	1,604	2,812	426,855	32,048
1907-8 ..	211	34,600	1,860	14,446	914	141	29,294	1,952	2,882	446,607	32,870
Part 1908..	197	19,083	1,075	14,000	825	148	25,044	1,713	2,931	454,646	33,057
1909 ..	334	37,327	1,185	41,670	2,975	113	22,403	1,673	3,152	511,240	35,544
1910 ..	287	35,734	1,862	36,466	2,416	192	35,508	2,537	3,247	547,932	37,285
1911 ..	349	40,267	2,234	41,524	1,823	212	33,731	2,378	3,384	595,992	38,964
1912 ..	427	50,364	2,740	14,616	710	170	32,183	2,201	3,641	628,789	40,213
1913 ..	645	108,638	6,216	11,249	1,292	269	40,087	2,765	4,017	708,589	44,956
1914 ..	522	61,978	2,913	41,789	2,541	270	45,471	2,579	4,269	766,885	47,831
1915 ..	428	55,792	3,096	79,773	4,610	253	42,428	2,742	4,444	860,022	52,795
1916 ..	468	61,114	3,352	48,365	2,863	259	42,795	2,802	4,653	926,706	56,208
1917 ..	398	52,722	2,899	36,262	2,107	259	45,676	2,800	4,792	970,014	58,414
1918 ..	420	52,061	2,786	23,605	1,384	318	56,119	3,385	4,894	989,561	59,199
1919 ..	533	80,160	4,059	241,322	14,068	408	80,897	5,154	5,019	1,230,146	72,172
1920 ..	619	104,664	5,841	264,234	15,284	464	99,844	5,897	5,174	1,499,200	87,400
1921 ..	1,048	154,143	8,404	109,148	6,100	350	91,448	5,448	5,872	1,671,043	96,456
1922-3 ..	838	143,524	7,881	−(24,815)	−(1,540)	414	112,240	7,517	6,296	1,677,512	95,280
1923-4 ..	1,029	172,597	9,371	40,555	2,595	467	116,594	7,155	6,858	1,774,070	100,091
1924-5 ..	1,044	165,489	8,984	142,812	7,303	459	114,576	6,893	7,443	1,967,795	109,485
1925-6 ..	976	162,789	8,740	85,546	4,463	451	110,679	6,283	7,968	2,105,451	116,405
1926-7 ..	967	160,963	8,721	129,074	7,009	559	143,641	8,334	8,376	2,251,847	123,801
Totals ..	14,679	2,198,959	127,871	1,391,641	79,742	6,303	1,338,753	83,812	..	..	..

