

ACTUARIAL REPORT  
EMPLOYEES' RETIREMENT ASSOCIATION  
of the  
COUNTY OF FRESNO

Made to the Board of Retirement  
as of June 30, 1950

COATES, HERFURTH & ENGLAND  
CONSULTING ACTUARIES

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July 9, 1951

Board of Retirement  
Fresno County Employees' Retirement Association  
Fresno, California

Gentlemen:

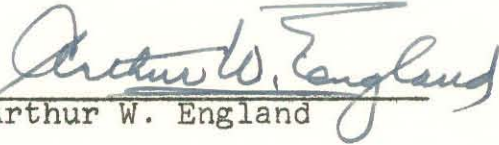
In accordance with our agreement and in compliance with the provisions of the County Employees' Retirement Act of 1937, we have made an actuarial investigation and valuation of the Fresno County Employees' Retirement Association as of June 30, 1950 and hand you herewith our report on this undertaking.

We desire to express our appreciation of the cooperation extended to us through both the members of the Board and of the Retirement Office.

Respectfully submitted,

COATES, HERFURTH & ENGLAND  
Consulting Actuaries

By

  
Arthur W. England

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## TABLE OF CONTENTS

	<u>Page</u>
Scope of Report .....	1
Statistics Furnished .....	3
Rate of Interest .....	4
Salary Scale .....	5
Mortality After Retirement for Service .....	5
Normal Rates of Contributions of Members .....	6
Experience Under The System .....	6
Withdrawal Before Service Retirement .....	7
Mortality Before Retirement .....	7
Rate of Disability .....	8
Retirement For Service .....	9
Balance Sheet .....	9
Accounting Balance Sheet .....	10
Actuarial Balance Sheet .....	11
Comments on Actuarial Balance Sheet .....	12
County Contributions .....	13
Recommendations .....	15
List of Schedules .....	17



## ACTUARIAL REPORT

### FRESNO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

as of June 30, 1950

Section 31453 of the County Employees' Retirement Act of 1937 (herein referred to as the Act) provides as follows:

An actuarial valuation shall be made within one year after the date on which any system established under this chapter becomes effective, and thereafter at not to exceed five year intervals. The valuation shall be conducted under the supervision of an actuary and shall cover the mortality, service, and compensation experience of the members and beneficiaries, and shall evaluate the assets and liabilities of the retirement fund. Upon the basis of the investigation, valuation, and recommendation of the actuary, the board of retirement shall recommend to the board of supervisors such changes in the rate of interest, in the rates of contributions of members, and in county and district appropriations as are necessary. No adjustment shall be included in the new rates for time prior to the effective date of the revision.

The Retirement Association was established January 1, 1945. The first valuation of the Association was made as of June 30, 1945, as provided for in the Act at that time. A special valuation was made as of December 31, 1947, primarily to reflect in the contributions of members and of the County the effect of the amendment to the Act which became effective in the Fall of 1947. The present valuation, made as of June 30, 1950, revalues the prospective assets and liabilities of the Association as of that date and covers a detailed investigation of the experience of the Association during the period from June 30, 1945 to June 30, 1950. The study of that experience is concerned with rates of mortality, withdrawal, disablement, service retirement, salary

changes and interest earnings. The results of that investigation are discussed throughout this valuation report.

The current valuation falls naturally into two sections, the first of which deals with the determination of normal rates of contribution to be made by members necessary to accomplish the purposes of the Act as amended; the second of which measures the liability which has accrued against the County under the operation of the 1937 Act as amended to June 30, 1950. The obligation which falls on the County is to meet the cost of all benefits which are not covered by future normal contributions by employees and funds on hand of the System as of the date of valuation.

The normal rates of contribution of members are based upon three elements:

1. The rate of interest.
2. Relative salaries of members at various ages during their service.
3. The mortality assumed among members who have or will retire under the Act for service.

The valuation of liabilities for all benefit obligations is made on the basis of assumptions on five other elements in addition to the three mentioned above. These five additional contingencies are:

1. Withdrawal from service before retirement.
2. Retirement for disability.
3. Retirement for service.
4. Mortality before retirement.
5. Mortality after retirement for disability.

