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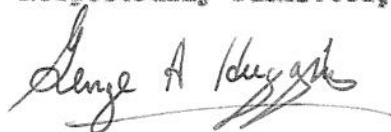
February 14, 1941

State Employees' Retirement Board
Commonwealth of Pennsylvania
Harrisburg, Pennsylvania

Gentlemen:

I have the honor to present herewith the report on the results of the third actuarial investigation of the State Employees' Retirement System for the period of operation beginning June 1, 1935 and ending May 31, 1940, and the annual valuation for the fiscal year ending May 31, 1940, together with recommendations based upon the results of the investigation and valuation.

Respectfully submitted,



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REPORT

on the

THIRD ACTUARIAL INVESTIGATION OF THE STATE EMPLOYEES' RETIREMENT ASSOCIATION

OF THE COMMONWEALTH OF PENNSYLVANIA MADE AS OF

MAY 31, 1940

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PART I

SECTION 4. (7)

of

STATE EMPLOYEES' RETIREMENT LAW

REQUIRED QUINQUENNIAL ACTUARIAL INVESTIGATION

Section 4. (7) of the State Employees' Retirement Law is as follows:

"In the years nineteen hundred twenty-seven and nineteen hundred thirty, and in every fifth year thereafter, the actuary of the retirement board shall make an actuarial investigation into the mortality and service experience of the contributors and beneficiaries as defined in this act, and shall make a valuation of the various accounts created by this act; and on the basis of such investigation and valuation, the retirement board shall -

(a) Adopt for the retirement system one or more mortality tables, and such other tables as shall be deemed necessary.

(b) Certify the rates of deduction from salary necessary to pay the annuities authorized under the provisions of this act; and

(c) Certify biennially the amount of appropriation, which shall be made by the Commonwealth and other agencies to the State Employees' Retirement Fund, which amounts shall be based on estimates furnished by the actuary, and shall be credited to the proper accounts created by this act.

The General Fund of the Commonwealth shall not be held liable to appropriate the moneys required to build up the reserves necessary for the payment of the State annuities of contributors whose salary or compensation is payable from special operating funds or agreed to be paid by other agencies from moneys not in the State Treasury, but the appropriations or payments necessary for such purposes shall be paid into the retirement fund only from moneys in such special operating funds or by such agencies. In case any such special fund or agency shall fail to provide the moneys necessary for such purpose, then for such period as moneys are not so provided, the credits, on which the State annuity of such contributors is based, shall not be increased, but the rights of such contributors in the retirement system shall, nevertheless, be continued, and payroll deductions shall continue in the case of such contributors to be credited to their member's annuity savings accounts."

This is the third of such investigations made in accordance with the requirements of the foregoing section of the State Employees' Retirement Law. It covers the period, June 1, 1935 to May 31, 1940, but the data relating to the experience of the Retirement Association during the period, January 1, 1924 to May 31, 1930, covered by the first investigation, and June 1, 1930 to May 31,

1935, covered by the second investigation, have also been included so that the studies made in connection with this investigation cover the first sixteen (16) years and five (5) months of the operation of the Retirement System.

PART II

HISTORY OF LEGISLATIVE CHANGES IN

RETIREMENT LAW

HISTORY OF LEGISLATIVE CHANGES IN RETIREMENT LAW

The State Employees' Retirement System was established by the Act of June 27, 1923, making the system operative as of January 1, 1924. All employes of the Commonwealth, taking membership on or before December 31, 1924, were classed as original members. All entering the service of the State on and after January 1, 1925 are classed as new members.

✓ The Act of March 29, 1927 re-opened the system to original members, who had not previously qualified for membership, provided they took membership prior to January 1, 1929, with the understanding that all required back member's dues would be paid. The establishing act had allowed those eligible for original membership the privilege of entering prior to June 1, 1925.

✓ The Act of April 26, 1929 opened the system to judges, with the provision that judges taking office, or entering upon a new term on and after January 13, 1930 would be classed as new members, unless they had previously qualified as original members in the case of service prior to that date. The system was again opened to original members by this Act up to October 1, 1929.

✓ The Legislature of 1931 opened the system to employes paid salaries out of State funds, such as the secretaries in judges' offices, even though not appearing directly on the payroll. The system was again opened to original members for the balance of the year 1931.

✓ The Legislature of 1933 re-opened the Retirement System to original members for the balance of the year 1933.

✓ The Legislature of 1935 opened the Retirement System to all officers and employes of Pennsylvania State College, other than those paid wholly from federal funds.

The Retirement System was re-opened to original members for the balance of the year 1935.

There were further amendments which embodied the following changes:

The privilege of members who had previously elected to make contributions on the 1/160 basis, to make future contributions on the 1/100 basis.

The discontinuance of the 1/160 basis of making contributions for those becoming members after the effective date of the amendment.

The lifting from five to seven per centum of the earnable salary as the minimum rate of salary deduction that a member makes if the rate of salary deduction according to his age at entry exceeds this amount.

The inclusion of all officers and employes of the Delaware River Joint Commission under the definition of State employe, provided the Delaware River Joint Commission provides for the financing of the State annuities.

The inclusion of the Pennsylvania Motor Police under the definition of State employe.

The inclusion of the employes of the State Unemployment Compensation Board and the State Public Assistance Commission under the definition of State employe.

The inclusion of the officers and employes of the Delaware River Joint Toll Bridge Commission under the definition of State employe.

PART III

GENERAL PROVISIONS AND ADMINISTRATION OF

RETIREMENT LAW

MEMBERSHIP

Membership in the Retirement Association is open to any person holding a State office or position under the Commonwealth of Pennsylvania in any capacity whatsoever, employed and paid by the year or by the month by the State government, and the officers and employes of other groups, defined as State employes.

The membership is divided into two (2) classes, i.e., those known as original members and those known as new members. The original members are all State employes who entered service before December 31, 1924 and any judge in service on the second Monday of January 1930 who shall elect to become a member during the term for which he was then elected or appointed. New members are all State employes who have entered service subsequent to the 31st of December, 1924.

BENEFITS

The benefits to members are payable under one of the five following provisions:

- (a) Superannuation retirement allowance.
- (b) Disability retirement allowance.
- (c) Involuntary retirement allowance.
- (d) Voluntary retirement allowance.
- (e) Cash withdrawal equities.

Superannuation Retirement Allowance

Any member of the State Employees' Retirement Association who has reached the age of 60 and desires to retire may do so by completing the necessary arrangements with the Retirement Board. The amount of the retirement allowance will be determined by the final salary, which shall mean the average annual salary earnable by a contributor as a State employe for the five (5) years of service immediately preceding retirement; the number of years of service, and the

accumulated salary deductions of the member. The retirement allowance would be made up of (1) a member's annuity, which is the actuarial equivalent of his or her accumulated deductions, and (2) a state annuity of 1/160th if the member held membership under Schedule I or 1/100th if the member held membership under Schedule II, of his or her final salary for each year of total service, and in addition thereto, if the member was an original member the state annuity would be increased by 1/160th or 1/100th respectively of his final salary for each year of service prior to the 1st day of January, 1924, except in the case of judges, who receive credit for service completed prior to the date of membership.

Disability Retirement Allowance

Upon the member becoming totally and permanently disabled before having attained the minimum superannuation age of 60, he would receive a retirement allowance which consisted of (1) a member's annuity which shall be the actuarial equivalent of his or her accumulated deductions, and (2) a state annuity which together with the member's annuity shall be sufficient to produce a retirement allowance of 1/90th of his or her final salary, multiplied by the number of years of service, but in any case, not less than 30% of said final salary.

Involuntary Retirement Allowance

Should a member be discontinued from service involuntarily before reaching the minimum retirement age of 60 and after having contributed for ten (10) years or more he may receive an allowance based upon the attained age, the final salary, and the number of years of service. This member may receive upon demand the full amount of the accumulated deductions standing to his credit in the Members' Annuity Savings Account or may receive a paid-up annuity payable upon the attainment of age 60 which would be made up of (1) an annuity equivalent

to the actual value of his or her accumulated deductions, and (2) a state annuity having a value equal to the present value of the state annuity beginning upon superannuation retirement age.

Voluntary Retirement Allowance

Any member before reaching superannuation age who has completed twenty-five (25) years of State service may resign and receive an annuity in the same amount as though he had left State service involuntarily.