Particulars of Discontinuance of Active Membership.*

Year.	By Death.			By Withdrawal or Dismissal.		By Pensions.							By Transfer to Other Funds.		Total discontinued.		
						Ordinary (Age or Service).		Extended Provisions.		Medically Unfit.							
	Number.	Amount paid on Retirement.	Family Pension.	Number.	Amount paid on Retirement.	Number.	Pensions entered upon	Number.	Pensions entered upon.	Number.	Amount paid on Retirement.	Pensions entered upon.	Number.	Amount paid on Transfer.	Number.	Amount paid on Retirement.	Pensions entered upon.
		£	£		£		£		£		£	£		£		£	£
1906-7 ..	13	128	287	30	206	78	4,207	..	..	6	137	312	..	..	127	471	4,806
1907-8 ..	12	296	266	105	938	20	1,182	..	..	4	234	208	..	..	141	1,468	1,656
Part 1908 ..	10	415	279	120	1,202	9	503	..	..	9	51	491	..	..	148	1,668	1,273
1909 ..	8	460	215	76	1,338	22	1,825	2	224	4	..	343	1	27	113	1,825	2,607
1910 ..	8	438	127	131	3,078	38	4,099	8	714	6	..	559	1	3	192	3,519	5,499
1911 ..	9	530	189	152	4,184	32	2,816	7	1,271	10	..	630	2	83	212	4,797	4,906
1912 ..	11	895	62	100	3,717	43	3,421	6	725	10	..	946	..	..	170	4,612	5,154
1913 ..	13	492	290	190	4,587	40	3,903	12	1,510	14	..	1,372	..	..	269	5,079	7,075
1914 ..	16	1,016	106	196	6,388	32	3,348	14	2,172	9	..	784	3	48	270	7,452	6,410
1915 ..	35	2,167	285	169	4,922	28	2,320	9	1,648	8	..	725	4	878	253	7,967	4,978
1916 ..	22	1,666	202	179	5,185	33	3,861	8	1,147	16	..	1,442	1	212	259	7,063	6,652
1917 ..	43	2,749	217	172	6,010	27	3,060	4	544	10	..	1,118	3	87	259	8,846	4,939
1918 ..	67	5,567	785	222	7,710	20	2,550	3	426	5	..	704	1	27	318	13,304	4,465
1919 ..	19	2,750	372	292	12,386	73	10,534	4	406	18	..	2,550	2	181	408	15,317	13,862
1920 ..	15	3,482	380	369	16,108	55	7,739	3	553	11	..	1,489	11	552	464	20,142	10,161
1921 ..	14	2,105	206	271	13,604	48	9,170	4	527	11	..	1,505	2	95	350	15,804	11,408
1922-3 ..	18	4,835	395	275	11,522	95	19,169	13	2,301	9	..	2,084	4	394	414	16,751	23,949
1923-4 ..	24	3,015	405	339	16,052	79	16,617	15	2,767	8	..	1,145	2	10	467	19,077	20,934
1924-5 ..	18	2,583	516	347	15,679	65	13,684	14	2,518	10	1,106	1,773	5	..	459	19,368	18,491
1925-6 ..	14	1,991	507	364	18,298	56	10,659	4	374	8	..	1,864	5	384	451	20,673	13,404
1926-7 ..	22	3,236	875	440	21,910	80	20,091	6	1,548	9	711	1,536	2	733	559	26,590	24,050
	411	40,816	6,966	4,539	175,024	973	144,758	136	21,375	195	2,239	23,580	49	3,714	6,303	221,793	196,679
Adjustments	..	..	4,788	..	..	..	8,218	..	383	..	..	1,450	..	..	..	..	14,839
Totals ..	411	40,816	11,754	4,539	175,024	973	152,976	136	21,758	195	2,239	25,030	49	3,714	6,303	221,793	211,518

* Compiled from annual reports.

TABLE III.

Statement of Progress of Pensions.*

Year.	Attainment of Pension Age or Length of Service.						Extended Provisions.						Retired Medically Unfit.					
	Granted.		Void by Death.		In Force.		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.	Number.	Pension.	Number.	Pension.	Number.	Pension.
		£		£		£		£		£		£		£		£		£
1906-7 ..	78	4,207	..	..	78	4,207	..	..	..	..	..	..	6	312	..	..	6	312
1907-8 ..	20	1,182	4	220	94	5,169	..	..	..	..	..	..	4	208	1	52	9	468
Part 1908	9	503	3	156	100	5,516	..	..	..	..	..	..	9	491	1	52	17	907
1909 ..	22	1,825	4	248	118	7,093	2	224	..	..	2	224	4	343	4	237	17	1,013
1910 ..	38	4,099	8	693	148	10,499	8	714	..	..	10	938	6	559	2	164	21	1,408
1911 ..	32	2,816	3	175	177	13,140	7	1,271	..	..	17	2,209	10	630	1	163	30	1,875
1912 ..	43	3,421	3	163	217	16,398	6	725	..	..	23	2,934	10	946	1	52	39	2,769
1913 ..	40	3,903	8	694	249	19,607	12	1,510	..	..	35	4,444	14	1,372	3	260	50	3,881
1914 ..	32	3,348	12	861	269	22,094	14	2,172	..	..	49	6,616	9	784	3	247	56	4,418
1915 ..	28	2,320	9	833	288	23,581	9	1,648	..	..	58	8,264	8	725	3	341	61	4,802
1916 ..	33	3,861	6	570	315	26,872	8	1,147	..	..	66	9,411	16	1,442	3	337	74	5,907
1917 ..	27	3,060	18	1,388	324	28,544	4	544	2	254	68	9,701	10	1,118	5	393	79	6,632
1918 ..	20	2,550	8	610	336	30,484	3	426	..	..	71	10,127	5	704	3	211	81	7,125
1919 ..	73	10,534	9	525	400	40,493	4	406	..	..	75	10,533	18	2,550	5	646	94	9,029
1920 ..	55	7,739	18	1,963	437	46,269	3	553	2	600	76	10,486	11	1,490	6	616	99	9,903
1921 ..	48	9,170	10	1,046	475	54,393	4	527	2	315	78	10,698	11	1,505	8	760	102	10,648
1922-3 ..	95	19,169	16	1,388	554	72,174	13	2,301	3	509	88	12,490	9	2,084	3	515	108	12,217
1923-4 ..	79	16,617	13	1,314	620	87,477	15	2,766	4	712	99	14,544	8	1,145	5	818	111	12,544
Adjustments	..	−50	..	..	..	87,427	−1	−277	..	..	98	14,267	+1	+206	..	..	112	12,750
1924-5 ..	63	13,684	16	2,612	667	98,499	14	2,518	5	633	107	16,152	12	1,772	5	704	119	13,818
1925-6 ..	56	15,909	18	2,394	705	112,014	4	1,054	2	433	109	16,773	9	2,482	2	215	126	16,085
1926-7 ..	82	23,109	19	2,897	768	132,226	4	1,529	3	379	110	17,923	9	2,162	10	1,528	125	16,719
Totals ..	973	152,976	205	20,750	..	..	133	21,758	23	3,835	..	..	199	25,030	74	8,311	..	..