### Statistics Furnished

We were furnished by the Office of the Association, on a card form suggested by us and maintained by the Office, the following information on all members of the Association as of June 30, 1950:

Name or number

Department

Occupation

Sex

Date of Birth

Age of Membership

Rate of Contribution

Date of Employment

Years ( and fractions) of Prior Service

Prior Service Salary

Present Monthly Salary

Accumulated Contributions as of  
June 30, 1950.

In addition to the above information on active members we were furnished with similar information on all members whose membership had terminated since our last valuation. For each such member, the reason for the termination and the date thereof was indicated.



### Rate of Interest

Following the valuation of your System, which was made as of June 30, 1945, it was the consensus of opinion of the Retirement Board and our office that an interest assumption of  $2\frac{1}{2}\%$  should be adopted. It was recognized that most municipal retirement systems in the State were operating on an interest assumption of approximately  $2\frac{1}{2}\%$ . A few were using an assumption greater than that rate, but all of these had large funds on hand invested in earlier years at higher rates of interest than were current. Since the above situation still exists and inasmuch as we know of no definite indication that the likely yield may fall substantially below  $2\frac{1}{2}\%$  in the near future, no change in the interest assumption has been made and we have assumed in all our calculations that interest will be earned at the rate of  $2\frac{1}{2}\%$  compounded annually.

The assumption of an interest rate of  $2\frac{1}{2}\%$  has two implications:

1. It is assumed that members' contributions will earn and be credited with interest at the rate of  $2\frac{1}{2}\%$ . If less interest be credited, then the rates (assuming salaries follow the assumed scale), will, on the average, fall short of the objective formulated by the Act. Similarly if interest is greater than  $2\frac{1}{2}\%$  a larger benefit will be produced. If it is determined before the next regular valuation that the interest assumption is not realistic, then it will be necessary to redesign the contribution rates, as provided in Section 31621.

2. It is assumed that all County contributions (including all reserve funds but excluding surplus) will be credited with interest at the rate of  $2\frac{1}{2}\%$ .

### Salary Scale

From the census cards furnished us by the Association, an average salary for each age and sex was determined, and a salary scale for each sex constructed based on this experience. These salary scales are used to project the present salaries of members to retirement, or earlier separation from employment. The scales resulting from the current salary tabulations were in close agreement with scales used in the previous valuations and contribution rate calculations. The differences were so small it was decided to continue the previous scales and thus avoid minor changes in members' contribution rates.

There will naturally be individual variations in salary experience from that which is anticipated by the use of a salary scale. This, however, does not in any way prejudice the amount of annuity payable to a member, since this is governed by the amount that he contributes to the fund together with the interest accruals thereon.

### Mortality after Retirement for Service

Inasmuch as the System has been in operation only since January 1, 1945, and the number of service retirements has been limited, the results experienced in this System alone are certainly not conclusive. It was felt that solely on the basis of purely



local mortality statistics no alteration should be made in the assumption of the rates of mortality after retirement for service since the previous standard adopted in connection with our first valuation has been found satisfactory for other large groups of municipal employees retired for service. The rates as shown by this mortality table appear in Schedule 8, which table is known as the Combined Annuity Table of Mortality.

#### Normal Rates of Contributions of Members

Sections 31620 and 31621 provide that the normal rates of contributions of members shall be based on sex and age at the nearest birthday at the time of entrance into the Retirement System, and shall be such as will provide an average annuity at the age of 60 equal to  $1/120^{\text{th}}$  of final compensation of members, based on tables adopted by the Board of Supervisors, for each year of service after entering the System. Since the previous interest assumption of  $2\frac{1}{2}\%$  is unchanged, and since the assumed rates of mortality after service retirement are unchanged and since the old salary scales are being used in this valuation, the members' rates of contribution of course will not need to be changed.

#### Experience under the System

From the census cards on active members and from similar cards for those members who have passed through the System since the last valuation, exposure columns were developed and rates of occurrence for the contingencies mentioned on Page 2 were applied to determine what selection of rates should be made to reflect the experience under the System. It was felt that

before adopting separate sets of discontinuance rates for this county based on its own experience, it would be advisable to compare the experience with that of other counties of like size. It was found that by doing this, smoother rates of discontinuance could be justified while still preserving faithful representation of Fresno County experience.