Options

Under the superannuation retirement allowance and the involuntary or voluntary retirement allowances the member may choose to have the payments to him reduced, with a provision that payments be continued to a surviving beneficiary either at the same amount or at a reduced amount, or a guarantee that if he should die before having received in payments a total amount equivalent to the present value of his retirement allowance, the balance or excess over such payments shall be paid to a previously designated beneficiary.

CONTRIBUTIONS

The member must make regular contributions to the Retirement Fund. These are made as salary deductions and are a percentage of the salary which differs according to the age of the member at the time membership is entered upon.

STATE GUARANTY

The net effect of the State Guaranty is that the Commonwealth administers the Retirement System and guarantees the security of the principal and also guarantees that interest will be credited on the individual accounts and the fund balances at the rate of 4% per annum, compounded annually. The Commonwealth finances the cost of administering the system.

The Treasurer of the Commonwealth is the Treasurer of the Retirement Board and custodian of the assets of the Retirement System.

ACCOUNTS

The funds and accounts created, into which contributions and appropriations are made and from which pensions are financed as provided for under the State Employees' Retirement Law are as follows:

- (a) Contingent Reserve Account.
- (b) State Annuity Reserve Account.
- (c) State Annuity Reserve Account Number Two.
- (d) Members' Annuity Savings Account.
- (e) Members' Annuity Reserve Account.

Contingent Reserve Account

The appropriations of the Commonwealth to be applied towards maintaining, on a reserve basis, the Commonwealth's share of the cost of the retirement allowances for the new members (the State annuities) are credited to an account designated as the "Contingent Reserve Account".

In view of the fact that new employes are coming continuously into membership under the system, it becomes necessary for the Commonwealth's share of the cost of providing the State annuities for new members to be continuously provided for.

The new members will ultimately constitute the entire body of members but, this, of course, will be at a rather remote date.

State Annuity Reserve Account

Upon retirement of a new member, an amount equal to his or her State annuity reserve is transferred from the Contingent Reserve Account to the State Annuity Reserve Account. Thereafter, each annuity payment to such new member is charged to this account so that the State Annuity Reserve Account constitutes the account to which all State annuities on account of new members are charged.

State Annuity Reserve Account Number Two.

In the case of the original members, appropriations are made so that on June 1st of each year a payment is made into the Reserve Account maintained out

of the State funds for the benefit of the original members. This account is designated as "State Annuity Reserve Account Number Two". Each annual payment to this account shall be sufficient when combined with the balance in this account to provide the State annuities payable during the current year to original members retired or to be retired.

Members' Annuity Savings Account

The Members' Annuity Savings Account is made up of accumulated deductions from the salaries of the contributors.

Members' Annuity Reserve Account

The Members' Annuity Reserve Account consists of the balances of amounts transferred from the Members' Annuity Savings Account to provide for the payment of members' annuities that have been entered upon.

PART IV

ACTUARIAL INVESTIGATION

PURPOSES OF INVESTIGATION

Since the value of any pension fund depends entirely upon its ability to make actual payment of the benefits promised when they become due, it is essential that the income provided to the fund be adequate for this purpose. In order to determine whether the income provided is adequate to do this it becomes necessary to calculate the present value of the future promised benefit payments. This is contingent upon a number of factors related to the mortality and service experience of the group as well as the ability of the funds to earn the scheduled rate of interest.

When a retirement system is first put into operation it has no experience of its own upon which to base the cost of the benefits to be provided. Therefore, it is necessary for the board, upon the advice of the actuary, to adopt certain tables as a basis for the required calculations.

These tables are generally standard tables of mortality and disability but it is rarely possible to get any parallel experience on rates of withdrawal, or rates of superannuation. Therefore, for the actuarial safety of the plan, whatever assumptions are made along these lines, must of necessity be on a most conservative basis.

After the system has been in operation for some time, it becomes possible, through periodical studies, to determine from the actual experience of the system its own rates of mortality among active, superannuated and disabled lives, as well as rates of disability, superannuation, voluntary and involuntary withdrawal from service.

The results of the studies made during the early years of the existence of the system are exceedingly important, but they are, of course, still subject

to conditions incident to such early years of the system. However, the various trends become more and more apparent and eventually it becomes possible to completely shift the operation of the system on to its own service tables.

OBJECTS OF ACTUARIAL INVESTIGATION

The objects of the actuarial investigation, which is required in accordance with the section "Purposes of Investigation" would, therefore, be the development of the following:

- (1) The Rate of Mortality among Active Members; based upon the lives exposed and the actual deaths occurring among active members.
- (2) The Rate of Disability among Active Members; based upon the lives exposed and the actual retirements on account of disability occurring among active members.
- (3) The Rate of Withdrawal from Service; based upon the lives exposed and the actual withdrawals from active service for causes other than death, disability or superannuation (NOTE - Special study was made of the rates of involuntary withdrawal and the annuities granted thereupon).
- (4) The Rate of Superannuation; based upon the lives exposed and the members who retired and were granted superannuation retirement allowances.
- (5) The Rate of Mortality among Superannuated Lives; based upon the lives of members to whom superannuation retirement allowances had been granted and the deaths occurring among those lives.
- (6) The Rate of Mortality among Disabled Lives; based upon the lives of members to whom disability retirement allowances had been granted and the deaths occurring among those lives.
- (7) The Rate of Mortality among Withdrawal Annuitant Lives; based upon the lives of members to whom withdrawal allowances have been granted.
- (8) The Preparation of complete Life and Service Tables; based upon the rates determined as above outlined.
- (9) The Preparation of Monetary Tables, to be used as a basis of determining the actuarial equivalents of the prospective assets and liabilities of the Retirement System as of May 31, 1940.

- (10) The Valuation of the Several Assets and Liabilities of the Retirement System; based upon the monetary tables prepared.
- (11) The study of the basis for determining the required appropriations from the Commonwealth for the several funds.

PREPARATION OF DATA

The data used in these studies were tabulated from card records. A separate card was prepared for each member of the plan, upon which was recorded the certificate number, year of entry into State service, year of birth, age at beginning of membership, sex, class, i.e., whether under Schedule I or Schedule II, department and salary basis. These cards were prepared from original records in the office of the Retirement Board. The records related to the period from June 1, 1935 to May 31, 1940 were sorted and tabulated by an electric tabulating method.

In the case of a terminated membership, the card also showed the date of the termination of membership; and the cause of termination, such as retirement on account of superannuation or disability, death, withdrawal, whether voluntary or involuntary.

In the case of an annuitant or beneficiary member, full data as to the annuity were furnished such as the date of entering upon the annuity; the kind of annuity, whether a superannuation retirement allowance, or a disability retirement allowance, or an involuntary withdrawal allowance; the amount of the member's and State's annuity; and the options selected.

STUDIES BY SEX

The data were analyzed separately by sex in order to determine whether special tables and factors should be prepared for the valuation of the liabilities on account of the membership under each sex. The data in connection with the

female lives were rather meager, particularly as to deaths and disabilities and it was felt that because of this paucity of data true trends could not be established. Therefore, it seemed best that the studies be made as one group embodying both sexes. This is the present practice of the Board in making salary deductions, i.e., the same percentage of salary deduction has been used for male lives and female lives.

LIFE YEARS OF EXPOSURE

By a very careful and detailed tabulation the exposure as active lives was tabulated for the period covered by this investigation. This was compiled according to the ages at which the lives were exposed. Separate tabulations were made of the original members still on the roll as of the close of the period, the original members whose membership had terminated during the period, and the new members still on the roll at the close of the period, as well as those whose membership had terminated during the period.

The rates of withdrawal, death, disability and superannuation developed in connection with the investigation made as of May 31, 1935 were applied to the exposure of the five-year period since that investigation, and it was found that some deviations existed between the expected terminations according to these rates and the actual terminations, which disclosed very clearly the necessity of developing new experience rates based on the combined experience of the fund for its entire sixteen (16) years and five (5) months of existence.

During the five (5) years since the last investigation, the total life years of exposure as active members developed in connection with this investigation were 132,321.75. To this was added the exposure developed in connection with the investigation covering the first eleven (11) years and five (5) months

of the existence of the fund which totalled 119,594.50, so that the total exposure upon which the rates developed in connection with this investigation were based was 251,916.25 life years.

The following schedule shows the total amount of lives exposed to risk scheduled according to age. It is of interest to note that the ages extend all the way from 15 to 90, inclusive. The largest exposure at any given age is at age 26 where the total of 11,335.75 is shown. It must be remembered that this is the number of years exposed as active lives and means that if a life entered at say age 25 and was in the plan for ten (10) years that member would be counted for one (1) life year of exposure at each age from 25 to 34, inclusive. The total number of lives included in the study which built up to the 251,916.25 life years of exposure was 68,405, an average duration of 3.7 years.