Year.	Death of Contributor or Pensioner: 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.
		£		£		£		£		£		£
1906-7	10	155	..	..	10	155	94	4,674	..	..	94	4,674
1907-8	20	310	3	39	27	426	44	1,700	8	311	130	6,063
Part 1908 ..	26	403	2	31	51	798	44	1,397	6	239	168	7,221
1909	32	476	5	65	78	1,209	60	2,868	13	550	215	9,539
1910	17	269	4	62	91	1,416	69	5,641	14	919	270	14,261
1911	18	279	9	132	100	1,563	67	4,996	13	470	324	18,787
1912	6	93	9	122	97	1,534	65	5,185	13	337	376	23,635
1913	33	489	4	57	126	1,966	99	7,274	15	1,011	460	29,898
1914	19	307	15	210	130	2,063	74	6,611	30	1,318	504	35,191
1915	30	450	12	161	148	2,352	75	5,143	24	1,335	555	38,999
1916	20	300	12	176	156	2,476	77	6,750	21	1,083	611	44,666
1917	21	333	14	207	163	2,602	62	5,055	39	2,242	634	47,479
1918	61	893	14	197	210	3,298	89	4,573	25	1,018	698	51,034
1919	24	372	17	251	217	3,419	119	13,862	31	1,422	786	63,474
1920	25	380	18	249	224	3,550	94	10,162	44	3,428	836	70,208
1921	12	206	10	140	226	3,616	75	11,408	30	2,261	881	79,355
1922-3	25	395	17	251	234	3,760	142	23,949	39	2,663	984	100,641
1923-4	25	405	11	168	248	3,997	127	[20,934]	33	3,013	1,078	[118,562]
Adjustments ..	..	..	..	..	..	..	..	20,813	..	..	..	118,441
1924-5	32	516	20	295	260	4,218	121	18,490	46	4,244	1,153	132,687
1925-6	18	3,848	21	516	257	7,550	87	23,293	43	3,558	1,197	152,422
1926-7	30	875	17	477	270	7,948	125	27,675	49	5,281	1,273	174,816
Totals ..	504	11,754	234	3,806	..	..	1,809	211,519	536	36,703	..	..

* Compiled from annual reports.

TABLE IV.

CLASSIFICATION OF PENSIONS GRANTED FOR PERIOD FROM 1ST FEBRUARY, 1924, TO 31ST JANUARY, 1927, INCLUSIVE, SHOWING THE AGES AT WHICH THEY WERE GRANTED.*