Such sets of rates were, therefore, developed and adopted for this valuation. The effects of the new rates as compared to the previously adopted rates for your System are discussed below.

#### Withdrawal Before Service Retirement

The rates covering withdrawal from service for men and women before retirement are shown in Schedules 4 and 5. They are, we believe, based on past experience a reasonable estimate of the expected withdrawals in your System and predict more withdrawals from service and, therefore, fewer retirements than would have been produced by the rates previously used.

#### Mortality Before Retirement

The rates of mortality before retirement adopted in this valuation are shown in Schedules 4 and 5. These rates are lower than previously for both men and women for most ages. The result of this reduction in mortality rates in effect reduces the cost of the death benefit. More employees, however, will reach retirement age with a resulting increase in cost for retirement benefits. The latter cost is more important than the former,



because the cost of the death benefit, being a maximum of six months' salary, is much less than the cost of even a small retirement allowance which might be paid.

#### Rate of Disability

In the determination of a disability rate, it must always be remembered that the Act gives reasonable latitude to the Retirement Board in the determination of what constitutes disability. The actions of the Board, therefore, to a large degree determine the disability rate. Our previous valuation was made at a time when there was no definite indication of how strict the Retirement Board's action might be, and as a result a rate of disability was adopted which we hoped would be on the conservative side. The operation of the System has indicated that it was a conservative rate inasmuch as it expected more disability cases than actually occurred. The new rates which are shown in Schedules 4 and 5 have reduced the previous rates quite materially at all ages and for both sexes.

It must be remembered also in connection with these rates however, that the reduction in the cost of disability which the adoption of this rate brings about is to a certain extent at least offset by an increase in the cost of service retirement since the lesser disability rate will in effect result in more people ultimately retiring for service.



### Retirement for Service

The rates of retirement for service are shown on Schedules 4 and 5. The rates of retirement are drawn partly from Fresno County experience and partly from that of similar systems; they reflect the probabilities of early retirement, normal retirement, and compulsory retirement. Our rates of retirement are now shown from age 55 to age 70, which is the total range at which service retirement may take place.

### Balance Sheet

The Office of the Association, at our request, furnished us with the Accounting Balance Sheet of the System as of June 30, 1950. This Balance Sheet is shown below.

ACCOUNTING BALANCE SHEET

As of June 30, 1950

ASSETS

1. Cash	\$ 38,382.83
2. Securities - Par Value	1,700,707.40
3. Premium on Securities	21,741.77
4. Accrued Contributions	<u>52,308.69</u>
5. Total	\$ 1,813,140.69

LIABILITIES

6. Members Deposit Reserve	\$ 793,758.33
7. County Advance Reserve	
Current Service	664,391.88
Prior Service	387,795.360D
Death Benefit	26,220.18
8. Retirement Allowance Reserve	
Annuity	42,381.49
Current Service Pension	48,141.44
Prior Service	577,419.16
9. Gain and Loss from Sale of Assets	\$ 15.59
10. Surplus	<u>48,607.98</u>
11. Total	\$ 1,813,140.69

ACTUARIAL BALANCE SHEET

Actuarial Valuation of Assets and Liabilities  
of Retirement System as of June 30, 1950

\* \* \* \* \*

ASSETS

1. Cash		\$	38,382.83
2. Securities - Par Value	\$1,700,707.40		
Premium	<u>21,741.77</u>		
			1,722,449.17
3. Accrued Contributions Receivable			52,308.69
4. Future Normal Contributions by Present Members			2,437,504.44
5. Future Contributions from County			
(a) Current Service Pensions	1,605,236.98		
(b) Death Benefit	100,808.61		
(c) Prior Service Pensions	<u>1,819,111.66</u>		<u>3,525,157.25</u>
6. Total Assets		\$	7,775,802.38