LIVES EXPOSED TO RISK

<u>Attained Age</u>	<u>Total Exposure</u>	<u>Attained Age</u>	<u>Total Exposure</u>
15	25.25	53	2,707.75
16	89.50	54	2,493.50
17	303.75	55	2,333.25
18	1,055.25	56	2,195.75
19	2,664.75	57	2,015.50
20	4,537.00	58	1,873.00
21	6,185.50	59	1,736.25
22	7,931.35	60	1,598.25
23	9,697.00	61	1,393.75
24	10,832.50	62	1,196.50
25	11,327.75	63	1,058.25
26	11,335.75	64	940.00
27	11,137.75	65	826.75
28	10,621.50	66	720.25
29	9,955.25	67	645.00
30	9,245.50	68	569.00
31	8,565.50	69	512.75
32	8,001.00	70	438.75
33	7,395.75	71	362.25
34	6,824.50	72	307.25
35	6,467.00	73	258.50
36	6,226.50	74	214.25
37	5,947.00	75	172.75
38	5,766.75	76	146.50
39	5,703.75	77	101.25
40	5,557.50	78	81.75
41	5,420.50	79	69.50
42	5,193.25	80	54.50
43	4,996.75	81	43.25
44	4,795.00	82	32.75
45	4,621.25	83	23.50
46	4,414.75	84	16.00
47	4,185.75	85	11.25
48	3,984.25	86	6.50
49	3,868.75	87	4.75
50	3,611.75	88	4.50
51	3,251.25	89	3.50
52	2,937.25	90	.50
		Total -	<u>251,916.25</u>

RATE OF MORTALITY AMONG ACTIVE MEMBERS

The rate of mortality according to the American Men Ultimate Table of Mortality was applied to the total exposure at each age up to and including age 69. The result of this application showed that according to this table of mortality 1,874,477 deaths were expected during the entire period under observation. There were 771 actual deaths during this period or a ratio of actual to expected deaths of 41.13%. As a result of this, the rate that was adopted as the table of mortality among active lives was the American Men Ultimate Table of Mortality, modified 41%. While this may produce slight variations at different ages, the variations are not material and match the actual experience for the entire period.

It is of interest to note that the ratio of the actual to expected deaths on the basis of the same mortality table as outlined above, obtained in the first investigation made as of May 31, 1931 was 48.98%; the ratio obtained in the second investigation made as of May 31, 1935 was 49.00%; whereas the ratio shown by the present investigation is 41.13%. Since all of these results have been determined in accordance with the same rate of mortality, it is very evident that the active lives included in these several studies are showing greater longevity. This rate, of course, includes only deaths among lives that have not previously become disabled because upon a member's becoming disabled a disability allowance is granted and such life is removed from the active members' lists.

RATE OF DISABILITY AMONG ACTIVE MEMBERS

Processes, similar to those followed in arriving at the experience rate of mortality, were used in arriving at a rate of disability.

Hunter's Rate of Disability was applied to the exposures at each age, up to and including age 59, and, as a result, there was shown the total number of disabilities expected, amounting to 213,176, whereas, the actual number of disability retirement allowances granted during the period was 174; a ratio of actual to expected disabilities of 81.62%. Here again, the variations from this table at the different ages were not material, so 82% of the Hunter's Table was adopted as the disability experience table of the system.

The results of this study are somewhat different from those disclosed by the former studies. The ratio of the actual to the expected disabilities according to the same table disclosed by the first study showed 106.6%; in the second study the ratio of the actual to the expected showed 102.3%. The results of the present studies which showed a ratio of actual to expected disabilities according to the Hunter Table as 81.62% would indicate that fewer members have entered upon disability retirement allowances during the last five (5) years than during the preceding years of the plan.

RATE OF WITHDRAWAL AMONG ACTIVE MEMBERS

The actual withdrawals were scheduled according to ages at the date of withdrawal, and compared with the total exposures at each age. The ratios obtained gave an unadjusted withdrawal rate. This rate was then adjusted or graduated by graphic method and the adjusted rates were adopted as the experience rates.

The withdrawal rate is expressed as a ratio or percentage of the total exposed to risk at each year. It begins at 4.7% at age 15; increases steadily up to age 22, where it reaches 16.8%. It is the same at age 23. Then gradually it reduces until at age 59 it is 8.6%. The average yearly withdrawal rate for the group as a whole, under age 60, was 13.8%.

This is a high average withdrawal rate for a group of employes and shows an increase from the previous rate of 10.4%. The general effect of increased withdrawal rates is to reduce the number of employes continuing in service and surviving to become eligible for disability or superannuation allowances. This, of course, reduces somewhat the cost of providing the State superannuation annuities although the effect is somewhat modified by an increased rate of involuntary withdrawal, which, of course, carries with it the granting of involuntary withdrawal annuities.

For the purposes of this study, the withdrawal rate was limited to active members under 60 years of age, because 60 is the minimum age for superannuation retirement and thereafter anyone leaving service would normally be classed as retired on account of superannuation, rather than as having withdrawn by resignation or dismissal.

The rates of withdrawal obtained from the combined membership are somewhat higher than those experienced by the group solely of original members and lower than those of the group solely of new members. In this study of the entire period there were included 33,065 withdrawals from active service under age 60.

RATE OF SUPERANNUATION AMONG ACTIVE MEMBERS

The actual superannuations were scheduled according to ages at the date of superannuation and compared with the total exposed at each age. The ratio obtained gave an unadjusted superannuation rate. This rate was then adjusted or graduated by graphic method and the adjusted rates were adopted as the experience rates. The experience of the current five year period under study shows a somewhat higher rate of superannuation than was disclosed by the former studies. The increase in the superannuation rate naturally increases the cost of the superannuation allowance granted and to be granted.

RATES OF DEATH, DISABILITY, WITHDRAWAL AND SUPERANNUATION

In the schedule which follows there are shown according to age the rates of death, disability, withdrawal and superannuation developed as a result of this investigation.

RATES OF DEATH, DISABILITY, WITHDRAWAL, and
SUPERANNUATION BASED UPON THIS INVESTIGATION

Attained Age	Death	Disability	Withdrawal	Attained Age	Death	Disability	Withdrawal	Superannuation
15	.00075	-	.04700	43	.00340	.000325	.12000	
16	.00075	-	.07321	44	.00370	.000332	.11900	
17	.00075	-	.10009	45	.00400	.000344	.11850	
18	.00075	-	.12000	46	.00440	.001014	.11800	
19	.00076	-	.13750	47	.00480	.001091	.11750	
20	.00077	.000422	.15250	48	.00520	.001179	.11700	
21	.00079	.000424	.16400	49	.00560	.001273	.11600	
22	.00081	.000426	.16800	50	.00600	.001391	.11500	
23	.00083	.000427	.16800	51	.00660	.001518	.11300	
24	.00086	.000430	.16750	52	.00720	.001662	.11000	
25	.00090	.000433	.16600	53	.00775	.001829	.10700	
26	.00094	.000437	.16250	54	.00850	.002024	.10300	
27	.00100	.000442	.15750	55	.00940	.002257	.09900	
28	.00107	.000448	.15250	56	.01030	.002533	.09600	
29	.00114	.000453	.14750	57	.01130	.002880	.09250	
30	.00124	.000460	.14300	58	.01220	.003297	.08800	
31	.00131	.000469	.13900	59	.01300	.003807	.08600	
32	.00139	.000479	.13500	60	.01400	-	-	.1300
33	.00147	.000492	.13250	61	.01500	-	-	.1700
34	.00156	.000508	.13000	62	.01600	-	-	.1550
35	.00165	.000526	.12800	63	.01700	-	-	.1400
36	.00175	.000549	.12700	64	.01800	-	-	.1550
37	.00185	.000576	.12600	65	.01900	-	-	.1600
38	.00200	.000608	.12400	66	.02000	-	-	.1450
39	.00220	.000643	.12300	67	.02100	-	-	.1700
40	.00250	.000682	.12250	68	.02200	-	-	.1700
41	.00280	.000726	.12200	69	.02300	-	-	.1300
42	.00310	.000773	.12100					

RATE OF MORTALITY AMONG SUPERANNUATED LIVES

A study was made of the rate of mortality among the lives which had been retired on account of superannuation. The table of mortality used by the Retirement Board in calculating the amounts of the members' annuities is the McClintock Table of Mortality Among Annuitant Lives (Male), with interest at 4% and corrected on account of monthly instalment payments.