Age at which Pension granted.	Attainment of Pension Age or Length of Service.			Retired Medically Unfit.			Retired under extended Provisions.			Widows and Children.		Total.			
	Number.		Amount of Pension.	Number.		Amount of Pension.	Number.		Amount of Pension.	Number.	Amount of Pension.	Number.			Amount of Pension.
	M.	F.		M.	F.		M.	F.				M.	F.	Total.	
			£ s. d.			£ s. d.			£ s. d.		£				£ s. d.
77 ..	..	..	..	..	..	..	..	..	..	2	36	..	2	2	36 0 0
76 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
75 ..	..	..	..	..	..	..	..	..	..	3	54	..	3	3	54 0 0
74 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
73 ..	..	..	..	..	..	..	..	..	..	2	36	..	2	2	36 0 0
72 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
71 ..	..	..	..	..	..	..	..	..	..	2	36	..	2	2	36 0 0
70 ..	..	..	..	..	..	..	..	..	..	4	72	..	4	4	72 0 0
69 ..	..	..	..	..	..	..	..	..	..	2	36	..	2	2	36 0 0
68 ..	1	..	152 4 0	..	..	..	..	..	..	3	54	1	3	4	206 4 0
67 ..	..	..	..	..	..	..	..	..	..	2	36	..	2	2	36 0 0
66 ..	6	1	2,220 18 0	..	..	..	1	..	12 10 0	2	36	7	3	10	2,269 8 0
65 ..	17	..	4,295 16 0	..	..	..	1	..	284 2 0	3	54	18	3	21	4,633 18 0
64 ..	3	2	1,528 18 0	..	..	..	1	..	234 11 0	3	54	4	5	9	1,817 9 0
63 ..	4	..	1,591 16 0	..	..	..	..	..	..	3	54	4	3	7	1,645 16 0
62 ..	6	1	2,305 16 0	1	..	262 4 0	3	..	576 14 0	1	18	10	2	12	3,162 14 0
61 ..	8	2	3,091 9 0	3	..	718 5 0	1	..	224 7 0	1	18	12	3	15	4,052 1 0
60 ..	5	7	2,883 8 0	..	..	..	4	..	901 3 0	1	18	9	8	17	3,802 11 0
59 ..	5	10	3,183 13 0	3	..	778 1 0	..	..	..	..	..	8	10	18	3,961 14 0
58 ..	7	4	3,278 12 0	1	..	180 9 0	1	..	250 18 0	2	36	9	6	15	3,745 19 0
57 ..	10	12	4,972 13 0	2	..	449 19 0	..	..	..	..	..	12	12	24	5,422 12 0
56 ..	6	8	3,338 17 0	..	..	..	..	..	..	1	18	6	9	15	3,356 17 0
55 ..	1	17	2,953 18 0	2	..	485 17 0	3	1	789 18 0	2	36	6	20	26	4,265 13 0
54 ..	1	5	1,275 17 0	..	..	..	..	..	..	..	..	1	5	6	1,275 17 0
53 ..	..	11	2,226 7 0	1	..	201 0 0	1	2	872 3 0	..	..	2	13	15	3,299 10 0
52 ..	1	4	1,131 7 0	1	..	236 10 0	..	..	..	..	..	2	4	6	1,367 17 0
51 ..	..	8	1,533 16 0	..	1	118 19 0	..	2	146 16 0	1	18	..	12	12	1,817 11 0
50 ..	..	6	1,136 12 0	..	1	142 13 0	..	2	126 18 0	1	18	..	10	10	1,424 3 0
49 ..	..	7	1,200 16 0	..	1	184 10 0	..	..	..	2	36	..	10	10	1,421 6 0
48 ..	..	7	1,160 7 0	1	..	191 6 0	..	..	..	..	..	1	7	8	1,351 13 0
47 ..	..	4	717 6 0	..	1	162 14 0	..	..	..	1	18	..	6	6	898 0 0
46 ..	..	4	719 6 0	1	1	286 6 0	..	..	..	..	..	1	5	6	1,005 12 0
45 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
44 ..	..	..	..	..	3	240 4 0	..	..	..	..	..	..	3	3	240 4 0
43 ..	..	..	..	..	1	143 7 0	..	..	..	2	36	..	3	3	179 7 0
42 ..	..	..	..	1	..	253 7 0	..	..	..	..	..	1	..	1	253 7 0
41 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
40 ..	..	..	..	..	..	..	..	..	..	1	18	..	1	1	18 0 0
39 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
38 ..	..	..	..	1	..	137 1 0	..	..	..	..	..	1	..	1	137 1 0
37 ..	..	..	..	2	..	228 1 0	..	..	..	..	..	2	..	2	228 1 0
36 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
35 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
34 ..	..	..	..	..	..	..	..	..	..	2	36	..	2	2	36 0 0
33 ..	..	..	..	..	..	..	..	..	..	1	18	..	1	1	18 0 0
32 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
31 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
30 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29 ..	..	..	..	..	..	..	..	..	..	1	18	..	1	1	18 0 0
28 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
27 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
26 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24 ..	..	..	..	..	..	..	..	..	..	1	18	..	1	1	18 0 0
14 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 ..	..	..	..	..	..	..	..	..	..	4	52	4	..	4	52 0 0
12 ..	..	..	..	..	..	..	..	..	..	7	91	3	4	7	91 0 0
11 ..	..	..	..	..	..	..	..	..	..	1	13	1	..	1	13 0 0
10 ..	..	..	..	..	..	..	..	..	..	4	52	1	3	4	52 0 0
9 ..	..	..	..	..	..	..	..	..	..	1	13	1	..	1	13 0 0
8 ..	..	..	..	..	..	..	..	..	..	2	26	2	..	2	26 0 0
7 ..	..	..	..	..	..	..	..	..	..	3	39	3	..	3	39 0 0
6 ..	..	..	..	..	..	..	..	..	..	1	13	..	1	1	13 0 0
5 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 ..	..	..	..	..	..	..	..	..	..	3	39	3	..	3	39 0 0
3 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 ..	..	..	..	..	..	..	..	..	..	1	13	..	1	1	13 0 0
1 ..	..	..	..	..	..	..	..	..	..	1	13	1	..	1	13 0 0
0 ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	81	120	46,899 12 0	20	9	5,400 13 0	16	7	4,420 0 0	80	1,300	136	197	333	58,020 5 0