LIABILITIES

7. Retirement Allowances Already Granted			
(a) Annuities	\$	40,594.23	
(b) Current Service Pensions		46,319.78	
(c) Prior Service including Extra a/c Minimum		<u>626,747.20</u>	\$
			713,661.21
8. Retirement Allowances to be Granted to Present Members			
(a) Annuities	\$	2,161,755.86	
(b) Current Service Pensions		2,161,755.86	
(c) Prior Service Pensions		1,317,605.50	
(d) Extra a/c Minimum		<u>14,191.92</u>	\$
			5,655,309.14
9. Disability Retirement Allowances to be Granted to Present Members			
(a) Annuities	\$	90,387.60	
(b) Current Service Pensions		111,481.92	
(c) Prior Service Pensions		<u>50,190.84</u>	
			252,060.36
10. Death Benefit to be Paid to Present Members			
(a) Return of Contributions	\$	367,450.11	
(b) Salary Benefit		<u>127,028.79</u>	
			494,478.90
11. Return of Contributions at Withdrawal of Present Members			611,669.20
12. Surplus			<u>48,623.57</u>
13. Total Liabilities			\$7,775,802.38

\* \* \* \* \*



### Comments on Actuarial Balance Sheet

The first three items on the asset side of the Actuarial Balance Sheet represent the physical assets as evidenced by the Accounting Balance Sheet of the System as of June 30, 1950. These items are the net results of contributions made by members and the County prior to that date plus interest earnings and less disbursements for benefits prior to that date. We have made no check or audit of these physical assets. Item 4 shows the present value of normal contributions that are expected to be made by employees during their future service as members of the Association. Item 5 shows the present value of all contributions which will be made in the future by Fresno County on behalf of present members of the Association. This item is broken into three parts, Current Service, Death Benefit and Prior Service because of the different methods established by the Act for the financing of each type. These amounts are in our opinion the value now of the future contributions to be paid by the County on behalf of the present members so that when such amounts are added to the contributions of members and the present assets, they will be sufficient to provide all benefits promised present members.

The first item appearing on the liability side of the Actuarial Balance Sheet indicates the value as of June 30, 1950, of all service and disability allowances granted as of that date. The items which follow cover the value as of June 30, 1950, of all benefits which are expected to be paid to present members at some time in the future upon their withdrawal from service, death,

disability or ultimate service retirement. The last item is the amount of investment income not allocated to a specific account.

### County Contributions

The County contributions shown in the Actuarial Balance Sheet are shown as present values, which are the lump sum payments which if made on June 30, 1950, would together with interest earnings of  $2\frac{1}{2}\%$ , fully cover the County's future contribution. The Act provides that these amounts be transformed into current annual payments for the purpose of determining the actual appropriations required from County funds.

Section 31587 of the Act provides that the benefits under the Act shall be financed by the County in three divisions as follows:

1. Service and disability pensions arising out of service rendered subsequent to the establishment of the System, namely Current Service.
2. An amount equal to the death benefits payable to representatives or beneficiaries of deceased members in excess of the accumulated contributions of the deceased members.
3. An amount to cover service and disability pensions which are payable on account of service rendered prior to the effective date of the System.



Section 31453 charges the Retirement Board with the duty of recommending to the Board of Supervisors such changes in County appropriations as may be deemed necessary and states that such recommendation shall be upon the basis of the actuarial investigation and valuation and upon the recommendation of the actuary.

In accordance with the above sections, we are setting forth below our recommendations based on the valuation just completed. When a comparison is made with the recommendations of our last report, it will be observed that there will be a substantial reduction in the required total rate of contributions by the County. The current service rate has been reduced partly because this valuation assumed greater average withdrawal rates than previously anticipated with fewer members reaching service retirement, and partly because of a lower average age at entry of new members. The prior service annual amortization payment, expressed as a dollar amount, has been increased over that of the last valuation as expected partly because of increases in average compensation of those members with prior service, partly because of a slight reduction in the assumed withdrawal rates at the advanced ages, and partly because of treating unallocated interest as "surplus". When the prior service annual payment is expressed as a percentage of total compensation the cost has apparently decreased, because the total prior service liability has not increased in proportion to total compensation of all members.



### Recommendations

1. Interest Rate. We recommend that the interest rate of  $2\frac{1}{2}\%$  compounded annually be continued.
2. Mortality Standards. We recommend that the mortality standard set forth in our report of June 30, 1945, be continued without change.
3. Normal Rates of Contributions of Members.  
We recommend that the present normal rates of contribution of members be continued unchanged. These are shown in Schedule 3.
4. County Contributions. We recommend that until the next complete or limited investigation and valuation that Fresno County appropriate and transfer the following contributions:
  - a. For Service and Disability pensions on account of Current Service, 5.58% of the the total compensation of members in the Retirement Association.
  - b. For Death Benefit, .35% of the total compensation of members in the Retirement Association.