The total life-years of exposure as superannuated lives developed in connection with this investigation were 5,315.50 male and 1,802.75 female; a combined total of 7,118.25.

The total number of deaths expected, according to the McClintock Table of Mortality (Male), was 489.84, as against actual deaths of 506, a ratio of 103.94% of actual to expected. In view of the fact that there is no marked deviation from the table, it seems best to recommend the continuance of the McClintock Table of Mortality Among Annuitants (Male) as a basis for calculating the amounts of the member's annuities at least until the results of further experience and studies are available.

RATE OF MORTALITY AMONG DISABLED LIVES

A study was made of the rate of mortality among the lives that had been granted disability retirement allowances. The table of mortality used by the Retirement Board in calculating the amounts of the members' annuities is Hunter's Table of Mortality among Disabled Lives, with interest at 4% and corrected on account of monthly instalment payments.

The total life-years of exposure as disabled lives developed in connection with this investigation were 940.25. This included both male and female.

The total number of deaths expected according to the Hunter Table of Mortality was 92.33 as against actual deaths of 56, a ratio of 60.65% of actual to expected.

While the total life years of exposure were only 940.25 years, nevertheless, the trend indicates a rate of mortality considerably lower than this standard table. It is, therefore, recommended that a modification of this table be adopted, such modification to be based upon 60% of the mortality expected according to the Hunter Table of Mortality among Disabled Lives.

RATE OF MORTALITY AMONG LIVES RECEIVING INVOLUNTARY
OR VOLUNTARY RETIREMENT ALLOWANCES

A study was made of the rate of mortality among the lives receiving involuntary or voluntary retirement allowances. The table of mortality used by the Retirement Board in calculating the amounts of the members' annuities is the McClintock's Table of Mortality among Annuitant Lives (Male), with interest at 4% and corrected on account of monthly instalment payments.

The total life-years of exposure as withdrawal annuitant lives developed in connection with this investigation were 2,313.00, including both male and female lives.

The total number of deaths expected according to the McClintock's Table of Mortality among Annuitant Lives (Male) was considerably more than the actual number of deaths. It was, therefore, apparent that some modification should be made in this table. Various tests were made and it was found that if this table was rated back seven (7) years by age adjustment, the expected deaths determined on this basis approximated the actual deaths. By rating back seven (7) years is meant, applying to the total exposure at each age the rate of death seven (7) years younger, i.e., to the total exposure at age 30 would be applied the rate of death at age 23, etc.

The total number of deaths expected according to this adjusted basis was 33,00, while the actual deaths during the period under study were 32,00, a ratio of 96.97% of actual to expected.

It is, therefore, recommended that a modified basis of providing withdrawal annuities be adopted and such modified basis be the McClintock's Table of Mortality among Annuitant Lives (Male) with interest at 4%, corrected on account of monthly instalment payments and rated back seven (7) years.

LIFE AND SERVICE TABLE

Based upon the rates before described, that is the rates of death, disability, withdrawal and superannuation, a complete life and service table was developed, showing the number each year surviving out of an original 100,000 lives entering at age 15.

In the following schedule the number of entrants is shown for each age, as well as the number of withdrawals, deaths and disabilities. For example, if 100,000 persons entered the service of the State at age 15, some would pass out of active service each year through death, disability, withdrawal from service, or superannuation. As each age is attained, some of the original members would continue in service, not having previously died, become disabled, withdrawn from service, or having become superannuated.

The experience of the fund shows that during the past sixteen (16) years and five (5) months, out of 100,000 employes at age 15, 98,865 of them would withdraw from service, voluntarily or involuntarily, before reaching age 60; 757 would die; 181 would become disabled; and there would be only 197 of the 100,000 employes who would still be in service upon reaching age 60.

There have actually been 33,065 who withdrew before reaching age 60 and 537 of these have been granted withdrawal annuities, of which there are now 378 still being paid. The reason for the low number of withdrawal annuities which are being paid in proportion to the number of withdrawals is because the greater number of withdrawals takes place at the younger ages before the qualifications for a withdrawal annuity have been met, i.e., ten (10) years of service.

The reason for the separation of the life and service tables, at ages 60 to 69, inclusive, from the lives under age 60, is that 60 is the minimum retirement age for superannuation, while for the purposes of this study, age 70 has been assumed as the limiting retirement age. Therefore, in the period 60 to 69, inclusive, there are lives passing out of active service only through death and superannuation, rather than from death, withdrawal, and disability, as is the case when under age 60.

LIFE AND SERVICE TABLES

<u>Age</u>	<u>Entrants</u>	<u>Deaths</u>	<u>Disabilities</u>	<u>Withdrawals</u>
15	100,000	75	-	4,700
16	95,225	71	-	7,448
17	87,706	66	-	8,771
18	78,869	59	-	9,464
19	69,546	55	-	9,535
20	59,758	46	25	9,113
21	50,574	40	21	8,294
22	42,219	34	18	7,093
23	35,074	29	15	5,892
24	29,138	25	13	4,881
25	24,219	22	10	4,020
26	20,167	19	9	3,277
27	16,863	17	7	2,656
28	14,182	15	6	2,153
29	11,996	14	5	1,770
30	10,209	13	5	1,460
31	8,731	11	4	1,214
32	7,502	10	4	1,013
33	6,475	10	3	858
34	5,604	9	3	729
35	4,863	8	3	622
36	4,230	7	2	537
37	3,684	7	2	464
38	3,211	6	2	398
39	2,805	6	2	345
40	2,452	6	2	300
41	2,144	6	2	262
42	1,874	6	1	227
43	1,640	6	1	197
44	1,436	5	1	171
45	1,259	5	1	149
46	1,104	5	1	130
47	968	5	1	114
48	848	4	1	99
49	744	4	1	86
50	653	4	1	75
51	573	4	1	65
52	503	4	1	55
53	443	3	1	47
54	392	3	1	40
55	349	3	1	34
56	310	3	1	30
57	276	3	1	26
58	246	3	1	22
59	220	3	1	19
60	197			

LIFE AND SERVICE TABLES

<u>Age</u>	<u>Entrants</u>	<u>Deaths</u>	<u>Superannuations</u>
60	100,000	1,400	13,000
61	85,600	1,284	14,552
62	69,764	1,116	10,813
63	57,835	983	8,097
64	48,755	878	7,557
65	40,320	765	6,451
66	33,105	662	5,462
67	26,979	567	4,586
68	21,826	480	3,710
69	17,636	406	17,230

MONETARY TABLES

Monetary Tables were prepared from the life and service tables by combining them with interest factors at the rate of 4%. From these tables were obtained regular commutation columns and factors derived therefrom to be used in determining rates of contribution to be made by the State and in determining the several liability items.

PART V
VALUATION AS OF
MAY 31, 1940

VALUATION

as of

May 31, 1940

A valuation of the present value of future appropriations and liabilities of the State Employees' Retirement System as of May 31, 1940 has been prepared. Such future appropriations and liabilities were determined by using the factors developed in connection with this investigation.

Following, there is a balance sheet showing the account balances, the net present value of future appropriations and the liabilities as of May 31, 1940, with explanatory remarks relating to the various items.