* Compiled from cards.

TABLE V.

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

Age attained.	Number.		Present Annual Pay as from 1st February, 1927.		Present Annual Contributions as from 1st February, 1927.		Age attained.
	Males.	Females.	Males.	Females.	Males.	Females.	
			£	£	£	£	
15	1	..	65	..	3	..	15
16	1	1	52	75	3	4	16
17	7	9	596	715	30	36	17
18	42	101	3,575	8,060	179	403	18
19	85	170	7,346	13,710	367	686	19
20	115	225	12,198	21,277	610	1,064	20
21	156	274	24,375	37,168	1,219	1,858	21
22	175	328	36,230	58,354	1,811	2,918	22
23	154	407	37,753	80,912	1,888	4,046	23
24	119	388	31,671	81,408	1,584	4,070	24
25	127	300	34,795	64,163	1,740	3,208	25
26	112	272	34,633	59,993	1,732	3,000	26
27	106	207	33,122	47,929	1,656	2,396	27
28	88	184	29,204	42,805	1,460	2,140	28
29	81	174	28,489	42,913	1,424	2,146	29
30	79	128	27,421	31,654	1,371	1,587	30
31	77	161	28,385	41,596	1,425	2,097	31
32	94	140	34,354	37,186	1,755	1,879	32
33	72	133	27,722	34,799	1,419	1,778	33
34	86	112	33,239	30,822	1,723	1,590	34
35	78	112	30,547	31,851	1,569	1,655	35
36	68	92	27,490	26,868	1,436	1,400	36
37	78	97	32,760	27,463	1,728	1,444	37
38	72	81	29,155	24,065	1,529	1,291	38
39	61	72	27,365	22,580	1,488	1,236	39
40	64	74	28,134	23,036	1,507	1,276	40
41	62	75	26,856	22,580	1,477	1,286	41
42	68	78	31,936	23,550	1,735	1,339	42
43	57	65	25,584	19,917	1,448	1,151	43
44	64	59	27,691	18,730	1,490	1,111	44
45	71	54	32,045	16,979	1,774	973	45
46	52	55	24,416	17,597	1,387	1,034	46
47	68	77	32,324	24,743	1,857	1,488	47
48	60	47	27,359	15,051	1,606	917	48
49	44	57	20,796	18,152	1,247	1,114	49
50	45	48	20,926	16,102	1,208	940	50
51	47	50	22,830	16,023	1,455	1,069	51
52	52	50	26,311	15,477	1,736	1,052	52
53	48	42	20,476	13,822	1,343	918	53
54	36	27	17,115	8,743	1,142	601	54
55	47	29	23,490	9,212	1,487	645	55
56	35	19	19,255	6,249	1,374	474	56
57	37	7	20,943	2,713	1,529	204	57
58	30	13	15,206	3,910	1,135	311	58
59	26	5	13,067	1,527	964	124	59
60	27	4	13,020	1,030	969	95	60
61	22	3	10,004	1,245	814	98	61
62	19	3	8,361	1,030	706	90	62
63	13	4	6,275	1,300	520	117	63
64	10	1	5,185	270	439	24	64
65	6	..	2,500	..	208	..	65
66	4	1	2,685	160	257	16	66
67	4	..	2,140	..	206	..	67
68	..	..	..	..	..	..	68
69	..	..	..	..	..	..	69
70	3	..	1,300	..	130	..	70
71	..	..	..	..	..	..	71
72	..	..	..	..	..	..	72
73	..	..	..	..	..	..	73
74	..	..	..	..	..	..	74
75	..	..	..	..	..	..	75
76	1	..	275	..	27	..	76
Totals ..	3,256	5,115	1,141,047	1,167,514	64,326	62,399	..