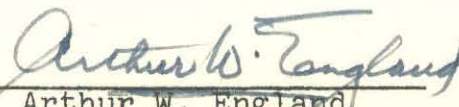
c. For Prior Service, an annual payment of \$98,700.00, or 2.96% of compensation, which amount is calculated to amortize the prior service liability by December 31, 1970.

5. We recommend that until the next complete or limited investigation the total contributions made by Fresno County be applied to meet its obligations under the System in the order and amounts as follows and as provided for in the Act:

- a. 5.58% of the total compensation on which the County's contribution is based, on account of liability accruing on account of Current Service.
- b. An amount equal during each fiscal year to the payments made from the contributions to the County during that year for death benefits.
- c. The balance of County contributions to be applied on account of the liability accrued on account of Prior Service benefits.

Respectfully submitted,

COATES, HERFURTH & ENGLAND  
Consulting Actuaries

By   
Arthur W. England

AWE/ell

## STATISTICAL SECTION

<u>Schedule No.</u>	<u>LIST OF SCHEDULES</u>	<u>Page</u>
1.	Number of Members and Total Monthly Compensation by Sex and Attained Age .....	S - 1
2.	Salary Scales .....	S - 3
3.	Normal Rates of Contribution by Members, Expressed as a Percentage of Compensation .....	S - 4
4.	Probabilities of Withdrawal, Death, Disability Retirement and Service Retirement - Male .....	S - 5
5.	Probabilities of Withdrawal, Death, Disability Retirement and Service Retirement - Female .....	S - 7
6.	Rates of Mortality after Service Retirement .....	S - 9
7.	Rates of Mortality after Disability Retirement .....	S -11
8.	Service Annuity Values .....	S -12
9.	Disability Annuity Values .....	S -13



SCHEDULE 1

Number of Members and Total Monthly Compensation

by Sex and Attained Age

<u>Attained Age</u>	<u>MALE</u>		<u>FEMALE</u>		<u>TOTAL</u>	
	<u>No.</u>	<u>Compen- sation</u>	<u>No.</u>	<u>Compen- sation</u>	<u>No.</u>	<u>Compen- sation</u>
20 & under	3	\$ 486.00	17	\$ 2,903.00	20	\$ 3,389.00
21	1	244.00	12	2,171.00	13	2,415.00
22	3	741.00	11	2,058.00	14	2,799.00
23	4	967.00	12	2,535.00	16	3,502.00
24	14	3,174.00	16	3,496.00	30	6,670.00
25	13	2,993.00	20	4,364.00	33	7,357.00
26	14	3,759.00	16	3,466.00	30	7,225.00
27	16	4,015.00	10	2,223.00	26	6,238.00
28	19	4,770.00	15	3,364.00	34	8,134.00
29	18	5,085.00	13	2,726.00	31	7,811.00
30	15	3,751.00	8	1,646.00	23	5,397.00
31	16	4,036.00	12	2,492.00	28	6,528.00
32	15	5,124.00	14	2,987.00	29	8,111.00
33	20	5,715.00	10	2,073.00	30	7,788.00
34	18	4,707.00	7	1,548.00	25	6,255.00
35	17	5,133.00	10	2,216.90	27	7,349.90
36	10	2,886.00	8	1,770.00	18	4,656.00
37	13	3,271.03	12	2,552.00	25	5,823.03
38	17	3,957.00	16	3,511.00	33	7,468.00
39	9	2,482.00	12	2,611.00	21	5,093.00
40	13	3,425.00	15	3,294.00	28	6,719.00
41	10	2,545.00	14	3,167.00	24	5,712.00
42	17	4,892.66	15	3,180.25	32	8,072.91
43	15	4,356.33	15	3,481.00	30	7,837.33
44	13	3,353.00	17	3,975.00	30	7,328.00
45	11	2,780.00	13	2,686.00	24	5,466.00
46	15	4,050.00	17	3,768.00	32	7,818.00
47	10	3,249.00	18	4,712.00	28	7,961.00
48	14	3,795.00	19	4,472.00	33	8,267.00
49	14	3,722.00	18	4,398.00	32	8,120.00

(Continued on next page)

