State Employees' Retirement Association
of Minnesota

REPORT ON AN ACTUARIAL SURVEY FOR THE PERIOD FROM JANUARY 1, 1958 TO DECEMBER 31, 1962

and

AN ACTUARIAL VALUATION AS OF DECEMBER 31, 1963

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Board of Directors
State Employees' Retirement
 Association of Minnesota
Centennial Office Building
St. Paul, Minnesota

Dear Sirs:

Submitted herewith is our report on an actuarial survey of the State Employees' Retirement System for the period from January 1, 1958 to December 31, 1962, and an actuarial valuation of its assets and liabilities as of December 31, 1963.

This report was prepared in accordance with the directive of the Interim Commission on Employee Retirement Systems and conforms to the usual standards governing such a survey and valuation.

The results of this work are presented herein in some detail. We shall be pleased to discuss any phase of this report and to answer any specific questions relative to its context.

Respectfully submitted,

A. A. Weinberg
Actuary

REPORT ON AN ACTUARIAL SURVEY AND VALUATION OF THE STATE EMPLOYEES' RETIREMENT SYSTEM OF MINNESOTA

The results of an actuarial survey of the State Employees' Retirement System of Minnesota for the period from January 1, 1958 to December 31, 1962, and an actuarial valuation of the system as of December 31, 1963, are presented herewith.

BASIS OF SURVEY

The survey and valuation were made in accordance with the specifications embodied in an Act of the Legislature, approved May 2, 1957, which are as follows:

"(1) A census of each of active and deferred annuitant classes by attained age, sex and service. The census shall show number of members, their aggregate annual salary, their contributions for the past plan year, and their prospective retirement annuities under the plan.

(2) A census of each of the classes of retired members, disabled members, and survivors of members by type of annuity, attained age ans sex (and duration where applicable). The census shall show number of retirants and amount of annual annuity payable as of the survey date.

(3) An actuarial balance sheet showing assets, liabilities, and the deficit from full funding of liabilities.

(4) A statement of assumptions made in determining present value of benefits and contributions, including the following:

(a) Interest rate
(b) Mortality rates (before and after retirement)
(c) Withdrawal rate
(d) Salary scale

(5) Each actuarial survey shall include findings as to:

(a) The normal support rate required to adequately finance currently accruing liabilities.

(b) Such additional annual rate of support as is required to amortize the deficits found by the end of the fiscal year of the fund occurring in 1997."

As specified in a directive from the Interim Commission on Employee Retirement Systems, the aforesaid specifications were subject to the following requirements as modifications thereof:

"The actuarial balance sheet liabilities and the normal support rate required to adequately finance currently accruing liabilities shall be calculated on a level normal cost basis (entry age normal cost method) except for funds on a money purchase basis.

The interest rate to be assumed is 3% to afford comparability with the 1958 surveys; if any fund wishes in addition to submit a survey based upon an assumption of 3-1/2 per cent interest such additional survey may be submitted.

It may be of interest to the fund to submit a survey using a $6,000, $7,200 and no maximum salary basis."

The provisions of the law governing the operations of the system in force and effect at the date of valuation, namely, December 31, 1963, are summarized in the appendix. The valuation of the system was made in accordance with these provisions.

The directive of the Commission supplementing the 1957 specifications, specified that "the interest rate to be assumed is 3% to afford comparability with the 1958 surveys; if any fund wishes in addition to submit a survey based upon an assumption of 3-1/2% interest such additional survey may be submitted".

Upon recommendation of the actuary, a 3-1/2% rate of interest was adopted for valuation and cost purposes. As suggested in the foregoing quoted directive, the valuation as of December 31, 1963, was also made according to a 3% rate of interest. This was the rate of interest used in 1958. Because of the numerous factors inherent in the system's operations and the variances in conditions existing at the two valuation dates, any comparison of the results of the 1963 and 1958 survey will at best be academic.

A number of changes in membership characteristics occurred during the intervening period involving also some adjustments in service credits. Certain employees of the labor force were eliminated from membership. Some important revisions were made in the benefit schedule. The investment policy was revised and liberalized resulting in greater revenues. Operations in this area also resulted in some losses of principal. Certain other internal adjustments of important financial significance to the system were made. It may be concluded, however, from the results of this survey, that the increase in the interest rate assumption from 3% to 3-1/2%, effective in the year 1963, fully covered the cost of the change made in the pension formula in that year.

ACTUARIAL SURVEY

An actuarial survey is undertaken for the purpose of evaluating the operating experience of a retirement system as a check of the functions applied in the calculation of costs and liabilities affecting the benefit and contribution schedules. By this process, a fair valuation of the assets and liabilities of the system at the close of each fiscal period is assured. Such a survey has been completed for the 5-year period ended December 31, 1962 based upon the statistical experience of the system. From the information produced by this survey, life and service tables were prepared and actuarial functions were derived for use in the calculation of costs and liabilities.

Active service data. The policy of the Board of Trustees in requiring the current compilation of a large amount of statistical and financial data pertaining to the system's operations has greatly facilitated the work on this survey. The data has been submitted to us in excellent form. The following is a summary of statistics used in the exposure study in this survey:

	Male	Female
Changes in membership during the 5-year period ended December 31, 1962 -		
New entrants	10,613	14,420
Separations	8,675	11,167
Deaths	594	153
Service retirements	939	555
Disability retirements	40	22
Inactives	3,508	3,045
Number in service at December 31, 1962	14,921	12,442
Number on service retirement at January 1, 1958	1,233	584
Changes in retirement roll during the 5-year period ended December 31, 1962 -		
New service retirements	939	555
Deaths	484	132
Number on the roll at December 31, 1962	1,688	1,007

Life and service tables. Life and service tables were prepared from the foregoing data and are presented as a part of this report. These tables show the refined rates of separations from service, deaths among active and retired members, rates of retirement and rates of incidence of disability. In the process of arriving at the refined rates reflecting these factors, graphs were prepared to which were transcribed the actual rates of separation as produced by this study. With the use of these graphs, the rates were adjusted and refined. In this manner extreme fluctuations from the indicated primary trend were eliminated. The graduated rates were then used in the preparation of the life and service tables.

From these tables actuarial functions were computed which were applied in the valuation of the assets and liabilities of the system as of December 31, 1963. These functions will be used in future valuations until another five-year survey is made. In the application of these functions in future years, adjustments may be required in the results produced thereby to give effect to any marked variations in operating experience or any pronounced change in employment conditions which may have a direct or indirect bearing upon the operations of the system.

Separations. The experience among the members with respect to separations with refund was tabulated and analyzed. In the refinement of this data, effect was given to the conditions of the service prevailing at the date of survey and to any possible variations that may occur in future years.

Rates of Separation per 1,000

	1963 Survey		1958 Survey	
Age	Male	Female	Male	Female
20	154.5	149.4	199.3	191.4
25	123.1	132.0	156.9	186.2
30	90.9	114.5	123.7	179.9
35	60.0	95.7	101.2	169.1
40	48.0	74.8	83.4	154.7
45	43.2	56.6	74.3	139.5
50	39.3	48.4	67.9	124.2
55	38.3	39.8	63.8	108.9

It should be noted that a marked change has occurred in the rates of separation from service during recent years with the rates tending toward lower levels for both male and female members.

During the year 1963, there were 1,589 separations with refund among male members at an average age of 37.6 years and 2,346 separations with refund among female members at an average age of 30.1 years.

Deaths among active members. The rates of mortality among the active members are illustrated below with a comparison given with the rates contemplated by the United States Life Tables 1939-41 (White Males)

Rates of Mortality Per 1,000

Age	1963 Survey Male	1963 Survey Female	1958 Survey Male	1958 Survey Female	United States Life Tables (White Males)
20	0.57	0.54	0.91	0.85	2.12
25	0.65	0.59	1.16	1.03	2.43
30	0.97	0.64	1.55	1.30	2.79
35	1.59	0.76	2.15	1.92	3.63
40	2.97	0.92	3.24	2.90	5.13
45	4.85	1.37	4.88	4.28	7.66
50	6.75	1.89	7.70	6.11	11.55
55	9.83	3.23	11.44	24.30	17.37

The survey discloses rates of mortality among active members at a lower level than the rates established five years ago and also below the rates shown by the United States Life Tables (White Males).

The average age at death in service during the year 1963 was 56.0 for 86 male members and 53.4 for 26 female members.

Deaths among retired members. The rates of death among the service retirements are compared with the rates established five years ago and the rates contemplated by the 1937 Standard Annuity Mortality Table:

Rates of Death Per 1,000

Age	1963 Survey Male	1963 Survey Female	1958 Survey Male	1958 Survey Female	1937 Standard Annuity Mortality Table Male	1937 Standard Annuity Mortality Table Female
60	21.61	8.04	22.26	28.66	19.75	13.55
65	27.18	11.45	30.00	33.76	28.75	19.75
70	34.62	16.39	39.74	70.48	41.76	28.75
75	44.68	38.33	56.82	100.72	60.46	41.76
80	98.51	74.13	82.69	143.79	87.16	60.46
85	153.95	112.45	121.92	203.06	124.84	87.16

It is noted that on the whole the rates of mortality among male retired members compare favorably with those of five years ago and with the rates shown by the 1937 Standard Annuity Mortality Table. In the case of female retired members, a pronounced decrease in rates has occurred as will be observed. The rates are considerably below those developed in the previous survey and in comparison with the 1937 Standard Annuity Mortality Table.

The average age at retirement during the year 1963 was 65.7 for 188 male members who retired and 65.7 or the same age for 118 female members. It is unusual to find the same average age of retirement for both sexes. The average age at death among retired members during such fiscal year was 75.3 for 105 male retirants and 72/7 for 28 female retirants.

<u>Disability retirement</u>. The number of disability annuitants on the roll at December 31, 1963, and the number of such granted during the five-year period covered by the survey, was too small to be used reliably for a mortality study. However, a review of the experience among this group indicates that the rate of mortality approximates closely the rates contemplated by the Combined Annuity Mortality Table for male lives which for certain select ages are as follows:

Age	Rates of Death Per 1,000	Age	Rates of Death Per 1,000
40	4.64	60	23.02
45	6.93	65	34.25
50	10.35	70	50.81
55	15.45	75	75.06

The experience of the system on disability claims has been exceptionally favorable. Judging from the number of claims processed each year and the number in force at this time, it is apparent that a sound policy is in force in the administration of these claims.

<u>The salary factor</u>. The retirement annuities are not based upon final average salary but are predicated upon the average salary on which deductions for pension purposes are made. The problem of future salary increments and the possible impact of these increments on costs and obligations does not exist.in the same

degree as under a final average salary formula. Effect was given in the determination of costs and liabilities to possible changes in salary within the $4,800 annual salary limitation for the purpose of establishing an annual cost figure for financing the existing benefit schedule which would reflect future service of the members until their assumed ages of retirement.

Rate of interest. The factor of interest is basic in actuarial procedure. It constitutes an important factor in the financing of pension cost and pension obligations. In the calculations thereof, it is assumed that the reserves of the system, both present and prospective, will earn an assumed rate of interest. The mortality tables reflect a compound interest factor according to the same theory. Investment income finances a good part of the cost of the prescribed benefits. Without interest from investments, contribution rates would be materially higher. In the case of this system, investment income for the 1963 fiscal year was equal to 21½% of total income for the year.