* Compiled from cards.

TABLE VI.

EXPERIENCE TABLE.

PROBABILITIES PER CENT. PER ANNUM OF WITHDRAWAL, DEATH, AND RETIREMENT USED IN THE CALCULATION OF VALUATION FACTORS FOR THE TEACHERS' SUPERANNUATION FUND.

Age.	Contributing Members: Males. Probabilities of Withdrawal, Death, and Retirement within a Year (expressed as a Percentage of the Number existing in the Service at the beginning of the Year).			Contributing Members: Females. Probabilities of Withdrawal, Death, and 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 ..	3·20	0·18	..	2·40	0·11	..	15
16 ..	3·20	0·18	..	2·60	0·11	..	16
17 ..	3·17	0·18	..	2·80	0·11	..	17
18 ..	3·12	0·19	..	3·10	0·11	..	18
19 ..	3·05	0·19	..	3·60	0·11	..	19
20 ..	2·97	0·19	..	4·20	0·11	..	20
21 ..	2·86	0·20	..	5·00	0·11	..	21
22 ..	2·76	0·20	..	5·90	0·11	..	22
23 ..	2·66	0·20	..	6·90	0·11	..	23
24 ..	2·56	0·21	..	7·80	0·11	..	24
25 ..	2·46	0·21	..	8·60	0·11	..	25
26 ..	2·37	0·21	..	8·90	0·11	..	26
27 ..	2·28	0·22	..	9·00	0·12	..	27
28 ..	2·19	0·22	..	8·80	0·12	..	28
29 ..	2·10	0·23	..	8·40	0·13	..	29
30 ..	2·01	0·24	..	8·00	0·14	..	30
31 ..	1·93	0·25	..	7·60	0·15	..	31
32 ..	1·85	0·26	..	7·20	0·16	..	32
33 ..	1·78	0·27	..	6·80	0·17	..	33
34 ..	1·70	0·28	0·055	6·40	0·18	..	34
35 ..	1·63	0·29	0·060	6·00	0·19	..	35
36 ..	1·56	0·30	0·065	5·60	0·20	..	36
37 ..	1·50	0·31	0·070	5·15	0·21	..	37
38 ..	1·45	0·32	0·075	4·70	0·22	0·30	38
39 ..	1·40	0·33	0·080	4·25	0·23	0·40	39
40 ..	1·35	0·35	0·085	3·75	0·24	0·50	40
41 ..	1·31	0·37	0·090	3·25	0·25	0·60	41
42 ..	1·28	0·39	0·100	2·70	0·26	0·80	42
43 ..	1·26	0·41	0·120	2·10	0·27	1·00	43
44 ..	1·24	0·44	0·150	1·50	0·28	1·20	44
45 ..	1·22	0·47	0·180	0·90	0·29	1·50	45
46 ..	1·19	0·51	0·210	0·40	0·30	2·10	46
47 ..	1·15	0·55	0·240	..	0·31	3·00	47
48 ..	1·10	0·59	0·280	..	0·33	4·00	48
49 ..	1·03	0·63	0·320	..	0·35	5·00	49
50 ..	0·95	0·68	0·400	..	0·37	6·00	50
51 ..	0·86	0·73	0·550	..	0·39	7·50	51
52 ..	0·76	0·78	0·750	..	0·41	9·00	52
53 ..	0·66	0·83	1·150	..	0·44	11·00	53
54 ..	0·55	0·88	1·850	..	0·47	14·00	54
55 ..	0·43	0·93	3·000	..	0·51	17·00	55
56 ..	0·30	0·99	4·500	..	0·55	20·00	56
57 ..	0·16	1·05	6·500	..	0·60	23·00	57
58 ..	..	1·11	8·500	..	0·65	26·00	58
59 ..	..	1·18	10·000	..	0·70	30·00	59
60 ..	..	1·25	11·000	..	..	100·00	60
61 ..	..	1·33	12·000	..	..	..	
62 ..	..	1·41	13·000	..	..	..	
63 ..	..	1·50	15·000	..	..	..	
64 ..	..	1·60	30·000	..	..	..	..
65 ..	..	..	100·000	..	..	..	..