SCHEDULE 1

Number of Members and Total Monthly Compensation

by Sex and Attained Age

(Continued)

<u>Attained Age</u>	<u>MALE</u>		<u>FEMALE</u>		<u>TOTAL</u>	
	<u>No.</u>	<u>Compen- sation</u>	<u>No.</u>	<u>Compen- sation</u>	<u>No.</u>	<u>Compen- sation</u>
50	17	\$ 4,917.35	7	\$ 1,539.00	24	\$ 6,456.35
51	12	2,755.00	12	2,859.00	24	5,614.00
52	15	4,300.00	14	2,926.00	29	7,226.00
53	15	3,945.00	14	3,138.00	29	7,083.00
54	19	5,397.33	14	3,287.00	33	8,684.33
55	19	5,590.00	13	2,782.00	32	8,372.00
56	10	3,098.00	13	3,015.00	23	6,113.00
57	11	3,049.00	5	1,021.00	16	4,070.00
58	13	3,556.00	11	2,490.00	24	6,046.00
59	6	1,707.00	7	1,498.00	13	3,205.00
60	9	2,195.00	4	834.00	13	3,029.00
61	4	1,235.00	3	859.00	7	2,094.00
62	5	1,989.00	6	1,483.00	11	3,472.00
63	8	2,422.33	1	231.00	9	2,653.33
64	3	960.33	4	1,034.00	7	1,994.33
65	2	502.00	3	665.00	5	1,167.00
66	6	2,456.00	1	322.00	7	2,778.00
67	5	1,679.00	2	429.00	7	2,108.00
68	4	898.00	1	476.00	5	1,374.00
69	1	258.00	2	426.00	3	684.00
70	1	258.00	1	258.00	2	516.00
71	1	300.00	—	—	1	300.00
	573	\$156,931.36	550	\$121,418.15	1,123	\$278,349.51

SCHEDULE 2

Salary Scales

Indicating Ratio of Present Average Compensation by  
Attained Age to Probable "Final Compensation"

<u>Attained Age</u>	<u>Male</u>	<u>Female</u>
20 and under	.7854	.8155
21	.7920	.8405
22	.7987	.8667
23	.8058	.8893
24	.8133	.9071
25	.8204	.9232
26	.8274	.9387
27	.8341	.9488
28	.8403	.9577
29	.8465	.9637
30	.8527	.9690
31	.8584	.9738
32	.8659	.9780
33	.8779	.9833
34	.8929	.9887
35	.9075	.9935
36	.9230	.9952
37	.9389	.9952
38	.9544	.9952
39	.9659	.9952
40	.9757	.9952
41	.9823	.9952
42	.9872	.9952
43	.9912	.9952
44	.9947	.9952
45	.9960	.9952
46	.9969	.9958
47	.9978	.9964
48	.9987	.9976
49	.9996	.9988
50	1.0000	.9994
51 and over	1.0000	1.0000



SCHEDULE 3

Normal Rates of Contribution by Members, Expressed  
as a Percentage of Compensation

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
16	6.52%	6.94%	41	8.15%	9.25%
17	6.57	7.00	42	8.25	9.37
18	6.62	7.06	43	8.35	9.49
19	6.67	7.12	44	8.46	9.61
20	6.72	7.18	45	8.57	9.74
21	6.77	7.24	46	8.68	9.87
22	6.83	7.30	47	8.79	10.00
23	6.89	7.37	48	8.90	10.13
24	6.95	7.45	49	9.02	10.26
25	7.01	7.53	50	9.14	10.39
26	7.07	7.61	51	9.26	10.52
27	7.13	7.70	52	9.38	10.65
28	7.19	7.80	53	9.50	10.78
29	7.25	7.90	54	9.62	10.92
30	7.31	8.00	55	9.74	11.06
31	7.37	8.10	56	9.86	11.20
32	7.44	8.20	57	9.99	11.34
33	7.51	8.31	58	10.12	11.49
34	7.58	8.42	59	10.25	11.64
35	7.65	8.53	60	10.25	11.64
36	7.72	8.65	61	10.25	11.64
37	7.80	8.77	62	10.25	11.64
38	7.88	8.89	63	10.25	11.64
39	7.97	9.01	64	10.25	11.64
40	8.06	9.13			