The effect of interest income on cost is quite pronounced. The amounts to be contributed to the system by the members and the State are directly influenced by the rate of income on investable assets. Two factors are prominent in this calculation, namely, (1) the rate of income on investments, and (2) the length of service of the members qualifying for retirement. Assume a fixed return of 3-1/2% over a period of 25 years, an investment at that rate would produce 25% more income over a 25-year period at that rate than one made at 3%.

The rate of interest used in the valuation of liabilities and costs was 3-1/2% per annum. It may reasonably be assumed that under the existing investment authority a rate of 3-1/2% may be earned conveniently over a period of years representing the average productive period of the employees in service and the average future lifetime of the annuitants. A valuation was also made on a 3% basis as suggested by the Interim Commission on Employee Retirement Systems.

TABLE A

LIFE AND SERVICE TABLE FOR AGES 20 TO 60

MALE

Age	Annual Rates of With-drawal	Annual Rates of Death	Annual Rates of Disa-bility	Number in Service	Number of With-drawals	Number of Deaths	Number of Disa-bilities
20	.154546	.000570	.000042	1,000,000	154,546	570	42
21	.148055	.000590	.000045	844,842	125,083	498	38
22	.141564	.000610	.000049	719,223	101,816	439	35
23	.135073	.000629	.000052	616,933	83,331	388	32
24	.129349	.000638	.000056	533,182	68,967	340	30
25	.123096	.000647	.000059	463,845	57,097	300	27
26	.116844	.000712	.000062	406,421	47,488	289	25
27	.110592	.000777	.000066	358,619	39,660	279	24
28	.104340	.000843	.000069	318,656	33,249	269	22
29	.098085	.000906	.000073	285,116	27,966	258	21
30	.090893	.000970	.000076	256,871	23,348	249	20
31	.083701	.001041	.000079	233,254	19,524	243	18
32	.076197	.001112	.000083	213,469	16,266	237	18
33	.070536	.001184	.000086	196,948	13,892	237	17
34	.063204	.001387	.000090	182,802	11,554	254	16
35	.059996	.001589	.000093	170,978	10,258	272	16
36	.056798	.001839	.000096	160,432	9,112	295	15
37	.053600	.002090	.000100	151,010	8,094	316	15
38	.050401	.002340	.000103	142,585	7,186	334	15
39	.048937	.002590	.000107	135,050	6,609	350	14
40	.047998	.002967	.000110	128,077	6,147	380	14
41	.047030	.003344	.000113	121,536	5,716	406	14
42	.046092	.003720	.000117	115,400	5,319	429	14
43	.045154	.004097	.000120	109,638	4,951	449	13
44	.044216	.004474	.000124	104,225	4,608	466	13
45	.043283	.004851	.000127	99,138	4,291	481	13
46	.042350	.005113	.000130	94,353	3,996	482	12
47	.041417	.005375	.000134	89,863	3,722	483	12
48	.040484	.005636	.000139	85,646	3,467	483	12
49	.039551	.005897	.000144	81,684	3,231	482	12
50	.039345	.006745	.000287	77,959	3,067	526	22
51	.039139	.007594	.000430	74,344	2,910	565	32
52	.038933	.008457	.000586	70,837	2,758	599	42
53	.038727	.009320	.000743	67,438	2,612	629	50
54	.038521	.009575	.000922	64,147	2,471	614	59
55	.038315	.009830	.001029	61,003	2,337	600	63
56	.038110	.010280	.001136	58,003	2,210	596	66
57	.036688	.010731	.001176	55,131	2,023	592	65
58	.035214	.011182	.001216	52,451	1,847	587	64
59	.033143	.012115	.001257	49,953	1,656	605	63
60	--	--	--	47,629	--	--	--

TABLE B

LIFE AND SERVICE TABLE FOR AGES 20 TO 60

F E M A L E

	Annual Rates of			Number	Number of		
Age	With-drawal	Death	Disa-bility	in Service	With-drawals	Deaths	Disa-bilities
20	.149424	.000543	.000121	1,000,000	149,424	543	121
21	.145930	.000552	.000125	849,912	124,028	469	106
22	.142436	.000560	.000129	725,309	103,310	406	94
23	.138942	.000569	.000133	621,499	86,352	354	83
24	.135448	.000578	.000137	534,710	72,425	309	73
25	.131954	.000586	.000141	461,903	60,950	271	65
26	.128460	.000595	.000145	400,617	51,463	238	58
27	.124965	.000604	.000149	348,858	43,595	211	52
28	.121471	.000612	.000153	305,000	37,049	187	47
29	.117977	.000621	.000158	267,717	31,584	166	42
30	.114483	.000638	.000162	235,925	27,009	151	38
31	.110989	.000662	.000166	208,727	23,166	138	35
32	.107495	.000687	.000170	185,388	19,928	127	32
33	.104001	.000711	.000174	165,341	17,191	118	29
34	.100507	.000736	.000178	147,963	14,871	109	26
35	.095729	.000760	.000182	132,957	12,728	101	24
36	.090950	.000785	.000186	120,104	10,923	94	22
37	.086924	.000809	.000190	109,065	9,480	88	21
38	.082898	.000834	.000195	99,484	8,247	83	19
39	.078871	.000858	.000199	91,134	7,188	78	18
40	.074845	.000924	.000203	83,850	6,276	77	17
41	.070819	.000990	.000207	77,480	5,487	77	16
42	.066793	.001057	.000211	71,900	4,802	76	15
43	.063402	.001160	.000227	67,007	4,248	78	15
44	.060010	.001262	.000243	62,666	3,761	79	15
45	.056619	.001365	.000259	58,811	3,330	80	15
46	.054795	.001468	.000275	55,386	3,035	81	15
47	.052971	.001571	.000292	52,255	2,768	82	15
48	.051897	.001674	.000308	49,390	2,563	83	15
49	.050167	.001783	.000324	46,729	2,344	83	15
50	.048437	.001892	.000340	44,287	2,145	84	15
51	.046707	.002012	.000356	42,043	1,964	85	15
52	.044977	.002202	.000371	39,979	1,798	88	15
53	.043247	.002392	.000384	38,078	1,647	91	15
54	.041517	.002581	.000501	36,325	1,508	94	18
55	.039788	.003225	.000619	34,705	1,381	112	21
56	.038058	.003871	.000733	33,191	1,263	128	24
57	.036328	.004517	.000847	31,776	1,154	144	27
58	.034598	.005290	.000960	30,451	1,054	161	29
59	.032868	.006064	.001566	29,207	960	177	46
60	--	--	--	28,024	--	--	--

TABLE C

LIFE AND RETIREMENT TABLE FOR AGES 60 TO 70

M A L E

Age	Annual Rates of Death	Annual Rates of Retirement	Number in Service	Number of Deaths	Number of Retirements
60	.021612	.024093	1,000,000	21,612	24,093
61	.022658	.036590	954,295	21,622	34,918
62	.023707	.049088	897,755	21,283	44,069
63	.024756	.061585	832,403	20,607	51,264
64	.025824	.074082	760,532	19,640	56,342
65	.027176	.103465	684,550	18,603	70,827
66	.028521	.138649	595,120	16,973	82,513
67	.029865	.143469	495,634	14,802	71,108
68	.031247	.148289	409,724	12,803	60,758
69	.032629	.153110	336,163	10,969	51,470
70	--	1.000000	273,724	--	273,724

F E M A L E

Age	Annual Rates of Death	Annual Rates of Retirement	Number in Service	Number of Deaths	Number of Retirements
60	.008042	.014772	1,000,000	8,042	14,772
61	.008331	.017351	977,186	8,141	16,955
62	.008621	.019931	952,090	8,208	18,976
63	.009563	.022510	924,906	8,845	20,820
64	.010506	.052342	895,241	9,405	46,859
65	.011448	.082172	838,977	9,605	68,940
66	.012391	.112003	760,432	9,423	85,171
67	.013333	.141834	665,838	8,878	94,438
68	.014368	.171665	562,522	8,082	96,565
69	.015402	.208870	457,875	7,052	95,636
70	--	1.000000	355,187	--	355,187

TABLE D

LIFE TABLE FOR AGES 70 AND OVER

M A L E

Age	Rate of Death	Number of Retirements	Number of Deaths
70	.034616	1,000,000	34,616
71	.036506	965,384	35,242
72	.038549	930,142	35,856
73	.040592	894,286	36,301
74	.042634	857,985	36,579
75	.044677	821,406	36,698
76	.049427	784,708	38,786
77	.059786	745,922	44,596
78	.070145	701,326	49,195
79	.080504	652,131	52,499
80	.098510	599,632	59,070
81	.111516	540,562	60,281
82	.122125	480,281	58,654
83	.132734	421,627	55,964
84	.143342	365,663	52,415
85	.153951	313,248	48,225
86	.195941	265,023	51,929
87	.222612	213,094	47,437
88	.249284	165,657	41,296
89	.262475	124,361	32,642
90	.275880	91,719	25,303
91	.288857	66,416	19,185
92	.302048	47,231	14,266
93	.315238	32,965	10,392
94	.328431	22,573	7,414
95	.341622	15,159	5,179
96	.354813	9,980	3,541
97	.368004	6,439	2,370
98	.381195	4,069	1,551
99	.394386	2,518	993
100	.407577	1,525	622
101	.420768	903	380
102	.438921	523	230
103	.487276	293	143
104	.542279	150	81
105	.610442	69	42
106	.690722	27	19
107	.800000	8	6
108	1.000000	2	2

TABLE E

LIFE TABLE FOR AGES 70 AND OVER

FEMALE

Age	Rate of Death	Number of Retirements	Number of Deaths
70	.016392	1,000,000	16,392
71	.017381	983,608	17,096
72	.022618	966,512	21,861
73	.027856	944,651	26,314
74	.033093	918,337	30,391
75	.038331	887,946	34,036
76	.043568	853,910	37,203
77	.050378	816,707	41,144
78	.058296	775,263	45,195
79	.066215	730,068	48,341
80	.074133	681,727	50,538
81	.082051	631,189	51,790
82	.089652	579,399	51,944
83	.097253	527,455	51,297
84	.104853	476,158	49,927
85	.112454	426,231	47,931
86	.120055	378,300	45,417
87	.127656	332,883	42,495
88	.135256	290,388	39,277
89	.142857	251,111	35,873
90	.154286	215,238	33,208
91	.165714	182,030	30,165
92	.177143	151,865	26,902
93	.188571	124,963	23,564
94	.200000	101,399	20,280
95	.255236	81,119	20,704
96	.289299	60,415	17,478
97	.323754	42,937	13,901
98	.358608	29,036	10,413
99	.491099	18,623	9,146
100	.624030	9,477	5,914
101	.690722	3,563	2,461
102	.800000	1,102	882
103	.833333	220	183
104	1.000000	37	37
105	--	--	--

STATISTICAL DATA

The required tabulations of the essential statistics, forming the basis of the survey, were made by the office of the system and presented in a complete and workable form. Detailed tables of statistics were compiled during the course of the work reflecting certain characteristics of the employees and pensioners. These are reproduced in the appendix. A summary of the statistics is as follows:

Active Members	Male	Female
Number	15,352	12,835
Proportion of total number	54.5%	45.5%
Annual salaries	$77,311,388	$41,124,542
Average salary	$5,036	$3,204
Average age	42.4	38.9
Average length of credited service	8.5	5.6
Aggregate employee contributions	$18,874,475	$8,607,188
Average amount of contributions	$1,229	$671

Inactive Members With Vested Rights	Male	Female
Number	191	140
Proportion of total number	57.7%	42.3%
Annual salaries	$628,248	$420,756
Average salary	$3,289	$3,005
Average age	55.2	54.1
Aggregate employee contributions	$318,180	$207,463
Average amount of contributions	$1,666	$1,482

Inactive Members Without Vested Rights	Male	Female
Number	3,211	2,984
Proportion of total number	51.8%	48.2%
Annual salaries	$10,196,532	$8,317,500
Average salary	$3,176	$2,787
Average age	38.3	35.0
Aggregate employee contributions	$221.201	$160,432
Average amount of contributions	$69	$54

Annuitants	Male	Female
Straight life -		
Number	701	490
Average payment	$988	$703
Average age	70.0	69.8
Superannuation -		
Number	58	28
Average payment	$982	$861
Average age	85.0	85.3
Proportional -		
Number	65	40
Average payment	$659	$579
Average age	71.0	72.0
Partial -		
Number	16	13
Average payment	$284	$293
Average age	77.8	80.9
Retirement allowance -		
Number	728	421
Average payment	$1,348	$1,068
Average age	74.5	74.4
Disability -		
Number	52	27
Average payment	$911	$642
Average age	62.0	62.4
Reversionary -		
Number	--	31
Average payment	--	$973
Average age	--	66.2
Savings provision -		
Number	67	34
Average payment	$1,483	$1,517
Average age	63.4	61.6
Deferred -		
Number	6	3
Average payment	$358	$279
Average age	59.5	55.0
Average period of deferment	3.2	6.0

Annuitants - continued	Male	Female
Joint & Last Survivor -		
Number	44	18
Average payment	$767	$640
Average age	70.1	65.7
Modified Joint & Last Survivor -		
Number	53	11
Average payment	$1,234	$871
Average age	68.8	66.5
5-Years Certain & Life		
Number	8	2
Average payment	$866	$534
Average age	70.9	75.5
Years to run	1.0	5.0
10-Year Certain and Life		
Number	17	2
Average payment	$624	$462
Average age	71.7	71.0
Years to run	5.7	6.0
15-Years Certain and Life		
Number	2	2
Average payment	$892	$439
Average age	68.0	--
Years to run	12.0	14.0
20-Years Certain and Life		
Number	2	--
Average payment	$413	--
Average age	72.5	--
Years to run	16.0	--
Survivors' Beneficiaries		
Number	1	36
Average payment	$780	$884
Average age	77.0	61.2
Children -		
Number	6	--
Average payment	$700	--
Average age	14.0	--
Prospective beneficiaries of Annuitants -		
Number	132	2
Average payment	$656	$1,147
Average age of annuitant	70.5	71.5
Average age of male beneficiary	66.2	--
Average age of female beneficiary	--	79.5

ACTUARIAL VALUATION

In establishing the functions based on the foregoing findings, it was assumed that the results of future operations will duplicate the rates developed in this survey representing the several basic factors subject to required modifications and adjustments. It is the responsibility of the actuary to properly evaluate operations of past years and attempt to establish functions for valuation purposes which will realistically reflect the experience that may be assumed for future years.

Long range valuations or cost estimates cannot be precise no matter how accurately they may have been calculated. Over the long term there are bound to be differences between the assumed standards or rates and the actual experience in operations. Nevertheless, valuations and cost determinations must be made so that an indication may be had regarding the accrued financial obligations and underlying cost trends. This is especially important in a retirement system which because of its basic character is subject to progressively increased payments and cost changes due to changes in membership characteristics or revisions of the benefit schedule.

Types of Valuations. Two different methods are used in an actuarial valuation. One consists of projecting the income and expenditures over a period of years. Membership trends, separations, mortality and other relevant factors bearing upon the future course of operations of the system are thus taken into account. The second method is to set up the assets and liabilities of the system as of a given date, both accrued and prospective. Under the latter method, future contribution rates are computed, sufficient to discharge the benefit liabilities over the expected working lifetime of the members.

Each of these two methods has certain advantages and disadvantages. The principal feature of the projection method is that a graphic and more understandable presentation is made of what may happen in the future. The alternative method involves the preparation of a valuation balance sheet showing the accrued and prospective obligations, and is easier to apply because of the assumptions made as to probable future experience which may be revised periodically.

Under either method costs are figured into perpetuity because of the continuous flow of new members into the system to replace those who have retired, died or have otherwise become separated from service. Both methods also contemplate increases in total membership. The balance sheet method is probably more difficult to understand because it includes the presentation of a financial statement reflecting actuarial techniques. That method generally provokes the comment that the figures embodied therein are only theoretical costs actuarially computed and do not represent real costs. This erroneous interpretation probably arises from the fact that the ultimate cost figures and the accumulated assets of the system are much larger than the amounts of benefits currently being paid. The balance sheet method was used in this valuation.

Results of Valuation. The total accrued liability for annuities and benefits at December 31, 1963, computed on a 3-1/2% interest basis, consisted of the following items:

1. Actuarial value of retirement, disability and other annuities in force	$28,408,824.00
2. Earned pension credits on active members covering service rendered prior to January 1, 1964 (net)	42,665,011.70
Total	$71,073,835.70

To meet the foregoing accrued liability, the system had net assets of $70,612,883.70 of which $15,593,417.00 is reserved for future payments on account of future refunds and death benefits involving member contributions. The available assets, therefore, to meet the total accrued liabilities at December 31, 1963 totalled $55,019,466.70. Applying these available assets against the total accrued liability has resulted in an unfunded accrued liability at the close of the fiscal year amounting to $16,054,369.00.

A computation also was made of the liability for pension credits to be earned by active members during their assumed future service until their expected retirement. The purpose of this computation was to show the amount of liability to be incurred on account of future service of the members under the present plan of operation. This liability amounted to $23,216,683.00. It represents the discounted value of the prospective future credits at such date after giving effect to the several essential factors including mortality, separations, salaries and interest.

The present value of future contributions by the active members toward this prospective liability was determined to be $11,070,574.00. The State's share of the liability for future service, therefore, was $12,146,109.00.

Results of valuation on a 3% interest basis. The valuation of the assets and liabilities of the system on a 3% interest basis produced the following results:

1. Actuarial value of retirement, disability and other annuities in force	$29,331,116.00
2. Earned pension credits on active members covering service rendered prior to January 1, 1964 (net)	46,394,069.47
Total	$75,725,185.47

To meet the foregoing accrued liability for annuities and benefits, the system had available assets of $55,019,466.70 after deducting the requirements for future refunds and death benefit payments from member contributions on account of members who do not qualify for benefits for themselves or their survivors. Deducting these available assets from the accrued liability results in an unfunded accrued liability at the balance sheet date amounting to $20,705,718.77.

Valuation Balance Sheet. A valuation balance sheet embodying the results of the computation of reserves and liabilities is presented in the succeeding pages. The technique used in the preparation thereof is similar to that followed by accountants in the preparation of a financial balance sheet except that a valuation balance sheet is broader in scope. It includes, in addition to the current liabilities, the actuary's evaluation of the accrued and prospective liabilities, and the present and prospective assets, actuarially determined.

From a strict actuarial standpoint, a sound financial condition exists when the present assets are equal to the difference between (1) the total of all accrued and prospective liabilities, and (2) the present value of future contributions to be received by the system. This is described as the actuarial reserve.

The valuation balance sheet, showing the financial condition of the system at December 31, 1963, upon the basis of a 3-1/2% interest assumption, is presented herewith.

VALUATION BALANCE SHEET - DECEMBER 31, 1963

Statement of Assets, Liabilities and Reserves

ASSETS

PRESENT ASSETS

Cash			$ 138,464.98
Treasury bills			538,712.43
Accounts receivable -			
Members		$ 17,413.67	
Employer contributions		780,305.49	
Other		1,251.72	798,970.88
Accrued interest on investments			680,041.07
Accrued dividends			21,841.55
Investments in bonds at amortized cost			59,992,077.18
Investments in common stocks at cost (market value $9,396,583.50)			8,468,093.83
Equipment (less depreciation)			12,686.32
Prepaid postage			750.00

DEFERRED ASSETS

Obligation of members and the State of Minnesota for pension credits accruing after December 31, 1963 -			
Members:			
Male	$6,805,314.00		
Female	4,265,260.00	11,070,574.00	
State of Minnesota		12,146,109.00	23,216,683.00

DUE FROM STATE OF MINNESOTA

For unfunded accrued liability on account of earned pension credits covering service prior to January 1, 1964	16,054,369.00
Total Assets	$109,922,690.24

VALUATION BALANCE SHEET - DECEMBER 31, 1963

Statement of Assets, Liabilities and Reserves

LIABILITIES AND RESERVES

LIABILITIES

Current:		
Annuities and refunds payable	$ 16,355.58	
Accrued expenses	20,379.10	
Other	2,019.86	$ 38,754.54
Prospective		
Present value of pension credits for future service, i.e. service after December 31, 1963 -		
Male	15,456,180.00	
Female	7,760,503.00	23,216,683.00

RESERVE REQUIREMENTS

Members' Contributions -		
For retirement annuities and benefits to active members	$12,796,843.87	
For future refunds and death benefits	15,593,417.00	28,390,260.87
State Contributions -		
For retirement annuities and benefits - total liability	$42,665.011.70	
Less members' contribution credits	12,796,843.87	29,868,167.83
Retirement and Benefits In Force -		
Service retirement annuities	$26,318,382.00	
Beneficiary annuities in force	376,163.00	
Prospective beneficiaries	422,798.00	
Widows' and children's benefits	447,306.00	
Deferred annuities	32,684.00	
Disability annuities	811,491.00	28,408,824.00
Total Liabilities and Reserves		$109,922,690.24

Normal cost. The normal cost represents the amount required to finance the accruing cost of current service. This cost has been determined to be as follows:

	3-1/2% basis	3% basis
Male Members	5.313%	5.792%
Female Members	7.407	8.063
Combined	6.040	6.582

This cost is shared by the members and the State of Minnesota with the members contributing 3% of salary and the State the remainder of 3.04%. Contributions are subject to the maximum salary measure of $4,800 per year.

According to the foregoing rates, there is an unfinanced amount to be provided by the State if interest earnings above the basic rate of 3-1/2% may not be sufficient to cover it. The excess interest, however, is steadily increasing and should reach materially higher levels with continued operations. It may be expected, therefore, that under the realistic investment policies in effect for the system, based upon the broad investment authority governing it, such excess interest will more than cover the unfinanced portion of normal cost.

CURRENT LIABILITY TEST OF PROGRESS

The test of progress in the financial operation of a retirement system may further be illustrated by the current liability or matured liability method. This method attempts to differentiate between matured or current liabilities such as pensions entered upon and members' contribution credits and the long term liabilities. Under this method a comparison is made between the net present assets and the amount of matured liabilities. The results of such a comparison for the last 5 years are presented in the accompanying statement.