TABLE VII.

LIFE AND SERVICE TABLE.

BASED UPON THE PROBABILITIES PER CENT. PER ANNUM OF WITHDRAWAL, DEATH, AND RETIREMENT GIVEN IN TABLE VI.

	Males.				Females.				
Age.	Existing in Service.	Withdrawals.	Deaths.	Retirements.	Existing in Service.	Withdrawals.	Deaths.	Retirements.	Age.
15 ..	100,000	3,200	180	..	100,000	2,400	110	..	15
16 ..	96,620	3,092	174	..	97,490	2,535	107	..	16
17 ..	93,354	2,959	168	..	94,848	2,656	104	..	17
18 ..	90,227	2,815	171	..	92,088	2,855	101	..	18
19 ..	87,241	2,661	166	..	89,132	3,209	98	..	19
20 ..	84,414	2,507	160	..	85,825	3,605	94	..	20
21 ..	81,747	2,338	163	..	82,126	4,106	90	..	21
22 ..	79,246	2,187	158	..	77,930	4,598	86	..	22
23 ..	76,901	2,046	154	..	73,246	5,054	81	..	23
24 ..	74,701	1,912	157	..	68,111	5,313	75	..	24
25 ..	72,632	1,787	153	..	62,723	5,394	69	..	25
26 ..	70,692	1,675	148	..	57,260	5,096	63	..	26
27 ..	68,869	1,570	152	..	52,101	4,689	63	..	27
28 ..	67,147	1,471	148	..	47,349	4,167	57	..	28
29 ..	65,528	1,376	151	..	43,125	3,623	56	..	29
30 ..	64,001	1,286	154	..	39,446	3,156	55	..	30
31 ..	62,561	1,207	156	..	36,235	2,754	54	..	31
32 ..	61,198	1,132	159	..	33,427	2,407	53	..	32
33 ..	59,907	1,066	162	..	30,967	2,106	53	..	33
34 ..	58,679	998	164	32	28,808	1,844	52	..	34
35 ..	57,485	937	167	34	26,912	1,615	51	..	35
36 ..	56,347	879	169	37	25,246	1,414	50	..	36
37 ..	55,262	829	171	39	23,782	1,225	50	..	37
38 ..	54,223	786	174	41	22,507	1,058	50	68	38
39 ..	53,222	745	176	43	21,331	907	49	85	39
40 ..	52,258	705	183	44	20,290	761	49	101	40
41 ..	51,326	672	190	46	19,379	630	48	116	41
42 ..	50,418	645	197	50	18,585	502	48	149	42
43 ..	49,526	624	203	59	17,886	376	48	179	43
44 ..	48,640	603	214	73	17,283	259	48	207	44
45 ..	47,750	583	224	86	16,769	151	49	252	45
46 ..	46,857	558	239	98	16,317	65	49	343	46
47 ..	45,962	529	253	110	15,860	..	49	476	47
48 ..	45,070	496	266	126	15,335	..	51	613	48
49 ..	44,182	455	278	141	14,671	..	51	734	49
50 ..	43,308	411	294	173	13,886	..	51	833	50
51 ..	42,430	365	310	233	13,002	..	51	975	51
52 ..	41,522	316	324	311	11,976	..	49	1,078	52
53 ..	40,571	268	337	467	10,849	..	48	1,193	53
54 ..	39,499	217	348	731	9,608	..	45	1,345	54
55 ..	38,203	164	355	1,146	8,218	..	42	1,397	55
56 ..	36,538	110	362	1,644	6,779	..	37	1,356	56
57 ..	34,422	55	361	2,237	5,386	..	32	1,239	57
58 ..	31,769	..	353	2,700	4,115	..	27	1,070	58
59 ..	28,716	..	339	2,872	3,018	..	21	905	59
60 ..	25,505	..	319	2,806	2,092	..	..	2,092	60
61 ..	22,380	..	298	2,686	..	..	..	..	..
62 ..	19,396	..	273	2,521	..	..	..	..	..
63 ..	16,602	..	249	2,490	..	..	..	..	..
64 ..	13,863	..	222	4,159	..	..	..	..	..
65 ..	9,482	..	..	9,482	..	..	..	..	..