VALUATION BALANCE SHEET

of

STATE EMPLOYEES' RETIREMENT SYSTEM

as of

MAY 31, 1940

ACCOUNT BALANCES AND NET PRESENT VALUE OF FUTURE APPROPRIATIONS

Account Balances

Member's Annuity Savings Account.....	\$13,373,915.83	
Member's Annuity Reserve Account.....	\$1,923,523.19	
Plus - Adjustment.....	<u>42,046.81</u>	1,965,570.00
State Annuity Reserve Account Number Two.....		5,716,059.24
Contingent Reserve Account.....	\$5,123,957.95	
Less - Adjustment.....	<u>18,423.06</u>	5,105,534.89
State Annuity Reserve Account.....	\$ 237,920.94	
Plus - Adjustment.....	<u>18,423.06</u>	256,344.00
Not creditable to accounts.....	\$ 228,634.39	
Less - Adjustment.....	<u>42,046.81</u>	186,587.58
Annuities due and unpaid.....		4,610.99
Reserve for outstanding checks.....		306.28
Accounts payable.....		2,560.23
Pennsylvania Motor Police Account.....		<u>189,673.90</u>
Total Account Balances.....		\$24,801,162.94

Net Present Value of Future Appropriations

State Annuity Reserve Account Number Two..	\$9,346,288.76	
Contingent Reserve Account.....	<u>922,396.11</u>	\$10,268,684.87
Less: Earnings held for revaluation of investments and for reduction in pre- sent value of future appropriations.....		<u>186,587.58</u>
Total Net Present Value of Future Appropriations.....		<u>10,082,097.29</u>

Total Account Balances and Net Present Value of Future Appropriations... \$34,883,260.23

VALUATION BALANCE SHEET

of

STATE EMPLOYEES' RETIREMENT SYSTEM

as of

MAY 31, 1940

LIABILITIES

Member's Annuity Savings Account

Present value of benefits on account of which salary deductions have been accumulated.....\$13,373,915.83

Member's Annuity Reserve Account

Present value of Members' annuities payable to members now on annuity roll because of:

Superannuation.....	\$1,142,357.00	
Disability.....	137,298.00	
Withdrawal.....	685,915.00	

Total..... 1,965,570.00

State Annuity Reserve Account Number Two

Present value of State annuities payable to original members:

(a) Not on annuity roll but who may receive annuities in the future because of:

Superannuation.....	\$6,376,135.00	
Disability.....	104,480.00	
Withdrawal - Active.....	338,872.00	
Withdrawal - Inactive.....	2,916.00	\$6,829,403.00

(b) Now on annuity roll because of:

Superannuation.....	\$4,324,345.00	
Disability.....	226,128.00	
Withdrawal.....	1,562,472.00	6,232,945.00

Total.....\$13,062,348.00

VALUATION BALANCE SHEET

of

STATE EMPLOYEES' RETIREMENT SYSTEM

as of

MAY 31, 1940

LIABILITIES
(Continued)

Contingent Reserve Account

Present value of State annuities payable
to new members:

(a) Not on annuity roll because of:

Superannuation.....	\$3,898,254.00
Disability.....	678,673.00
Withdrawal - Active.....	1,445,336.00
Withdrawal - Inactive.....	<u>7,669.00</u>

Total.....\$6,027,931.00

State Annuity Reserve Account

Present value of State annuities payable
to new members:

(a) Now on annuity roll because of:

Superannuation.....	\$ 104,055.00
Disability.....	118,821.00
Withdrawal.....	<u>33,670.00</u>

Total..... 256,344.00

Miscellaneous Liabilities

Annuities due and unpaid.....	\$ 4,610.99
Reserve for outstanding checks.....	306.28
Accounts payable.....	2,560.23
Pennsylvania Motor Police account.....	<u>189,673.90</u>

Total..... 197,151.40

Total Reserves and Miscellaneous Liabilities.....\$34,883,260.23

EXPLANATORY REMARKS

relating to

VALUATION

ACCOUNT BALANCES AND NET PRESENT VALUE OF FUTURE APPROPRIATIONS

Member's Annuity Savings Account

The balance in the Member's Annuity Savings Account as of May 31, 1940 was \$13,373,915.83. The balance in this account has been a constantly increasing amount because the credits to it in the form of salary deductions from the contributors have been greater than the drafts upon it. The balances in this account as of the close of each of the last five (5) fiscal years are as follows:

<u>Year</u>	<u>Account Balance</u>
1936	\$ 6,887,975.02
1937	7,675,722.01
1938	9,073,865.40
1939	11,287,916.80
1940	13,373,915.83

Member's Annuity Reserve Account

The balance in the Member's Annuity Reserve Account as of May 31, 1940 was \$1,923,523.19. The calculated reserves for the outstanding members' annuities as of this same date amounted to \$1,965,570.00. It was, therefore, necessary to add \$42,046.81 to the balances in this account to bring it up to the calculated reserves. This item was taken from the account balance Not Creditable to Accounts.

Similar transfers have had to be made in former years in order to bring the account balance up to the calculated reserves. In the year 1937, however, the account balance exceeded the calculated reserves by \$10,991.16. This amount was transferred from the Member's Annuity Reserve Account to the

account Not Creditable to Accounts. The balances in the Member's Annuity Reserve Account as of the close of each of the last five fiscal years and the items of adjustment to bring the account balance in accordance with the calculated reserve are shown below.

<u>Year</u>	<u>Account Balance before adjustment</u>	<u>Adjustment</u>
1936	\$1,533,369.13	(+) 6,679.87
1937	1,770,433.16	(-) 10,991.16
1938	2,038,936.19	(+) 51,527.81
1939	1,975,138.25	(+) 2,557.75
1940	1,923,523.19	(+) 42,046.61

The recurring deficiencies in this reserve account are undoubtedly due to the low mortality being experienced among the disabled annuitant lives and the withdrawal annuitant lives. This is revealed in the results of the mortality studies previously referred to in this report. Steps should be taken to correct this condition by adopting a new basis for calculating members' annuities granted to disabled and withdrawn members, which will result in reducing the amount of the members' annuities provided by the members' accumulated deductions.

State Annuity Reserve Account Number Two

As of May 31, 1940 the balance in the State Annuity Reserve Account Number Two was \$3,716,059.24. The balances in the account as of the close of each of the last five fiscal years are shown below:

<u>Year</u>	<u>Account Balance</u>
1936	\$4,499,848.76
1937	4,388,006.45
1938	4,210,914.01
1939	3,924,502.09
1940	3,716,059.24

Contingent Reserve Account

The balance in the Contingent Reserve Account as of May 31, 1940 was \$5,123,957.95, less the adjustment item of \$18,423.06 or a net of \$5,105,534.89. The account has increased from \$2,539,098.99 during the last five years. There are shown below the balances in this account as of the close of each of the last five fiscal years.

<u>Year</u>	<u>Account Balance</u> (after adjustment)
1936	\$2,871,600.88
1937	3,148,830.10
1938	3,568,799.05
1939	4,209,881.01
1940	5,105,534.89

State Annuity Reserve Account

The balance in the State Annuity Reserve Account as of May 31, 1940 was \$237,920.94. The calculated reserves for the outstanding State annuities payable to new members on the annuity roll as of May 31, 1940 amounted to \$256,344.00. It was, therefore, necessary to add \$18,423.06 to the balance in this account to bring it up to the calculated reserves. This item was taken from the Contingent Reserve Account.

Similar transfers have had to be made in former years to bring the account balance in accord with the calculated reserves. In the year 1939, however, the account balance exceeded the calculated reserve by \$5,887.75. The balances in the State Annuity Reserve Account as of the close of each of the last five (5) fiscal years and the items of adjustment necessary to bring the account balance in accord with the calculated reserve are as follows:

<u>Year</u>	<u>Account Balance before adjustment</u>	<u>Adjustment</u>
1936	\$ 63,365.74	(+) \$12,254.26
1937	112,087.51	(+) 6,445.49
1938	178,797.54	(+) 9,356.46
1939	200,601.75	(-) 5,887.75
1940	237,920.94	(+) 12,423.06

Not Creditable to Accounts

This account, which is really a surplus account, is being held for the revaluation of investments and for the reduction in the present value of future appropriations. As of May 31, 1940 the balance to the credit of the account was \$228,634.39 but since it was necessary to transfer \$42,046.81 to the Member's Annuity Reserve Account to bring this account in accord with the calculated reserve, the balance not creditable to accounts was reduced to \$186,587.58.

Miscellaneous

The items \$4,610.99 - Annuities due and unpaid; \$306.28 - Reserve for outstanding checks; \$2,560.23 - Accounts payable; and \$189,673.90 - Pennsylvania Motor Police Account, are offset by corresponding items in the liabilities.

NET PRESENT VALUE OF FUTURE APPROPRIATIONS

The net present value of the future appropriations creditable to State Annuity Reserve Account Number Two represents the difference between the present value of State annuities now payable to original members, together with the present value of State annuities that will be paid to original members who may receive annuities in the future, and the balance in State Annuity Reserve Account Number Two. This present value as of May 31, 1940 is \$13,062,348.00 and the balance in the State Annuity Reserve Account Number Two is \$3,716,059.24. Therefore, the item \$9,346,288.76 is shown as the net present value of future

appropriations creditable to State Annuity Reserve Account Number Two.