Matured Liabilities	Fiscal Year Ended December 31 -				
	1963	1962	1961	1960	1959
Members' Contribution Credits	$28,390,261	$27,451,404	$26,679,830	$25,763,588	$25,214,057
Actuarial value of annuities and benefits in force	28,408,824	27,503,275	26,199,505	25,734,464	24,561,330
Totals	$56,799,085	$54,954,679	$52,879,335	$51,498,052	$49,775,387
Amount of net present assets	70,612,884	64,478,811	59,111,235	53,291,953	48,635,545
Excess of net present assets over matured liabilities	$13,813,799	$ 9,524,132	$ 6,231,900	$ 1,793,901	$ 1,139,842a/

a/ Deficiency

ADJUSTMENT OF SALARY CEILING FOR CONTRIBUTIONS AND BENEFIT COMPUTATIONS

Rates of contribution by the members and the State are limited to a $4,800 annual salary ceiling. Pension credits for the members are likewise subject to that limitation. If a retirement plan is to fulfill its objectives adequately by serving as a medium of attracting to the State service persons of proved ability and capacity, and retaining such persons in the service, it must be competitive and provide for standards similar to those embodied in other plans for State government employees. A well-balanced retirement plan attempts to avoid an irregular disproportionate standard and provide pension credits, as a percentage of salary, on a uniform basis for all employees irrespective of salary rate or classification, with contributions also geared to total earnings. An arbitrary salary ceiling is opposed to principle.

The following constitute the cost estimate of raising the present salary ceiling from $4,800 per year to the amounts indicated, assuming that the amortization payment toward the accrued liability for previous service would also be subject to the prescribed maximum:

Assumed annual salary ceiling	Increase in State contributions	Per Cent of total membership who would still be subject to a salary ceiling
$6,000	$481,830	30.0%
7,200	720,517	10.6%
None	946,108	--

It is assumed that the change in the salary ceiling would be prospective in effect and would apply only to future pension credits.

ACTUARY'S CERTIFICATION

We have completed an actuarial valuation of the assets and liabilities of the State Employees' Retirement System of Minnesota as of December 31, 1963.

Present assets and current liabilities at the aforesaid date were derived from financial reports supplied by the Secretary of the system.

In our opinion, the accompanying Valuation Balance Sheet correctly presents the condition of the State Employees' Retirement System of Minnesota at December 31, 1963 after giving effect to accrued liabilities and reserve requirements under the law in force at that date.

A. A. Weinberg

Actuary

May 29, 1964

APPENDIX A

Summary of Benefit and Contribution Provisions

SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS

(In force December 31, 1963)

SERVICE RETIREMENT

Conditions for retirement

Retirement is optional with a member beginning upon attainment of age 58 with at least 20 years of credited service.

Retirement is optional with a member beginning upon attainment of age 65 with at least 10 years of credited service.

Retirement is compulsory under Civil Service Rules upon attainment of age 70, except that the Board of Regents of the University of Minnesota and the Teachers' College Board require retirement at age 68.

Service retirement annuity

The amount of retirement annuity, payable at age 65, is equal to the following percentage rates for the respective periods of allowable service, based upon "average salary" as defined below:

(a) 1st 10 years - 1.00% per year of such service
(b) 2nd 10 years - 1.00% per year of such service or fraction thereof
(c) 3rd 10 years - 1.66% per year of such service or fraction thereof
(d) Over 30 years - 1.75% per year of such service or fraction thereof

The foregoing amounts are in addition to Federal Social Security. Members having at least 10 years of membership service at July 1, 1957, who retire between ages 58 and 62, may receive the retirement allowance in effect prior to July 1, 1957, until they qualify for social security. Thereafter, their allowance would consist of the annuity effective December 31, 1957, plus social security.

Average salary defined

Average salary for service prior to July 1, 1957 is the average of the highest salary upon which salary deductions were based for any 5 consecutive years prior to such date.

Average salary for service after June 30, 1957 is the average salary for such entire period of service on which salary deductions were based not exceeding in any one year $4,800.00.

Retirement before becoming entitled to primary social security benefits

Upon retirement prior to age 65, the retirement annuity is reduced at the rate of 1/2 of 1% for each month that the member is below age 65.

Any member who retires before he becomes entitled to social security primary insurance benefit payments may elect to receive a retirement benefit greater than his normal retirement annuity, from the date of retirement to the date when he becomes entitled to social security, at which time the payment from the system is reduced. This annuity is actuarially equated and the calculation thereof takes into account the anticipated social security primary insurance benefit.

Options

Any member may elect to receive the full service retirement annuity, or in lieu thereof a joint and last survivor annuity on an actuarially equivalent basis.

Vesting

Any member having at least 10 years of service who withdraws from service prior to age 65 may elect to receive a refund of his accumulated salary deductions, or a deferred retirement annuity payable beginning at age 65.

DISABILITY RETIREMENT

Conditions for retirement

Upon total and permanent disability occurring while under age 65, after at least 10 years of service, a member is entitled to a disability retirement benefit.

If service of the member had terminated at any time, at least 5 of the required 10 years of allowable credited service must have been rendered after the member's latest reentry into State service.

Waiting period

The benefit begins to accrue 90 days following the commencement of disability or 30 days after the application is filed, whichever is later. If salary or sick leave is paid for more than the said 90 or 30-day period, whichever applies, the benefit accrues from the date salary ceased.

Amount of benefit

The benefit is the same as that payable upon service retirement for members who have deductions at the 3% rate and is governed by the same formula except that it is not subject to discount because of retirement prior to age 65. The benefit is limited to 50% of the salary on which it is based.

The disability benefit terminates when a member attains age 65 if he is totally and permanently disabled and at that time he is deemed to be on retirement status.

In the case of members who have deductions at the 6% rate, the benefit is governed by the same formula as service retirement including a reduction because of age, plus a supplemental amount ranging from $5 per month at age 64 to $50 per month if under age 56.

The disability benefit terminates when a member attains age 65 and he is then deemed to be on retirement status and paid a straight life retirement annuity or an amount equal to the disability benefit paid before such age, whichever is greater.

The total disability benefit for employees who have salary deductions on a 6% basis is to be reduced by amounts received by the retirant as disability benefits under Federal Social Security.

Offset

The disability benefit is subject to reduction by any amounts received or receivable by the member from the State under applicable workmen's compensation laws.

DEATH BENEFITS

Death before retirement

Upon death before termination of state service, the designated beneficiary of the member or his legal representative, as the case may be, is entitled to a refund of his accumulated contributions, plus 2% per annum compounded annually.

Except as to an option selected by a member at the time of retirement, no survivors' benefits are payable to a surviving spouse or dependent children. These are provided by Federal Social Security.

SURVIVORS' BENEFITS

(For members not covered by Federal Social Security)

Upon death of a member before retirement, who is not under social security, who has had at least 18 months of credited allowable service, his surviving dependent spouse and dependent children under age 18 are entitled to a monthly benefit of 30% of the member's monthly average salary not to exceed $65.00 per month to the spouse and 20% of the member's monthly average salary not to exceed $45.00 per month to each dependent child, plus 10% of the member's monthly average salary not to exceed $20.00 per month to be divided equally among the dependent children.

The maximum benefit to a family is limited to $250.00 per month. Benefits to a spouse terminate upon remarriage, and benefits on account of any dependent child terminate at age 18 upon cessation of dependency.

Any member whose average salary was less than $75.00 per month is not entitled to the aforesaid benefits.

Death after retirement

Upon death after retirement, the death benefit consists of such amount as is payable under the optional form of annuity selected by the member at the time of or prior to retirement.

If no optional annuity was selected at the time of retirement and the annuitant leaves a surviving spouse, the surviving spouse is entitled to the annuity for the month in which death occurred; his beneficiary or estate is entitled to any balance which may remain to his credit in the system.

REFUNDMENTS

Conditions for payment

Termination of service as a state employee must occur from all positions in the State service. The refundment is equal to the amount of the accumulated deductions, without interest.

Upon re-entry into service, and the completion of 5 years of credited service, a member may repay all refundments plus interest at 4% per annum compounded annually.

FINANCING

Members' deposits

Members covered by social security contribute by way of salary deductions 3% of salary, and members not covered by social security contribute by way of salary deductions 6% of salary, on salary not to exceed a salary of $4,800.00 per year.

Employer's contributions

The employer is required to contribute to the fund (1) an amount equal to the total deductions from the salaries of members on each payroll abstract, plus (2) an additional two-thirds of the amount of such deductions.

The employer contribution for those employees whose deductions are at the rate of 6% is (1) an amount equal to the total amount deducted from the salaries of members on each payroll abstract, plus (2) an additional one-sixth of the amount of such deductions.

SAVINGS PROVISIONS

(a) Any person who on July 1, 1957 had 10 or more years of allowable service as a member, and who at the date of retirement is not eligible for old age and survivors' primary insurance benefits, shall have the option of receiving the annuity as described herein or the annuity provided under the superceded law, namely, Section 352.11 of the Minnesota Statutes of 1953, as amended by Chapter 239, laws of 1955, but without rights to a reversionary annuity.

In the event the member becomes eligible to receive the primary social security benefit, the provisions of Section 352.63, subdivisions 1 and 2, shall apply for the purpose of ascertaining his retirement benefit.

(b) Any person who on July 1, 1957 had 10 or more years of allowable service as a member shall receive at retirement, in addition to the annuity herein described, an amount which when added to his old age and survivors' insurance primary benefit is equal to the annuity he would have received under the statutes referred to in the preceding paragraph. Thus, if the annuity computed under Section 352.63, subdivisions 1 and 2, plus the primary social security benefit, is less than the retirement benefit computed under M. S. 1953, Section 352.11, as amended by Laws of 1955, chapter 239, the system shall pay an additional amount sufficient to make the retirement allowance equal to the amount computed under such latter law.

(c) Any person whose services terminated prior to July 1, 1957, having a contribution credit in the system, shall be entitled to the rights and benefits prescribed by the law in effect at the date of termination of service as a State employee.

(d) Any member having at least 10 years of service as a member of the system who made application for retirement benefit prior to July 1, 1949, is to receive as an addition to his regular retirement benefit an amount equal to $5.00 per year for each year of allowable service.