TABLE VIII.

SUMMARY OF TEACHERS' SUPERANNUATION FUND RESULTS.

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

Liabilities.

	£	£
MALES—		
Value of 406 pensions for £91,712 7s. per annum already granted ..	830,804	
,, 183 pensions for £3,294 per annum granted to widows of contributors or pensioners	33,390	
,, 85 pensions for £1,105 per annum granted to children of deceased contributors or pensioners	3,778	
,, prospective pensions for back service	1,514,193	
,, prospective pensions for future service	1,158,910	
,, prospective pensions to widows	107,797	
,, prospective pensions to children	17,261	
,, return of contributions on death	13,472	
,, return of contributions on withdrawal	112,795	
		3,792,400
FEMALES—		
Value of 597 pensions for £75,154 13s. per annum already granted ..	902,402	
,, prospective pensions for back service	1,119,274	
,, prospective pensions for future service	1,111,185	
,, prospective death benefits—viz., return of contributions and pensions to children	25,158	
,, return of contributions on withdrawal	208,560	
		3,366,579
		£7,158,979

Assets.

	£
Accumulated funds	1,083,155
Value of future contributions from males	841,025
,, future contributions from females	587,001
,, subsidy of £68,000 per annum now being paid	1,511,111
,, future increase in subsidy to be provided	3,136,687
	£7,158,979

TABLE IX.

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

Year ended	Subsidy required.	Subsidy received.	Shortage.	Shortage accumulated at 4½ per Cent. to end of 1929.
	£	£	£	£
31st March, 1906 ..	Nil	5,000	—(5,000)	—(14,380)
,, 1907 ..	2,000	Nil	2,000	5,504
,, 1908 ..	5,000	Nil	5,000	13,168
31st December, 1908 ..	5,000	Nil	5,000	12,601
,, 1909 ..	8,000	7,000	1,000	2,412
,, 1910 ..	11,000	7,000	4,000	9,231
,, 1911 ..	17,000	7,000	10,000	22,085
,, 1912 ..	17,000	7,000	10,000	21,134
,, 1913 ..	17,000	17,000	Nil	Nil
,, 1914 ..	33,000	17,000	16,000	30,965
,, 1915 ..	33,000	17,000	16,000	29,631
,, 1916 ..	33,000	17,000	16,000	28,355
,, 1917 ..	43,000	17,000	26,000	44,093
,, 1918 ..	43,000	17,000	26,000	42,194
,, 1919 ..	43,000	43,000	Nil	Nil
,, 1920 ..	68,000	43,000	25,000	37,152
,, 1921 ..	68,000	43,000	25,000	35,553
31st January, 1923* ..	73,667	71,583	2,084	2,836
,, 1924 ..	93,000	63,833	29,167	37,983
,, 1925 ..	137,000	68,000	69,000	85,987
,, 1926 ..	137,000	68,000	69,000	82,284
,, 1927 ..	137,000	68,000	69,000	78,740
Totals	1,023,667	603,416	420,251	607,528

* Period of thirteen months.

Approximate Cost of Paper.—Preparation, not given; printing (1,600 copies), £27.

By Authority: W. A. G. SKINNER, Government Printer, Wellington.—1929.

Price 6d.]