The net present value of the future appropriations creditable to the Contingent Reserve Account represents the difference between the present value of State annuities that will be paid to new members who may receive annuities in the future, \$6,027,931.00, and the balance in the Contingent Reserve Account (after adjustment) as of May 31, 1940, \$5,105,534.89, a net of \$922,396.11.

This relatively low figure, when the large number of new members is considered, is due to the favorable experience among active lives as revealed in this investigation and also to the fact that the total number of new members has not increased during the last three (3) years in the ratio contemplated in budget appropriation askings and receipts, which has resulted in a surplus accumulation in the Contingent Reserve Account.

LIABILITIES

Member's Annuity Savings Account

The present value of benefits on account of which salary deductions have been accumulated in the Member's Annuity Savings Account amounts to \$13,373,915.83 and is equal to the balance in the Member's Annuity Savings Account included among the account balances.

Member's Annuity Reserve Account

The present value of the members' annuities now being paid from the Member's Annuity Reserve Account amounts to \$1,965,570.00. As mentioned before, this required reserve is \$42,046.81 greater than the balance in the Member's Annuity Reserve Account.

The total reserve when analyzed by the several groups shows the following:

Regular State Employes.....	\$1,956,391.00
Pennsylvania Motor Police.....	2,957.00
Delaware River Joint Commission.....	6,222.00
	<u>\$1,965,570.00</u>

The calculated reserves chargeable against the account as of the close of each of the last five fiscal years are as follows:

<u>Year</u>	<u>Calculated Reserves</u>
1936	\$1,540,049.00
1937	1,759,442.00
1938	2,090,464.00
1939	1,977,696.00
1940	1,965,570.00

State Annuity Reserve Account Number Two

The present value of the State annuities payable out of the State Annuity Reserve Account Number Two to original members not yet on the annuity roll but who may receive annuities in the future amounted to \$6,829,403.00 and the present value of the State annuities payable to original members now on the annuity roll amounted to \$6,232,945.00, a total of \$13,062,348.00. The balance in the State Annuity Reserve Account Number Two against which these reserves are chargeable was \$3,716,059.24 so that the item of \$9,346,288.76 of future appropriations creditable to this account makes up the difference between the balance in this account and the total required reserves.

The reserves when analyzed by the several groups showed the following:

	<u>Reserve for Future Annuities</u>	<u>Reserve for Present Annuities</u>
Regular State Employes.....	\$6,633,924.00	\$6,231,612.00
General State Authority.....	3,292.00	-
Pennsylvania Motor Police.....	184,481.00	2,333.00
Unemployment Compensation.....	<u>7,706.00</u>	<u>-</u>
	\$6,829,403.00	\$6,232,945.00

The reserve for the Motor Police is sufficient to provide for regular annuities as outlined under the provisions of the State Employees' Retirement Law. Any additional benefits provided under the Pennsylvania Motor Police Retirement Law are cared for out of separate funds provided for such purposes.

The calculated reserves chargeable against this account as of the close of each of the last five fiscal years are as follows:

	<u>Reserve for Future Annuities</u>	<u>Reserve for Present Annuities</u>
1936	\$6,050,502.00	\$5,929,163.00
1937	5,758,564.00	6,401,547.00
1938	6,090,335.00	7,047,189.00
1939	6,326,133.00	6,585,649.00
1940	6,829,403.00	6,232,945.00

Contingent Reserve Account

The present value of the future annuities payable to new members not yet on the annuity roll, which is chargeable to the Contingent Reserve Account amounted to \$6,027,931.00.

This total reserve when analyzed by the several groups shows the following:

Regular State Employees.....	\$5,002,977.00
General State Authority.....	1,774.00
Pennsylvania Motor Police.....	118,154.00
Unemployment Compensation.....	339,524.00
Delaware River Joint Commission.....	512,696.00
Delaware River Joint Toll Bridge Commission - Free Bridges.....	42,101.00
Delaware River Joint Toll Bridge Commission - Toll Bridge.....	<u>10,705.00</u>
Total.....	\$6,027,931.00

The reserve on account of the Pennsylvania Motor Police provides for the regular benefits as outlined under the State Employees' Retirement Law. Any additional benefits provided for under the Pennsylvania Motor Police Retirement Law are cared for out of separate funds, provided for such purpose. The reserves on account of the Delaware River Joint Commission and the Delaware River Joint Toll Bridge Commission represent the present value of the annuities payable to the employees of these two groups only upon superannuation retirement. The Commissions' cost may be increased by supplemental payments in the event of the occasional granting of a disability allowance, but it may be reduced in the event of the withdrawal from service of a member before entering upon a retirement annuity.

State Annuity Reserve Account

The present value of the State annuities payable to new members now on the annuity roll from the State Annuity Reserve Account amounted to \$256,344.00. As mentioned before, this required reserve is \$18,423.06 greater than the balance in the State Annuity Reserve Account, but this has been provided for by adjustment transfer from the Contingent Reserve Account.

The present value when analyzed according to the amount required on account of the various groups shows the following:

Regular State Employees.....	\$240,388.00
Pennsylvania Motor Police.....	6,414.00
Delaware River Joint Commission.....	<u>9,542.00</u>
	\$256,344.00

The calculated reserves chargeable against this account as of the close of each of the last five fiscal years are as follows:

1936	\$ 75,620.00
1937	118,533.00
1938	188,154.00
1939	194,714.00
1940	256,344.00

Miscellaneous Liabilities

The item of \$4,610.99 - Annuities due and unpaid; \$306.28 - Reserve for outstanding checks; \$2,560.23 - Accounts payable; and \$189,673.00 - Pennsylvania Motor Police Account, are offset by corresponding items shown under account balances.

PART VI

SUPPORTING MEMBERSHIP SCHEDULES

SCHEDULES OF MEMBERSHIP

as of

May 31, 1940

The following schedules of the membership as of May 31, 1940 are supporting schedules to the valuation because it was upon this membership that the liabilities were calculated.

They show the distribution of the membership by attained age in 1940 and whether or not they are in active service or are annuitants; whether original members or new members; whether salary deductions are being made under Schedule I or Schedule II; and whether the members are male or female. The schedules also show the total salaries in the case of the active members and the total amount of annuities in the case of annuitants.

In Schedule A, there are shown according to attained age, salary and sex, the original members still remaining in active membership who are paying dues according to Schedule I or the 1/160th annuity credit basis. The total in this schedule is distributed as follows:

	<u>M A L E</u>		<u>F E M A L E</u>	
	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>
Regular State Employees....	58	\$163,322	31	\$46,244
Pennsylvania Motor Police.	4	15,900	-	-
Unemployment Compensation.	<u>1</u>	<u>1,200</u>	<u>3</u>	<u>5,640</u>
Total.....	63	\$180,422	34	\$51,884

In Schedule B there are shown according to attained age, salary and sex, the original members still remaining in active membership who are paying dues according to Schedule II, the 1/100th annuity credit basis. The total in this schedule is distributed as follows:

	<u>M A L E</u>		<u>F E M A L E</u>	
	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>
Regular State Employes.....	1,198	\$3,967,029	396	\$679,937
General State Authority.....	1	2,100	1	1,680
Pennsylvania Motor Police....	122	315,180	-	-
Unemployment Compensation....	<u>1</u>	<u>2,000</u>	<u>6</u>	<u>8,400</u>
Total.....	1,322	\$4,293,309	403	\$690,017

In Schedule C, there is shown a summary of the two preceding schedules showing that there still remain in active service 1,822 original members with total salaries of \$5,215,632.00 and an average salary of \$2,863.

In Schedule D, there is shown a distribution of the 1,822 original members according to the years of prior service, which is service rendered prior to January 1, 1924. It is of interest to note that there still remains in active service one original member with 32 years of prior service. The total years of service for this member, therefore, exceed 48 years.