APPENDIX B

Actuarial Statistics -

Active and Inactive Members

Table 1. EMPLOYEES CLASSIFIED BY YEAR OF MEMBERSHIP AND TOTAL ANNUAL SALARIES

MALE

Year of Membership	Number	Annual Salaries	Accumulated Contributions
1929	426	$ 3,378,369.90	$ 1,886,261.57
1930	75	561,115.72	289,731.10
1931	91	728,352.76	366,548.34
1932	62	444,966.05	237,771.38
1933	75	512,377.30	264,567.99
1934	123	865,787.37	451,057.38
1935	91	645,538.71	328,677.23
1936	84	643,753.36	299,907.66
1937	102	774,742.32	370,812.67
1938	93	648,939.19	314,607.01
1939	166	1,101,387.10	549,160.21
1940	108	714,234.05	337,133.34
1941	99	707,365.80	326,984.57
1942	63	433,917.75	194,435.02
1943	151	907,019.60	435,539.31
1944	106	636,638.64	302,996.77
1945	218	1,325,214.41	569,498.16
1946	281	1,786,398.92	731,498.27
1947	342	2,300,083.11	892,373.23
1948	273	1,763,976.72	668,771.68
1949	373	2,217,269.84	826,701.59
1950	343	2,109,846.93	706,463.80
1951	689	4,152,469.52	1,271,245.31
1952	460	2,661,383.92	764,349.87
1953	548	3,101,823.55	802,651.18
1954	523	2,966,845.33	662,046.56
1955	712	4,039,707.52	789,890.12
1956	771	4,328,016.88	715,671.76
1957	810	4,411,957.16	640,532.71
1958	790	4,259,724.55	533,991.00
1959	704	3,534,981.21	368,426.25
1960	915	4,236,972.70	367,668.69
1961	948	4,436,093.61	267,579.86
1962	1,488	6,024,311.85	234,839.93
1963	2,249	3,949,804.30	104,083.40
Totals	15,352	$77,311,387.65	$18,874,474.92

Table 2. EMPLOYEES CLASSIFIED BY AGE AND TOTAL ANNUAL SALARIES

M A L E

Age	Number	Annual Salaries	Accumulated Contributions
16	9	$ 3,339.75	$ 97.12
17	19	9,862.38	305.96
18	83	85,120.85	2,762.70
19	156	246,502.85	8,546.16
20	205	394,984.23	16,132.80
21	234	558,860.88	26,533.39
22	302	726,688.95	36,074.34
23	306	950,474.46	57,436.99
24	328	1,166,892.68	84,629.04
25	367	1,404,408.19	129,304.54
26	336	1,433,766.50	148,094.94
27	362	1,635,519.40	165,155.27
28	347	1,684,835.32	200,824.60
29	354	1,727,132.35	219,885.41
30	331	1,668,534.87	211,581.18
31	374	1,910,436.18	245,712.33
32	372	1,987,729.94	285,174.28
33	340	1,784,323.41	272,541.48
34	341	1,824,982.37	309,811.68
35	318	1,673,152.51	306,075.82
36	293	1,531,537.74	301,859.48
37	334	1,843,168.31	359,844.51
38	338	1,894,814.60	364,981.19
39	338	1,941,032.56	418,851.41
40	321	1,819,839.35	408,767.52
41	316	1,674,209.04	363,093.34
42	356	1,941,552.02	421,792.28
43	363	1,989,286.86	480,996.41
44	319	1,790,367.63	454,066.34
45	354	1,947,956.44	482,215.25
46	351	1,955,224.82	471,949.00
47	317	1,589,643.23	394,312.79
48	307	1,574,162.97	401,419.92
49	312	1,646,813.41	444,760.16

Table 2. - continued

Age	Number	Annual Salaries	Accumulated Contributions
50	323	$ 1,702,552.89	$ 447,691.34
51	317	1,746,065.65	492,072.76
52	330	1,803,834.25	532,171.46
53	336	1,823,309.61	541,519.39
54	354	1,907,852.77	609,683.60
55	332	1,890,648.04	612,847.75
56	321	1,740,825.55	586,327.11
57	352	1,973,981.73	723,909.66
58	332	1,791,685.51	631,884.90
59	313	1,698,045.10	624,107.84
60	297	1,628,854.98	610,801.50
61	261	1,479,272.45	611,164.80
62	278	1,579,656.73	604,418.03
63	257	1,408,981.91	594,856.49
64	217	1,260,255.31	539,193.36
65	156	910,317.47	371,454.84
66	129	844,464.15	334,203.79
67	100	652,405.23	288,548.53
68	74	424,970.10	172,692.12
69	58	308,015.05	145,086.48
70	35	222,626.61	96,792.56
71	22	147,323.19	62,327.56
72	16	93,105.87	40,061.90
73	8	50,432.21	18,324.30
74	2	14,826.50	3,450.55
75	11	59,614.40	27,949.76
76	7	50,735.35	24,160.44
77	2	16,225.04	9,232.70
78	3	8,254.64	2,614.86
79	2	12,010.72	4,443.35
81	1	10,153.32	2,541.41
83	1	12,184.64	5,725.11
84	1	20,579.20	6,622.11
No age	1	164.43	4.93
Totals	15,352	$77,311,387.65	$18,874.474.92

Table 3. EMPLOYEES CLASSIFIED BY LENGTH OF SERVICE AND ANNUAL SALARIES

MALE

Years of Service	Number	Annual Salaries	Accumulated Contributions
Less than 1 year	2,184	$ 3,556,148.82	$ 95,253.20
1	1,544	6,039,994.52	224,706.71
2	1,082	5,022,380.69	297,780.56
3	930	4,365,232.03	377,045.41
4	751	3,700,315.72	395,434.76
5	838	4,533,723.27	568,302.14
6	776	4,292,022.84	631,595.44
7	772	4,419,278.16	743,744.84
8	673	3,842,506.93	757,762.47
9	525	3,082,894.94	706,993.27
10	521	2,988,788.50	787,744.64
11	483	2,849,244.13	836,247.58
12	623	3,896,271.97	1,205,805.52
13	359	2,181,017.25	741,468.06
14	394	2,369,172.22	885,669.69
15	275	1,761,705.18	674,851.93
16	320	2,173,358.43	863,629.15
17	263	1,731,151.33	719,202.10
18	204	1,301,989.17	581,899.21
19	115	682,622.08	328,373.29
20	160	991,758.74	472,466.80
21	66	466,910.83	211,664.27
22	100	699,405.19	336,828.79
23	110	758,902.11	361,945.43
24	165	1,087,627.09	554,533.10
25	87	643,066.20	308,759.25
26	91	661,385.24	330,067.42
27	87	657,769.84	319,514.08
28	93	700,832.49	352,686.13
29	110	774,335.79	410,020.41
30	65	462,505.18	251,282.31
31	75	556,968.80	292,426.00
32	75	609,578.47	312,716.57
33	59	458,447.62	236,454.02
34	51	365,665.16	209,978.99

Table 3. - continued

Years of Service	Number	Annual Salaries	Accumulated Contributions
35	37	$ 266,245.80	$ 152,680.53
36	44	338,688.34	187,091.41
37	44	339,518.64	194,577.49
38	53	424,513.28	238,251.27
39	36	302,878.77	172,976.15
40	29	237,056.00	135,865.14
41	26	213,542.16	123,290.99
42	21	200,451.73	110,581.67
43	11	79,988.76	50,879,05
44	12	94,198.97	57,985.31
45	5	44,229.63	24,773.12
46	4	34,843.92	19,284.47
47	2	24,402.72	11,320.09
51	2	25,852.00	10,064.69
Totals	15,352	$77,311,387.65	$18,874,474.92

Table 4. EMPLOYEES CLASSIFIED BY YEAR OF MEMBERSHIP AND TOTAL ANNUAL SALARIES

F E M A L E

Year of Membership	Number	Annual Salaries	Accumulated Contributions
1929	166	$ 922,850.22	$ 572,755.01
1930	42	223,598.93	133,208.73
1931	30	170,643.75	99,569.21
1932	26	142,366.35	82,880.45
1933	31	173,525.86	103,434.94
1934	41	253,411.74	130,281.33
1935	31	166,059.88	89,950.00
1936	42	235,553.96	124,999.07
1937	51	283,562.69	156,669.05
1938	60	347,380.14	178,913.47
1939	63	320,315.22	175,112.97
1940	39	210,776.57	107,373.88
1941	61	298,197.25	166,869.37
1942	74	393,261.80	205,086.83
1943	137	669,313.59	337.559.65
1944	85	414,639.68	208,993.28
1945	131	633,088.10	296,870.94
1946	110	476,181.33	221,686.78
1947	118	540,101.17	249,528.31
1948	151	665,600.46	287,350.51
1949	180	834,853.18	338,191.14
1950	197	886,853.59	340,395.20
1951	267	1,115,057.39	410,780.76
1952	275	1,231,060.74	388,913.70
1953	284	1,248,004.23	348,778.53
1954	272	1,147,211.58	283,061.81
1955	394	1,601,304.74	355,096.44
1956	438	1,735,463.35	329,759.66
1957	540	2,123,572.93	345,843.61
1958	614	2,332,257.77	321,671.70
1959	702	2,486,347.96	294,507.70
1960	1,003	3,200,664.31	301,091.03
1961	1,137	3,613,110.04	251,318.39
1962	2,035	6,092,028.66	255,117.66
1963	3,008	3,936,323.01	113,566.77
Totals	12,835	$41,124,542.17	$8,607,187.88

Table 5. EMPLOYEES CLASSIFIED BY AGE AND TOTAL ANNUAL SALARIES

F E M A L E

Age	Number	Annual Salaries	Accumulated Contributions
16	1	$ 203.55	$ 6.11
17	26	17,131.66	563.71
18	342	339,884.00	10,411.07
19	543	1,055,204.85	39,050.17
20	592	1,268,399.15	62,227.11
21	652	1,567,233.53	93,630.99
22	585	1,467,341.34	98,025.34
23	553	1,526.625.60	104,080.45
24	400	1,188,479.91	93,239.17
25	332	999,717.43	89,460.07
26	272	826,710.76	78,112.59
27	238	797,029.81	91,849.06
28	185	601,301.21	67,917.27
29	171	540.689.41	64,504.93
30	164	486,073.41	61,196.00
31	151	458,746.62	68,706.35
32	129	436,689.88	65,482.45
33	139	445,280.12	63,865.20
34	135	458,818.53	72,741.23
35	139	419,981.07	73,324.45
36	173	567,927.98	90,306.58
37	159	536,644.90	92,090.37
38	183	586,308.20	106,939.59
39	194	650,083.98	102,887.11
40	163	551,999.36	94,514.92
41	202	653,511.25	122,358.69
42	221	756,982.03	161,944.76
43	238	823,181.21	182,379.28
44	207	720,488.64	147,918.53
45	236	805,682.98	174,188.76
46	257	908,397.20	210,452.22
47	247	804,439.99	179,849.97
48	277	966,405.88	224,538.35
49	294	1,043,022.54	256,626.20

Table 5. - continued

Age	Number	Annual Salaries	Accumulated Contributions
50	284	$ 1,047,337.36	$ 268,735.59
51	315	1,188,000.22	324,674.08
52	282	1,082,318.15	273,566.33
53	299	1,127,722.91	301,477.86
54	280	1,035,349.15	293,387.78
55	277	1,071,764.19	333,429.16
56	291	1,163,572.98	382,778.08
57	293	1,129,466.09	350,980.60
58	226	900,278.04	296,627.92
59	244	996,367.47	338,497.00
60	214	861,796.80	314,697.78
61	192	770,530.51	271,253.28
62	192	789,920.25	310,699.42
63	153	635,878.67	245,884.47
64	140	572,001.91	239,666.94
65	102	419,546.83	169,779.31
66	83	356,622.39	137,390.80
67	67	265,878.15	111,491.89
68	46	184,510.00	84,300.92
69	24	103,029.74	50,773.10
70	10	38,148.92	16,356.10
71	7	28,079.39	13,453.78
72	3	23,673.76	8,816.39
73	3	14,404.31	2,129.03
74	1	3,438.00	1,759.94
75	4	23,521.96	10,797.08
76	1	1,916.80	527.80
77	1	6,923.28	3,974.34
78	1	5,926.96	3,892.06
Totals	12,835	$41,124,542.17	$8,607,187.88