SCHEDULE 4

Probabilities of Withdrawal, Death,  
Disability Retirement and Service Retirement

<u>Age</u>	<u>MALE</u>		<u>Disability Retirement</u>	<u>Service Retirement</u>
	<u>Withdrawal</u>	<u>Death</u>		
20	.2380	.0009		
21	.2220	.0009		
22	.2080	.0009		
23	.1940	.0010		
24	.1810	.0010		
25	.1700	.0010		
26	.1580	.0011		
27	.1480	.0011		
28	.1400	.0012		
29	.1310	.0012		
30	.1230	.0013	.0004	
31	.1150	.0014	.0004	
32	.1080	.0015	.0004	
33	.1010	.0016	.0005	
34	.0940	.0017	.0005	
35	.0880	.0018	.0006	
36	.0820	.0019	.0006	
37	.0760	.0020	.0007	
38	.0720	.0022	.0008	
39	.0670	.0024	.0009	
40	.0630	.0026	.0010	
41	.0590	.0028	.0011	
42	.0550	.0032	.0012	
43	.0510	.0035	.0014	
44	.0470	.0040	.0015	

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SCHEDULE 4

Probabilities of Withdrawal, Death,  
Disability Retirement and Service Retirement  
(Continued)

<u>MALE</u>				
<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability Retirement</u>	<u>Service Retirement</u>
45	.0430	.0045	.0016	
46	.0390	.0051	.0018	
47	.0340	.0057	.0021	
48	.0300	.0064	.0024	
49	.0260	.0072	.0027	
50	.0210	.0080	.0030	
51	.0160	.0088	.0033	
52	.0120	.0097	.0037	
53	.0070	.0107	.0041	
54	.0020	.0118	.0046	
55		.0129	.0051	.090
56		.0141	.0057	.080
57		.0153	.0064	.070
58		.0165	.0072	.060
59		.0178	.0081	.050
60		.0190		.060
61		.0203		.070
62		.0217		.080
63		.0233		.090
64		.0251		.100
65		.0270		.120
66		.0291		.140
67		.0314		.170
68		.0339		.200
69		.0367		.250
70				1.000



SCHEDULE 5

Probabilities of Withdrawal, Death,  
Disability Retirement and Service Retirement

FEMALE

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability Retirement</u>	<u>Service Retirement</u>
20	.2980	.0006		
21	.2950	.0006		
22	.2820	.0006		
23	.2660	.0006		
24	.2510	.0007		
25	.2370	.0007		
26	.2230	.0008		
27	.2110	.0008		
28	.1990	.0008		
29	.1880	.0009		
30	.1780	.0009	.0006	
31	.1680	.0010	.0007	
32	.1580	.0011	.0007	
33	.1480	.0011	.0008	
34	.1390	.0012	.0009	
35	.1320	.0013	.0010	
36	.1250	.0014	.0011	
37	.1180	.0014	.0012	
38	.1100	.0016	.0013	
39	.1010	.0017	.0014	
40	.0900	.0018	.0016	
41	.0790	.0019	.0018	
42	.0680	.0021	.0020	
43	.0580	.0023	.0022	
44	.0490	.0025	.0024	

(Continued on next page)

SCHEDULE 5

Probabilities of Withdrawal, Death,  
Disability Retirement and Service Retirement  
(Continued)

<u>Age</u>	<u>FEMALE</u>		<u>Disability Retirement</u>	<u>Service Retirement</u>
	<u>Withdrawal</u>	<u>Death</u>		
45	.0410	.0027	.0026	
46	.0340	.0029	.0029	
47	.0280	.0032	.0032	
48	.0230	.0034	.0035	
49	.0190	.0037	.0039	
50	.0160	.0040	.0043	
51	.0140	.0044	.0048	
52	.0110	.0047	.0053	
53	.0070	.0051	.0058	
54	.0020	.0055	.0064	
55		.0059	.0071	.040
56		.0064	.0079	.036
57		.0070	.0087	.032
58		.0077	.0096	.029
59		.0084	.0101	.026
60		.0091		.040
61		.0101		.050
62		.0111		.065
63		.0123		.080
64		.0135		.100
65		.0149		.150
66		.0165		.200
67		.0183		.250
68		.0202		.300
69		.0223		.350
70				1.000