In Schedule E, there are shown according to attained age, salary and sex, the new members in active membership who are paying the dues according to Schedule I, the 1/160th annuity credit basis. The total in this schedule is distributed as follows:

	<u>M A L E</u>		<u>F E M A L E</u>	
	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>
Regular State Employes....	1,123	\$1,884,550	398	\$497,254
Pennsylvania Motor Police.	72	147,805	1	1,620
Unemployment Compensation.	<u>23</u>	<u>49,975</u>	<u>4</u>	<u>5,760</u>
Total.....	1,218	\$2,082,330	403	\$504,634

In Schedule F, there are shown according to attained age, salary and sex, the new members in active membership who are paying the dues according to Schedule II or the 1/100th annuity credit basis. The total in this schedule is distributed as follows:

	<u>M A L E</u>		<u>F E M A L E</u>	
	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>
Regular State Employees.....	13,445	\$22,161,659	11,260	\$13,754,659
General State Authority.....	6	17,200	4	5,580
Pennsylvania Motor Police....	1,307	2,225,110	24	29,060
Unemployment Compensation....	1,352	2,366,650	1,350	1,720,800
Delaware River Joint Commis- sion.....	163	418,223	1	2,300
Delaware River Joint Toll Bridge Commission (Free)....	48	38,838	1	180
Delaware River Joint Toll Bridge Commission (Toll)....	7	9,720	-	-
Total.....	16,328	\$27,237,400	12,640	\$15,512,579

In Schedule G, there is shown the distribution of the new members according to the fiscal year during which membership was taken. The total of new members as of May 31, 1940 was 30,589 with total salaries of \$45,336,943, an average salary of \$1,482.

The total of new members and the total salary as of May 31, 1940 were distributed as follows:

	<u>Number</u>	<u>Salary</u>
Regular State Employees.....	26,226	\$38,298,122
General State Authority.....	10	22,780
Pennsylvania Motor Police.....	1,404	2,403,595
Unemployment Compensation.....	2,729	4,143,185
Delaware River Joint Commission.....	164	420,523
" " " Toll Bridge Commission (Free).....	49	39,018
" " " " " (Toll).....	7	9,720
Total.....	30,589	\$45,336,943

In Schedule H (Part 1), there are shown according to attained age and sex, the number of original members who are receiving superannuation annuities and the total amount of member's annuities and State annuities.

In Schedule H (Part 2), there are shown according to attained age and sex, the number of new members who are receiving superannuation annuities and the total amount of member's annuities and State annuities.

In Schedule I, there are shown according to attained age, the number and amount of both the member's annuities and the State annuities being paid to surviving beneficiaries. These are the beneficiaries of members who selected either option 2 or option 3 and predeceased their beneficiaries. The amounts of annuities shown are the amounts being continued to the beneficiaries during their lifetimes.

In Schedule J (Part 1) there are shown according to attained age and sex, the number of original members who are receiving disability annuities and the total amount of member's annuities and State annuities.

In Schedule J (Part 2) there are shown according to attained age and sex, the number of new members who are receiving disability annuities and the total amount of member's annuities and State annuities.

In Schedule K (Part 1) there are shown according to attained age and sex, the number of original members who are receiving withdrawal annuities and the total amount of member's annuities and State annuities.

In Schedule K (Part 2), there are shown according to attained age and sex, the number of new members who are receiving withdrawal annuities and the total amount of member's annuities and State annuities.

In Schedule L, there is shown the summary of all annuities outstanding as of May 31, whether superannuation, disability or withdrawal and whether being paid to original members or new members. The total number of original member annuitants as of May 31, 1940 was 1,252 for \$195,210.36 of member's annuities and \$781,047.35 of State annuities. The total number of new member annuitants as of May 31, 1940 was 167 for \$21,005.27 of member's annuities and \$27,517.63 of State annuities.

In Schedule M, there is shown for comparison the outstanding membership, both active and annuitant as of May 31, 1936, May 31, 1937, May 31, 1938, May 31, 1939, and May 31, 1940.

SCHEDULE A

ORIGINAL MEMBERS - IN ACTIVE SERVICE MAY 31, 1940

(SCHEDULE I)

<u>Attained Age 1940</u>	<u>M A L E</u>		<u>F E M A L E</u>	
	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>
51	-	-	2	\$ 2,280
52	-	-	3	5,040
53	1	\$ 2,400	2	3,360
54	1	1,620	1	1,200
55	1	1,380	2	3,540
56	2	4,320	3	3,660
57	1	4,200	2	2,820
58	3	9,120	-	-
59	3	5,760	5	4,260
60	1	2,700	1	3,600
61	6	16,380	3	4,320
62	3	5,940	-	-
63	5	10,140	-	-
64	3	6,060	-	-
65	2	5,700	-	-
66	-	-	1	1,440
67	2	4,380	-	-
68	3	9,180	-	-
69	1	2,400	2	2,316
70	4	8,310	1	2,240
71	4	14,020	-	-
72	2	9,000	1	1,140
73	1	4,500	-	-
74	3	11,856	1	1,380
75	3	7,800	-	-
76	2	6,500	2	2,400
77	-	-	1	1,380
78	2	9,900	1	2,868
79	1	2,400	2	2,640
80	2	2,900	-	-
81	2	9,860	-	-
82	1	1,896	-	-
Totals	65	\$180,420	34	\$51,684

Superannuation Annuity, 1-160th basis. Original Members are members who are entitled to credit for service rendered prior to January 1, 1925.

SCHEDULE B
(Part 1)

ORIGINAL MEMBERS - IN ACTIVE SERVICE MAY 31, 1940

(SCHEDULE II)

<u>Attained</u> <u>Age 1940</u>	<u>M A L E</u>		<u>F E M A L E</u>	
	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>
31	1	\$ 1,154	-	-
33	2	2,508	4	\$ 3,540
34	5	11,212	9	11,904
35	7	14,064	8	10,100
36	17	34,430	9	13,440
37	17	41,619	10	13,716
38	27	59,835	9	15,554
39	27	60,296	8	11,520
40	52	118,731	14	21,738
41	43	106,828	7	9,924
42	48	119,036	18	29,044
43	46	109,136	16	28,098
44	50	131,215	12	20,194
45	55	158,290	10	15,904
46	53	145,149	11	20,924
47	52	152,830	16	25,622
48	53	152,296	21	37,620
49	61	188,728	18	31,626
50	60	170,904	11	14,892
51	57	153,452	15	25,348
52	60	201,123	6	14,372
53	45	138,225	18	31,164
54	43	155,860	15	24,914
55	52	171,594	18	30,960
56	40	125,776	20	32,392
57	36	145,567	12	19,936
58	39	155,449	9	19,372
59	34	131,606	16	30,702
60	29	117,818	11	29,938
61	28	91,087	9	11,964
62	24	102,202	10	18,408
63	15	76,866	5	10,880
64	24	107,092	6	10,369
65	24	80,164	4	8,896
66	14	60,942	3	11,608
67	10	35,560	2	4,572
68	10	48,034	3	5,540
69	13	55,351	1	1,620
70	11	68,304	4	7,434

SCHEDULE B
(Part 2)

ORIGINAL MEMBERS -- IN ACTIVE SERVICE MAY 31, 1940

(SCHEDULE II)

<u>Attained Age 1940</u>	<u>M A L E</u>		<u>F E M A L E</u>	
	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>
71	7	\$ 51,684	2	\$ 4,350
72	6	54,600	-	-
73	6	48,430	-	-
74	3	12,340	-	-
75	2	14,800	-	-
76	3	23,500	1	744
77	3	30,500	-	-
78	2	22,000	-	-
79	2	3,600	-	-
80	1	15,000	-	-
81	1	12,000	-	-
82	1	1,440	-	-
88	1	12,000	-	-
89	<u>1</u>	<u>9,000</u>	-	-
Totals	<u>31,322</u>	<u>\$4,293,309</u>	<u>40</u>	<u>\$890,017</u>

Superannuation Annuity, 1-100th basis. Original members are members who are entitled to credit for services rendered prior to January 1, 1935.

SCHEDULE C

ORIGINAL MEMBERS - IN ACTIVE SERVICE MAY 31, 1940

SUMMARY - ORIGINAL MEMBERS

	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>
SCHEDULE I -						
Male.....	63	\$ 180,422				
Female.....	34	51,884				
Total.....			97	\$ 232,306		
SCHEDULE II -						
Male.....	1,322	\$4,293,309				
Female.....	403	690,017				
Total.....			1,725	4,983,326		
TOTAL ORIGINAL MEMBERS.....					1,622	\$5,215,632
			Average.....			\$2,863

SCHEDULE D

ORIGINAL MEMBERS - IN ACTIVE SERVICE MAY 31, 1940

PRIOR SERVICE

Years of Service	SCHEDULE I		SCHEDULE II		Total Number
	Male Number	Female Number	Male Number	Female Number	
Less than 1 year	21	11	274	52	360
1	5	6	89	43	143
2	3	2	87	40	132
3	4	2	116	42	164
4	8	5	139	39	191
5	3	2	76	22	103
6	3	2	70	22	97
7	2	1	82	25	110
8	1	2	46	19	68
9	2	-	45	15	62
10	1	-	49	18	68
11	2	-	45	10	57
12	1	-	43	6	50
13	1	-	26	9	36
14	1	-	18	10	29
15	1	-	29	6	36
16	-	-	22	5	27
17	-	1	15	4	20
18	2	-	17	3	24
19	1	-	8	2	11
20	-	-	2	3	5
21	-	-	9	1	10
22	1	-	3	2	6
23	-	-	4	2	6
24	-	-	2	1	3
25	-	-	1	-	1
26	-	-	1	-	1
27	-	-	1	-	1
29	-	-	1	-	1
30	-	-	1	-	1
32	-	-	1	-	1
Totals -	63	34	1,322	403	1,822

SCHEDULE I - Superannuation Annuity, 1-160th basis.
 SCHEDULE II - Superannuation Annuity, 1-100th basis.