Table 6. EMPLOYEES CLASSIFIED BY LENGTH OF SERVICE AND ANNUAL SALARIES

FEMALE

Years of Service	Number	Annual Salaries	Accumulated Contributions
Less than 1 year	2,809	$ 3,371,603.31	$ 98,067.29
1	2,204	6,191,963.02	246,816.79
2	1,270	4,102,884.46	275,115.66
3	969	3,217,648.40	303,722.88
4	747	2,585,114.66	308,428.21
5	599	2,351,993.67	325,258.58
6	513	2,064,062.87	337,581.50
7	464	1,868,742.83	356,145.76
8	379	1,545,870.19	341,722.32
9	285	1,278,394.96	323,946.05
10	274	1,195,045.55	341,527.86
11	263	1,190,975.91	379,676.32
12	248	1,069,566.26	393,653.66
13	193	888,263.45	342,517.88
14	197	915,045.61	377,257.98
15	137	627,622.60	275,076.22
16	130	609,314.41	280,848.75
17	126	592,770.33	278,166.93
18	120	597,552.01	286,682.10
19	86	428,583.33	213,009.31
20	134	649,438.48	336,807.77
21	78	412,534.58	215,636.64
22	65	348,797.13	186,175.76
23	52	270,672.61	147,593.09
24	61	323,924.40	174,319.22
25	44	240,969.07	130,335.91
26	60	353,939.16	192,022.16
27	33	173,884.90	105,306.57
28	32	196,030.55	106,880.15
29	30	166,825.86	101,092.19
30	28	153,334.78	93,576.29
31	25	128,311.56	80,196.15
32	22	115,237.03	72,828.12
33	28	155,739.24	95,875.67
34	27	160,503.23	97,882.05

Table 6. - continued

Years of Service	Number	Annual Salaries	Accumulated Contributions
35	27	$ 154,642.03	$ 98,696.60
36	15	75,207.49	53,526.77
37	12	66,739.16	44,282.35
38	13	74,163.78	49,217.73
39	10	57,894.74	37,669.61
40	7	41,830.27	28,743.72
41	6	45,874.57	25,306.34
42	7	34,961.29	26,481.51
43	3	15,309.63	10,673.33
45	1	5,272.80	3,818.77
46	1	4,188.00	3,084.44
47	1	5,298.00	3,936.92
Totals	12,835	$41,124,542.17	$8,607,187.88

Table 7. INACTIVE MEMBERS WITH VESTED RIGHTS AND WITHOUT VESTED RIGHTS CLASSIFIED BY AGE AND ANNUAL SALARIES

MALE

Age	With Vested Rights Number	With Vested Rights Annual Salaries	Without Vested Rights Number	Without Vested Rights Annual Salaries
18	--	$ --	4	$ 10,236
19	--	--	20	64,788
20	--	--	47	141,552
21	--	--	67	209,040
22	--	--	70	210,300
23	--	--	104	334,704
24	--	--	132	427,500
25	--	--	148	470,496
26	--	--	167	510,060
27	--	--	142	407,952
28	--	--	149	444,672
29	--	--	149	450,852
30	--	--	113	340,944
31	--	--	98	315,264
32	--	--	92	288,252
33	--	--	67	199,632
34	--	--	77	255,408
35	--	--	73	246,132
36	--	--	58	182,616
37	1	3,804	63	192,828
38	3	11,688	64	227,784
39	1	3,840	57	207,456
40	2	9,096	61	200,604
41	1	4,800	43	154,224
42	3	13,788	53	175,716
43	--	--	43	135,168
44	--	--	51	167,508
45	3	10,416	49	163,536
46	6	23,880	51	144,648
47	4	12,372	38	145,944
48	6	24,804	40	136,776
49	4	16,740	36	144,660

Table 7. - continued

Age	With Vested Rights		Without Vested Rights	
	Number	Annual Salaries	Number	Annual Salaries
50	8	$ 26,520	35	$ 101,760
51	5	17,088	40	135,444
52	12	38,244	39	117,768
53	10	38,256	50	161,508
54	10	29,496	44	158,964
55	14	40,680	43	148,116
56	16	51,744	42	157,812
57	10	32,484	48	157,740
58	13	35,484	28	91,620
59	11	38,340	31	135,528
60	8	23,052	28	95,160
61	10	26,076	32	91,800
62	4	15,312	14	51,636
63	9	24,492	24	98,964
64	12	40,524	21	76,836
65	--	--	24	75,552
66	1	3,396	25	77,796
67	1	4,764	16	52,296
68	1	2,268	17	46,560
69	--	--	19	59,760
70	--	--	17	48,996
71	--	--	21	53,772
72	--	--	14	36,480
73	--	--	6	13,860
74	--	--	9	21,720
75	1	2,256	10	25,764
76	--	--	9	21,540
77	--	--	5	10,956
78	1	2,544	4	9,612
79	--	--	6	12,720
80	--	--	3	5,640
81	--	--	4	7,464
83	--	--	3	6,264
86	--	--	1	1,584
87	--	--	3	4,284
88	--	--	1	1,800
89	--	--	1	1,104
No age	--	--	48	113,100
Totals	191	$628,248	3,211	$10,196,532

Table 8. INACTIVE MEMBERS WITH VESTED RIGHTS AND WITHOUT VESTED RIGHTS CLASSIFIED BY AGE AND ANNUAL SALARIES

F E M A L E

Age	With Vested Rights Number	With Vested Rights Annual Salaries	Without Vested Rights Number	Without Vested Rights Annual Salaries
18	--	$ --	1	$ 2,664
19	--	--	39	107,064
20	--	--	89	248,508
21	--	--	135	383,544
22	--	--	139	387,492
23	--	--	167	471,264
24	--	--	138	402,504
25	--	--	152	461,184
26	--	--	155	474,960
27	--	--	120	379,404
28	--	--	101	316,224
29	--	--	99	304,032
30	--	--	81	248,400
31	--	--	69	217,944
32	--	--	68	199,836
33	--	--	74	233,124
34	1	4,668	65	172,668
35	--	--	61	171,276
36	1	3,984	58	158,220
37	--	--	62	146,544
38	1	2,916	61	143,592
39	2	6,444	67	158,556
40	2	6,252	56	145,164
41	1	1,776	57	151,920
42	1	3,528	54	129,180
43	3	13,356	50	128,004
44	2	6,132	43	107,940
45	3	11,352	45	113,616
46	5	16,728	34	87,864
47	2	7,032	47	132,912
48	4	8,556	43	113,664
49	8	22,032	54	139,356

Table 8. - continued

Age	With Vested Rights Number	With Vested Rights Annual Salaries	Without Vested Rights Number	Without Vested Rights Annual Salaries
50	8	$ 22,980	31	84,372
51	2	6,300	36	103,584
52	6	19,200	27	75,576
53	9	23,952	38	100,176
54	6	16,656	34	89,676
55	6	17,892	32	76,068
56	4	14,280	30	88,668
57	4	11,604	18	48,324
58	4	6,312	27	70,692
59	5	13,464	23	58,200
60	7	21,060	23	60,492
61	9	28,224	26	63,672
62	8	26,460	20	54,528
63	13	42,684	9	22,872
64	10	29,688	12	29,136
65	2	3,984	7	17,712
66	--	--	12	24,168
67	--	--	10	26,484
68	--	--	7	17,148
69	--	--	12	30,684
70	--	--	1	1,476
71	--	--	8	17,304
72	--	--	3	10,476
73	1	1,260	1	1,980
75	--	--	3	5,328
76	--	--	1	2,664
77	--	--	2	3,420
78	--	--	3	5,220
79	--	--	2	2,364
80	--	--	2	3,300
82	--	--	1	1,104
No age	--	--	39	82,008
Totals	140	$420,756	2,984	$8,317,500

TABLE 9. Inactive Members Classified by Length of Service and Annual Salaries

MALE

Years of Service	Number	Annual Salaries
Less than 1 year	2,696	$ 8,562,552
1	303	893,220
2	78	267,792
3	42	141,228
4	29	120,144
5	1	3,360
6-	44	145,596
7	30	94,116
8	15	39,768
9	7	26,136
10	24	66,576
11	15	42,180
12	11	35,316
13	8	33,516
14	16	38,940
15	1	4,104
16	20	74,904
18	10	34,584
19	9	31,524
20	8	31,044
21	8	29,616
22	9	34,056
24	1	2,868
25	3	12,324
26	4	17,100
27	6	26,088
30	1	1,740
34	1	4,800
36	1	4,788
38	1	4,800
TOTALS	3,402	$10,824,780

TABLE 10. Inactive Members Classified by Length of Service and Annual Salaries

F E M A L E

Years of Service	Number	Annual Salaries
Less than 1 year	2,536	$7,071,312
1	300	794,748
2	59	173,688
3	32	91,080
4	19	54,096
5	21	59,868
6	5	10,800
7	16	44,064
8	13	49,188
9	8	18,684
10	17	55,860
11	19	52,980
12	7	20,448
13	12	35,028
14	10	32,160
15	9	25,212
16	10	35,796
17	8	26,040
19	8	31,956
20	2	7,596
21	3	12,000
22	4	12,480
23	2	7,668
24	2	7,524
26	1	4,800
27	1	3,180
TOTALS	3,124	$8,738,256

Table 11. DEDUCED SALARY SCALE BASED UPON AVERAGE ANNUAL SALARIES

MALE

Age	Average Annual Salary	Adjusted Average	Effective Average	Future Average Salary
16	$ 371	$ 371	$5,835	$4,831
17	519	519	5,835	4,922
18	1,026	1,026	5,835	5,013
19	1,580	1,580	5,835	5,100
20	1,927	1,927	5,835	5,175
21	2,388	2,388	5,835	5,247
22	2,406	2,747	5,111	5,312
23	3,106	3,106	5,835	5,372
24	3,558	3,558	5,835	5,426
25	3,827	3,913	5,707	5,471
26	4,267	4,267	5,835	5,510
27	4,518	4,518	5,835	5,542
28	4,855	4,855	5,835	5,569
29	4,879	4,977	5,720	5,588
30	5,041	5,099	5,769	5,605
31	5,108	5,221	5,709	5,620
32	5,343	5,343	5,835	5,631
33	5,248	5,378	5,694	5,640
34	5,352	5,413	5,769	5,648
35	5,261	5,448	5,635	5,656
36	5,227	5,483	5,563	5,663
37	5,518	5,518	5,835	5,669
38	5,606	5,531	5,914	5,674
39	5,743	5,545	6,043	5,680
40	5,669	5,558	5,952	5,685
41	5,298	5,571	5,549	5,690
42	5,454	5,585	5,698	5,695
43	5,480	5,598	5,712	5,700
44	5,612	5,612	5,835	5,704
45	5,503	5,620	5,714	5,709
46	5,570	5,628	5,775	5,713
47	5,015	5,635	5,193	5,718
48	5,128	5,642	5,303	5,122
49	5,278	5,650	5,451	5,727