SCHEDULE 6

Rates of Mortality after Service Retirement

Combined Annuity Table

<u>Age</u>	<u>Male</u>	<u>Female</u>
55	.01545	.01121
56	.01673	.01215
57	.01812	.01316
58	.01963	.01426
59	.02126	.01545
60	.02302	.01673
61	.02493	.01812
62	.02700	.01963
63	.02923	.02126
64	.03164	.02302
65	.03425	.02493
66	.03707	.02700
67	.04012	.02923
68	.04341	.03164
69	.04697	.03425
70	.05081	.03707
71	.05495	.04012
72	.05943	.04341
73	.06425	.04697
74	.06945	.05081
75	.07506	.05495
76	.08109	.05943
77	.08759	.06425
78	.09458	.06945
79	.10210	.07506
80	.11018	.08109
81	.11886	.08759
82	.12817	.09458
83	.13814	.10210
84	.14883	.11018

(Continued on next page)



SCHEDULE 6

Rates of Mortality after Service Retirement

Combined Annuity Table

(Continued)

<u>Age</u>	<u>Male</u>	<u>Female</u>
85	.16027	.11886
86	.17249	.12817
87	.18553	.13814
88	.19944	.14883
89	.21425	.16027
90	.22999	.17249
91	.24669	.18553
92	.26439	.19944
93	.28310	.21425
94	.30285	.22999
95	.32364	.24669
96	.34548	.26439
97	.36835	.28310
98	.39225	.30285
99	.41712	.32364

SCHEDULE 7

Rates of Mortality After Disability Retirement

1943 Disability Table

<u>Age</u>	<u>Rate of Mortality</u>	<u>Age</u>	<u>Rate of Mortality</u>
25	.0391	55	.0416
26	.0344	56	.0426
27	.0329	57	.0436
28	.0319	58	.0448
29	.0315	59	.0462
30	.0314	60	.0476
31	.0315	61	.0491
32	.0316	62	.0507
33	.0318	63	.0525
34	.0319	64	.0544
35	.0321	65	.0563
36	.0323	66	.0586
37	.0325	67	.0612
38	.0327	68	.0635
39	.0329	69	.0664
40	.0332	70	.0694
41	.0335	71	.0725
42	.0338	72	.0759
43	.0341	73	.0796
44	.0345	74	.0836
45	.0349	75	.0879
46	.0354	76	.0925
47	.0359	77	.0976
48	.0364	78	.1029
49	.0370	79	.1085
50	.0376		
51	.0383		
52	.0390		
53	.0398		
54	.0406		

SCHEDULE 8

Service Annuity Values

Combined Annuity Table 2½%

Amount of Monthly Life Annuity Provided by \$1,000.

<u>Age</u>	<u>Male</u>	<u>Female</u>
55	\$5.73144	\$5.13266
56	5.90324	5.27021
57	6.08518	5.41553
58	6.27798	5.56905
59	6.48229	5.73144
60	6.69908	5.90324
61	6.92920	6.08518
62	7.17364	6.27798
63	7.43339	6.48229
64	7.70957	6.69908
65	8.00364	6.92920
66	8.31667	7.17364
67	8.65014	7.43339
68	9.00561	7.70957
69	9.38499	8.00364
70	9.78986	8.31667



SCHEDULE 9

Disability Annuity Values

1943 Disability Table 2 $\frac{1}{2}$ %

Amount of Monthly Life Annuity Provided by \$1,000.00

MALE AND FEMALE MEMBERS

<u>Age</u>	<u>Monthly Annuity</u>	<u>Age</u>	<u>Monthly Annuity</u>
25	\$5.19387	45	\$6.10934
26	5.18188	46	6.19301
27	5.19079	47	6.28138
28	5.21290	48	6.37465
29	5.24252	49	6.47313
30	5.27633	50	6.57702
31	5.31288	51	6.68669
32	5.35176	52	6.80276
33	5.39291	53	6.92579
34	5.43634	54	7.05574
35	5.48222	55	7.19362
36	5.53064	56	7.33948
37	5.58178	57	7.49366
38	5.63578	58	7.65771
39	5.69287	59	7.83139
40	5.75309	60	8.01474
41	5.81678		
42	5.88402		
43	5.95507		
44	6.03008		