Table 11.- continued

Age	Average Annual Salary	Adjusted Average	Effective Average	Future Average Salary
50	$5,271	$5,657	$5,437	$5,732
51	5,508	5,665	5,673	5,737
52	5,466	5,672	5,623	5,742
53	5,427	5,680	5,575	5,747
54	5,389	5,687	5,529	5,753
55	5,695	5,695	5,835	5,759
56	5,423	5,707	5,545	5,765
57	5,608	5,720	5,721	5,772
58	5,397	5,732	5,494	5,778
59	5,425	5,745	5,510	5,785
60	5,484	5,757	5,558	5,791
61	5,668	5,770	5,732	5,798
62	5,682	5,782	5,734	5,805
63	5,482	5,795	5,520	5,813
64	5,808	5,808	5,835	5,822
65	5,835	5,835	5,835	5,835
66	6,546			
67	6,524			
68	5,743			
69	5,311			
70	6,361			
71	6,697			
72	5,819			
73	6,304			
74	7,413			
75	5,419			
76	7,248			
77	8,113			
78	2,752			
79	6,005			
81	10,153			
83	12,185			
84	20,579			

Table 12. DEDUCED SALARY SCALE BASED UPON AVERAGE ANNUAL SALARIES

F E M A L E

Age	Average Annual Salary	Adjusted Average	Effective Average	Future Average Salary
16	$ 204	$ 370	$2,343	$3,309
17	659	659	4,250	3,369
18	994	994	4,250	3,425
19	1,943	1,943	4,250	3,477
20	2,143	2,143	4,250	3,510
21	2,404	2,326	4,393	3,541
22	2,508	2,508	4,250	3,568
23	2,761	2,761	4,250	3,593
24	2,971	2,971	4,250	3,613
25	3,011	3,097	4,132	3,629
26	3,039	3,223	4,007	3,642
27	3,349	3,349	4,250	3,653
28	3,250	3,356	4,116	3,661
29	3,162	3,363	3,996	3,669
30	2,964	3,370	3,738	3,677
31	3,038	3,377	3,823	3,686
32	3,385	3,385	4,250	3,695
33	3,203	3,391	4,014	3,705
34	3,399	3,399	4,250	3,714
35	3,021	3,403	3,773	3,725
36	3,283	3,410	4,092	3,735
37	3,375	3,417	4,198	3,747
38	3,204	3,424	3,977	3,758
39	3,351	3,431	4,151	3,771
40	3,386	3,438	4,186	3,784
41	3,235	3,445	3,991	3,798
42	3,425	3,452	4,217	3,812
43	3,459	3,459	4,250	3,828
44	3,481	3,481	4,250	3,845
45	3,414	3,508	4,136	3,862
46	3,535	3,535	4,250	3,880
47	3,257	3,575	3,901	3,898
48	3,489	3,615	4,164	3,917
49	3,548	3,650	4,218	3,938

Table 12.- continued

Age	Average Annual Salary	Adjusted Average	Effective Average	Future Average Salary
50	$3,688	$3,688	$4,250	$3,961
51	3,771	3,724	4,304	3,979
52	3,838	3,760	4,338	3,997
53	3,772	3,796	4,223	4,016
54	3,698	3,832	4,101	4,034
55	3,869	3,869	4,250	4,052
56	3,999	3,907	4,350	4,071
57	3,855	3,947	4,151	4,089
58	3,984	3,984	4,250	4,107
59	4,083	4,016	4,321	4,124
60	4,027	4,048	4,228	4,142
61	4,013	4,081	4,179	4,161
62	4,114	4,114	4,250	4,181
63	4,156	4,156	4,250	4,203
64	4,086	4,203	4,132	4,227
65	4,073	4,250	4,073	4,250
66	4,297			
67	3,968			
68	4,011			
69	4,293			
70	3,815			
71	4,011			
72	7,891			
73	4,801			
74	3,438			
75	5,880			
76	1,917			
77	6,923			
78	5,927			

TABLE 13. Straight Life Annuitants Classified by Age and Annual Payments

MALE

Age	Number	Annual Payments
62	3	$ 4,197.24
63	5	6,218.40
64	8	11,612.04
65	33	39,697.92
66	64	57,138.36
67	61	64,999.44
68	78	76,170.72
69	79	66,673.56
70	93	88,729.80
71	70	71,659.44
72	61	59,350.08
73	42	41,827.68
74	36	37,242.24
75	21	16,244.04
76	26	30,795.00
77	6	4,609.08
78	2	3,281.16
79	5	5,374.32
81	2	1,536.36
82	1	1,025.40
83	1	273.60
84	1	305.16
85	1	1,770.00
86	2	1,778.88
Totals	701	$ 692,509.92

FEMALE

Age	Number	Annual Payments
62	2	$ 1,737.60
63	3	2,178.48
64	6	5,188.80
65	25	16,208.96
66	30	18,970.08
67	35	24,363.72
68	71	52,927.92
69	51	37,447.88
70	49	40,369.20
71	70	51,132.96
72	43	31,413.00
73	31	19,469.16
74	37	22,990.80
75	15	7,241.28
76	8	3,673.44
77	6	3,541.32
78	2	3,505.80
79	2	297.36
81	1	565.56
82	1	379.44
83	1	490.92
89	1	292.92
Totals	490	$344,387.60

TABLE 14. Superannuation Annuitants Classified by Age and Annual Payments

MALE

Age	Number	Annual Payments
75	1	$ 1,200.00
76	1	1,200.00
77	1	1,146.72
78	1	1,200.00
79	2	1,975.44
80	2	1,808.88
81	4	4,207.44
82	4	4,163.40
83	5	5,213.16
84	7	6,145.92
85	5	5,115.96
86	5	5,221.08
87	5	4,733.16
88	3	3,047.04
89	4	3,838.32
90	2	1,597.08
91	1	1,200.00
92	3	2,164.32
95	1	898.56
101	1	881.52
Totals	58	$56,958.00

FEMALE

Age	Number	Annual Payments
79	1	$ 685.56
80	4	3,774.84
82	1	1,200.00
83	4	3,238.08
84	2	2,357.64
85	4	3,951.36
86	3	2,064.36
87	2	1,037.88
88	2	2,014.68
89	1	502.20
91	1	1,200.00
92	1	717.84
93	2	1,355.64
Totals	28	$24,100.08

TABLE 15. Proportional Annuitants Classified by Age and Annual Payments

MALE

Age	Number	Annual Payments
55	1	$ 331.08
57	2	851.16
58	3	1,377.60
59	2	948.72
61	2	1,402.44
62	1	730.68
64	4	3,066.00
65	1	667.32
66	5	2,768.88
67	1	527.40
68	1	628.44
69	3	1,713.24
70	3	1,878.24
71	5	2,792.40
72	4	2,614.32
73	6	4,489.44
74	3	1,695.72
75	1	713.40
76	1	1,200.00
77	3	2,707.68
78	1	970.68
79	1	1,001.04
81	1	777.72
82	1	813.96
83	4	2,628.24
84	1	592.92
85	1	807.84
86	1	711.24
87	1	414.24
88	1	1,022.52
Totals	65	$42,844.56

FEMALE

Age	Number	Annual Payments
54	1	$ 424.92
56	1	396.12
57	1	352.44
59	3	1,137.72
60	1	422.28
61	1	353.52
62	3	1,389.00
66	3	1,295.28
67	1	419.88
69	1	242.64
71	1	250.32
72	1	246.72
73	3	2,029.56
74	2	1,231.68
75	1	946.80
76	3	2,652.12
78	3	2,454.96
80	1	503.64
81	1	463.08
82	1	493.20
83	2	1,688.04
85	2	1,561.08
86	1	521.76
87	1	957.48
97	1	707.52
Totals	40	$23,141.76

TABLE 16. Partial Annuities Classified by Age and Annual Payments

M A L E

Age	Number	Annual Payments
65	1	$ 266.04
67	1	301.68
69	1	201.84
70	1	235.32
73	1	461.40
74	1	200.28
78	1	262.68
79	2	332.16
80	1	462.96
82	3	1,055.04
85	1	415.68
88	1	245.64
91	1	103.20
Totals	16	$4,543.92

F E M A L E

Age	Number	Annual Payments
66	1	$ 275.40
73	1	347.28
76	1	319.08
79	1	246.00
81	1	78.48
83	1	279.00
84	3	864.96
85	3	1,014.60
87	1	380.28
Totals	13	$3,805.08

TABLE 17. Retirement Allowance Annuities Classified by Age and Annual Payments

MALE

Age	Number	Annual Payments
58	2	$ 2,563.56
59	6	9,809.04
60	1	777.84
61	4	6,236.64
62	4	5,615.88
63	2	4,800.00
64	13	21,600.60
65	17	26,149.92
66	23	34,604.40
67	27	43,197.72
68	18	22,315.80
69	22	31,675.56
70	30	49,116.48
71	33	47,097.96
72	44	75,638.40
73	43	66,042.84
74	40	59,190.96
75	49	65,418.12
76	63	78,025.08
77	62	82,205.40
78	61	67,632.24
79	31	36,731.40
80	42	51,201.48
81	27	30,217.80
82	15	11,810.76
83	25	27,120.48
84	11	11,341.44
85	7	8,562.72
86	2	1,095.84
87	3	2,675.40
88	1	843.24
Totals	728	$981,315.00

FEMALE

Age	Number	Annual Payments
58	1	$ 902.28
60	1	1,297.32
61	2	2,822.28
62	3	4,487.40
63	1	1,269.00
64	6	8,364.96
65	5	6,825.48
66	9	10,683.72
67	14	18,603.48
68	20	23,609.28
69	20	19,862.40
70	16	20,873.04
71	23	33,075.96
72	26	21,717.12
73	25	29,206.56
74	28	29,286.36
75	25	31,443.96
76	32	31,765.92
77	46	43,057.80
78	36	36,182.52
79	26	26,480.52
80	17	17,709.84
81	13	10,908.60
82	11	8,752.20
83	7	2,754.00
84	2	746.04
85	3	2,284.20
86	2	3,251.52
87	1	1,317.72
Totals	421	$449,541.48

TABLE 18. Disability Annuities Classified by Age and Annual Payments

MALE

Age	Number	Annual Payments
32	1	$ 345.12
45	1	384.12
50	1	611.76
52	1	1,476.96
54	1	1,327.32
57	1	325.20
58	3	3,548.16
59	5	5,165.76
60	4	6,482.40
61	2	1,033.08
62	2	1,125.00
63	5	4,268.88
64	6	4,808.40
65	5	3,893.76
66	4	4,130.16
67	2	2,014.56
68	4	2,993.28
69	1	527.88
71	2	2,125.56
75	1	802.44
Totals	52	$47,389.80

FEMALE

Age	Number	Annual Payments
52	1	$ 996.00
56	1	377.64
57	2	1,674.72
59	2	2,001.24
60	5	3,577.20
61	3	906.84
62	2	460.44
63	1	342.72
65	2	1,674.96
66	3	2,803.92
67	2	611.76
69	1	848.88
71	1	553.08
72	1	513.60
Totals	27	$17,343.00

TABLE 19. Reversionary Annuities Classified by Age and Annual Payments

F E M A L E

Age	Number	Annual Payments
44	1	$ 1,307.04
56	1	617.04
57	2	2,184.60
59	2	1,912.92
62	3	3,446.88
63	1	1,495.08
64	3	2,766.24
65	1	1,243.68
66	2	2,500.20
67	3	2,587.08
68	3	3,079.20
69	1	1,018.32
71	1	926.04
72	1	480.00
73	1	694.20
75	2	1,394.22
79	1	913.80
80	1	1,032.60
82	1	572.64
Totals	31	$30,172.08

TABLE 20. Savings Clause Annuities Classified by Age and Annual Payments

M A L E

Age	Number	Annual Payments
59	4	$ 8,611.80
60	5	11,140.32
61	9	18,653.40
62	6	8,480.16
63	17	23,372.16
64	7	9,763.92
65	5	7,353.24
66	5	4,561.68
67	2	1,800.48
68	3	2,786.28
69	4	2,868.72
Totals	67	$99,392.16

F E M A L E

Age	Number	Annual Payments
58	5	$ 12,000.00
59	2	2,669.40
60	5	10,634.04
61	5	9,957.24
62	5	4,183.92
63	3	2,881.08
64	5	5,773.68
65	1	1,372.80
66	3	2,112.72
Totals	34	$51,584.88

TABLE 21. Deferred Annuities Classified by Age and Annual Payments

MALE				FEMALE			
Age	Number	Years Deferred	Annual Payments	Age	Number	Years Deferred	Annual Payments
52	1	1	$ 423.12	53	1	4	$ 301.44
55	1	4	331.80	53	1	12	132.72
55	1	6	305.04	59	1	2	402.36
61	1	4	189.60	Totals	3		$ 836.52
62	1	3	209.88				
72	1	1	689.28				
Totals	6		$2,148.72				

TABLE 22. Joint and Last Survivor Annuities Classified by Age and Annual Payments

MALE			FEMALE		
Age	Number	Annual Payments	Age	Number	Annual Payments
64	1	$ 1,507.68	54	1	$ 258.96
65	2	1,652.52	59	1	1,271.64
66	1	1,553.52	61	1	326.52
67	1	1,529.76	62	1	577.08
68	10	7,266.60	63	1	1,231.20
69	6	4,617.72	65	2	928.32
70	6	7,025.28	66	3	1,363.20
71	4	2,010.12	67	2	1,637.16
72	2	699.24	68	1	532.80
73	6	2,861.64	69	1	600.12
75	4	1,536.96	70	1	680.40
79	1	1,480.44	71	1	190.68
Totals	44	$33,741.48	72	2	1,918.56
			Totals	18	$11,516.64

TABLE 23. Modified Joint and Last Survivor Annuities Classified by Age and Annual Payments

MALE

Age	Number	Annual Payments
63	2	$ 2,459.16
64	1	1,612.08
65	3	5,403.12
66	3	4,094.76
67	6	4,990.80
68	7	9,451.20
69	4	3,366.96
70	7	9,739.92
71	3	7,203.60
72	5	3,395.64
73	2	3,706.68
74	4	3,277.32
75	2	3,269.52
76	1	1,510.20
77	1	792.00
79	1	422.28
84	1	695.52
Totals	53	$65,390.76

FEMALE

Age	Number	Annual Payments
45	1	$ 689.76
60	1	613.92
61	1	508.20
64	2	1,954.92
66	1	303.24
68	2	758.64
70	1	908.40
72	1	803.40
74	1	3,035.52
Totals	11	$9,576.00

TABLE 24. Optional Annuities - 5 Years Certain and Life Thereafter

MALE

Age	Number	Annual Payments
67	1	$ 183.48
69	1	1,276.92
71	2	1,726.44
72	2	2,198.28
74	1	979.08
75	1	566.88
Totals	8	$6,931.08

FEMALE

Age	Number	Annual Payments
74	1	$ 233.40
77	1	833.88
Totals	2	$1,067.28

TABLE 25. Optional Annuities - 10 Years Certain and Life Thereafter

MALE

Age	Number	Annual Payments
67	2	$2,821.80
68	1	625.32
70	3	1,699.32
71	3	1,648.92
72	1	639.48
73	3	772.44
75	2	786.00
76	1	927.12
77	1	693.96
Totals	17	$10,614.36

FEMALE

Age	Number	Annual Payments
71	1	$ 168.96
X	1	754.32
Totals	2	$ 923.28

TABLE 26. Optional Annuities - 15 Years Certain and Life Thereafter

M A L E

Age	Number	Annual Payments
67	1	$ 507.12
69	1	1,276.20
Totals	2	$1,783.32

F E M A L E

Age	Number	Annual Payments
X	2	$ 878.52

TABLE 27. Optional Annuities - 20 Years Certain and Life Thereafter

M A L E

Age	Number	Annual Payments
69	1	$ 208.92
76	1	616.44
Totals	2	$ 825.36

TABLE 28. Survivors Annuities Classified by Age and Annual Payments

W I D O W S

Age	Number	Annual Payments
37	1	$ 780.00
46	1	780.00
48	1	780.00
49	1	780.00
51	1	780.00
53	4	3,120.00
54	2	1,560.00
56	2	1,560.00
57	1	780.00
59	2	1,560.00
60	1	780.00
61	2	1,560.00
62	3	2,340.00
67	1	780.00
68	2	2,580.00
69	2	1,560.00
70	2	2,580.00
71	2	1,560.00
72	1	780.00
74	2	1,853.76
76	1	1,667.64
78	1	1,289.88
Totals	36	$31,811.28

W I D O W E R

Age	Number	Annual Payments
77	1	$ 780.00

C H I L D R E N

Age	Number	Annual Payments
11	1	$ 780.00
13	1	540.00
14	2	1,320.00
15	1	780.00
17	1	780.00
Totals	6	$4,200.00

TABLE 29. Prospective Beneficiaries of Reversionary Annuities Classified by Ages of Annuitants and Beneficiary and Annual Payments

MALE

Ages: Annuitant	Ages: Beneficiary	Number	Annual Payments
58	57	1	$ 1,204.80
59	56	1	600.00
60	59	1	777.84
63	58	1	686.28
63	64	1	543.36
64	58	1	806.04
64	62	1	1,507.68
64	68	2	2,085.24
65	51	1	980.52
65	58	1	728.64
65	59	1	666.72
65	61	1	672.00
65	62	1	1,181.16
65	66	1	791.76
66	56	1	1,553.52
66	57	1	361.32
66	60	1	290.88
66	64	1	913.20
66	65	1	660.00
66	70	1	600.00
66	71	1	772.92
67	47	1	492.12
67	55	1	1,529.76
67	59	1	277.44
67	61	1	487.80
67	63	2	791.04
67	68	2	1,393.92
67	69	1	573.24
67	74	1	373.20
68	55	1	$ 411.36
68	58	1	1,216.08
68	61	1	561.72
68	62	2	1,328.04
68	64	2	1,418.64
68	65	2	1,901.88
68	66	1	870.24
68	67	1	782.88
68	68	2	978.36
68	69	1	707.88
68	70	2	1,393.20
68	76	1	422.04
69	55	1	97.80
69	62	2	1,275.72
69	63	1	324.72
69	67	2	1,476.48
69	68	2	1,212.96
69	69	2	1,236.48
69	70	1	1,277.16
70	59	1	619.08
70	60	1	1,088.64
70	63	2	910.08
70	64	1	2,015.16
70	66	2	953.88
70	67	1	1,247.28
70	68	3	2,421.24
70	69	2	2,239.20
70	72	1	1,000.92

-continued-

TABLE 29. - continued

Ages: Annuitant	Ages: Beneficiary	Number	Annual Payments
71	55	1	$ 985.80
71	60	1	180.00
71	61	1	332.28
71	69	2	524.52
71	70	1	2,042.76
71	72	1	545.40
71	73	1	336.12
71	75	1	1,177.44
72	67	1	308.16
72	68	1	300.00
72	69	3	1,098.00
72	70	1	589.44
72	72	1	109.80
72	73	1	291.72
73	44	1	553.44
73	64	1	600.00
73	65	1	1,019.40
73	66	1	115.80
73	69	1	104.76
73	70	1	900.00
73	72	1	765.84
73	73	1	1,411.68
73	74	1	302.40
73	77	1	441.72
74	66	1	177.24
74	68	1	488.16
74	70	1	486.48
74	72	1	486.84
74	75	1	600.00
75	50	1	431.04
75	59	1	565.20
75	60	1	540.00
75	69	1	415.20
75	71	2	1,419.84
75	80	1	340.44
76	47	1	$ 300.00
76	68	1	300.00
76	69	1	755.16
76	70	1	669.00
77	50	1	396.00
77	70	1	300.00
78	73	1	600.00
78	77	2	1,080.00
79	75	1	1,480.44
79	76	2	451.20
79	79	1	600.00
80	75	2	1,200.00
81	66	1	600.00
81	81	1	454.68
82	76	1	336.48
84	81	1	347.76
Totals		132	$86,549.16

F E M A L E

Ages: Annuitant	Ages: Beneficiary	Number	Annual Payments
69	82	1	$ 776.04
74	77	1	1,517.76
Totals		2	$2,293.80

State Employees Retirement Association
of Minnesota

VALUATION BALANCE SHEET AS OF

DECEMBER 31, 1963

AND STATEMENT OF NORMAL COST

Prepared on Entry Age Normal Cost
Basis - 1937 Standard Annuity Mortality
Table and 3% Interest

A. A. Weinberg

Consulting Actuary

VALUATION BALANCE SHEET

December 31, 1963

ASSETS

PRESENT ASSETS

Cash and Treasury Bills	$ 677,177.41	
Accounts Receivable	798,970.88	
Accrued Interest and Dividends	701,882.62	
Investments	68,460,171.01	
Other Assets	13,436.32	
	$70,651,638.24	
Less: Current Liabilities	38,754.54	
Net Present Assets		$ 70,612,883.70

PROSPECTIVE ASSETS

Normal Contributions -		
Male	$45,221,268.00	
Female	33,429,003.00	78,650,271.00
Deficiency contributions payable until liabilities on account of past service are liquidated		18,947,037.30
TOTAL ASSETS		$168,210,192.00

VALUATION BALANCE SHEET

December 31, 1963

LIABILITIES

RETIREMENT ANNUITIES AND OTHER BENEFITS IN FORCE		
Present value of annuities and benefits to present beneficiaries		$ 29,331,116.00
TOTAL PENSION CREDITS FOR ACTIVE MEMBERS		
Present value of annuities and benefits to be provided on account of active members -		
Male	$85,768,729.00	
Female	53,110,347.00	138,879,076.00
TOTAL LIABILITIES		$168,210,192.00

STATEMENT OF NORMAL COST

The normal cost represents the amount required to meet the accruing cost of current service. This cost has been determined to be as follows:

Male Members	$4,677,729.00
Female Members	3,235,162.00
Total	$7,912,891.00

Towards this cost, the members contribute 3% of salary. The State of Minnesota is obligated to contribute (a) An amount equal to the total amount deducted from members' salaries for current service, plus (b) An additional two-thirds of the amount of such deductions towards the unfunded accrued liability.

ANNUAL PAYROLL

The annual payroll assumed in the calculation of liabilities and costs, including a projection of possible future increases in salaries within the $4,800.00 annual salary limitation, is as follows:

Male Members	$70,594,259.00
Female Members	40,394,463.00