Original members are members who are entitled to credit for service rendered prior to January 1, 1925.

SCHEDULE E
(Part 1)

NEW MEMBERS - IN ACTIVE SERVICE MAY 31, 1940

(SCHEDULE I)

Attained Age 1940	M A L E		F E M A L E	
	Number	Total Salary \$	Number	Total Salary \$
21	-	-	1	1,140
22	1	1,044	-	-
23	2	2,244	3	3,024
24	4	5,748	7	6,396
25	10	13,748	10	10,884
26	14	18,572	16	18,312
27	40	57,968	14	16,424
28	52	70,364	13	14,560
29	59	83,271	18	20,736
30	58	80,636	14	17,808
31	63	94,976	16	21,048
32	64	100,700	10	13,308
33	62	95,148	21	27,500
34	64	113,212	13	14,736
35	53	89,511	11	13,108
36	38	71,024	11	15,771
37	43	82,374	9	11,832
38	40	72,020	11	13,560
39	38	65,960	13	14,316
40	33	60,668	13	16,828
41	52	103,705	13	19,444
42	33	60,530	11	14,508
43	32	54,342	13	18,570
44	41	80,872	16	23,048
45	33	60,744	17	21,411
46	33	58,948	8	9,084
47	33	63,778	8	8,724
48	25	47,804	12	12,976
49	29	51,682	5	5,112
50	17	27,104	12	12,564
51	24	45,744	4	7,428
52	17	30,256	4	5,592
53	15	30,400	7	16,408
54	15	33,190	5	5,968
55	10	15,896	8	11,632
56	13	29,004	6	6,552
57	18	42,400	1	864
58	10	16,056	6	6,492

SCHEDULE E
(Part 2)

NEW MEMBERS - IN ACTIVE SERVICE MAY 31, 1940

(SCHEDULE I)

Attained Age 1940	M A L E		F E M A L E	
	Number	Total Salary	Number	Total Salary
59	8	\$ 12,600	4	\$ 5,088
60	8	14,868	5	4,866
61	2	4,260	1	1,284
62	4	4,864	3	2,628
63	3	4,452	3	5,064
64	3	6,540	-	-
65	2	2,181	-	-
66	-	-	2	2,184
67	1	3,120	1	864
68	1	1,044	1	1,776
69	1	1,620	2	1,704
71	-	-	1	1,438
Totals -1,218		\$2,082,330	403	\$504,634

Superannuation Annuity, 1-160th basis. New members are members who have become State employes at a date subsequent to December 31, 1924.

SCHEDULE F
(Part 1)

NEW MEMBERS - IN ACTIVE SERVICE MAY 31, 1940

(SCHEDULE II)

<u>Attained Age 1940</u>	<u>M A L E</u>		<u>F E M A L E</u>	
	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>
17	-	-	1	\$ 1,020
18	7	\$ 7,308	47	41,868
19	52	54,598	196	194,168
20	156	163,096	384	391,746
21	245	258,846	587	612,459
22	364	407,820	645	697,144
23	446	524,032	702	784,790
24	638	784,583	782	888,370
25	722	925,351	829	974,712
26	810	1,086,675	746	904,217
27	835	1,168,773	716	873,062
28	836	1,094,493	707	892,607
29	875	1,206,053	598	770,434
30	775	1,136,524	552	708,178
31	813	1,244,175	494	641,866
32	761	1,190,903	422	561,988
33	674	1,147,342	376	482,790
34	588	1,025,094	356	461,137
35	572	1,024,920	310	412,560
36	525	994,917	302	386,488
37	446	843,039	256	336,480
38	355	652,042	195	266,622
39	396	772,863	243	307,757
40	342	702,222	250	328,721
41	397	777,019	219	280,018
42	343	743,020	191	259,345
43	366	734,576	188	247,943
44	537	655,664	184	248,127
45	331	670,194	153	205,052
46	323	609,321	162	211,251
47	298	572,612	130	178,050
48	235	526,907	111	144,021
49	218	463,968	114	149,660
50	185	408,279	106	133,816
51	160	337,357	68	87,160
52	144	322,544	54	73,422
53	129	304,263	45	60,056
54	86	194,093	37	44,880
55	83	193,090	37	54,244

SCHEDULE F
(Part 2)

NEW MEMBERS - IN ACTIVE SERVICE MAY 31, 1940

(SCHEDULE II)

Attained Age 1940	M A L E		F E M A L E	
	Number	Total Salary	Number	Total Salary
56	85	\$ 151,552	34	\$ 49,529
57	60	133,014	32	56,651
58	68	180,965	14	18,420
59	49	112,796	21	34,251
60	66	199,064	17	19,152
61	28	86,436	9	9,215
62	27	48,868	5	9,792
63	27	88,514	5	7,364
64	13	36,240	1	1,404
65	15	48,004	3	4,128
66	5	7,752	-	-
67	12	65,204	1	1,200
68	8	31,190	1	1,620
69	5	31,984	-	-
70	8	19,966	1	-
71	2	14,100	-	1,044
72	5	7,145	-	-
73	4	26,220	-	-
76	1	810	1	-
78	1	18,000	-	1,560
84	1	1,200	-	-
Totals - 16,328		\$27,237,400	12,640	\$15,512,579

Superannuation Annuity 1-100th basis. New members are members who have become State employes at a date subsequent to December 31, 1924.

SCHEDULE G
(Part 1)

NEW MEMBERS * IN ACTIVE SERVICE MAY 31, 1940

BY FISCAL YEAR OF ISSUE

			<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>	<u>Number</u>	<u>Total Salary</u>
<u>Schedule I:</u>								
Male	-	1925 Entrants	26	\$ 48,827				
		1926 "	61	122,702				
		1927 "	41	75,500				
		1928 "	65	127,227				
		1929 "	79	148,152				
		1930 "	88	160,902				
		1931 "	58	100,463				
		1932 "	42	80,666				
		1933 "	27	51,320				
		1934 "	229	310,268				
		1935 "	87	142,627				
		1936 "	270	401,892				
		1937 "	73	107,564				
		1938 "	2	4,400				

Total Males - Schedule I

1,218 \$2,082,550

Schedule I:

Female	-	1925 Entrants	11	\$ 14,832				
		1926 "	26	34,496				
		1927 "	25	33,732				
		1928 "	16	20,223				
		1929 "	22	33,898				
		1930 "	50	65,273				
		1931 "	27	35,232				
		1932 "	38	44,976				
		1933 "	16	17,844				
		1934 "	50	59,682				
		1935 "	24	31,800				
		1936 "	67	80,460				
		1937 "	20	23,196				
		1938 "	5	9,000				

Total Females - Schedule I

403 504,634

SCHEDULE I - TOTAL.....

1,621 \$2,586,964

SCHEDULE C
(Part 2)

NEW MEMBERS - IN ACTIVE SERVICE MAY 31, 1940

BY FISCAL YEAR OF ISSUE

			<u>Number</u>	<u>Total Salary</u>		<u>Number</u>	<u>Total Salary</u>		<u>Number</u>	<u>Total Salary</u>	
<u>Schedule II:</u>											
Male	-	1925	Entrants	89	\$ 229,537						
		1926	"	204	459,574						
		1927	"	284	713,425						
		1928	"	287	624,100						
		1929	"	344	747,092						
		1930	"	456	931,184						
		1931	"	311	704,083						
		1932	"	296	692,104						
		1933	"	167	328,450						
		1934	"	1,016	1,389,072						
		1935	"	411	832,016						
		1936	"	1,271	2,134,553						
		1937	"	1,713	2,796,142						
		1938	"	3,286	5,306,494						
		1939	"	3,543	6,223,855						
		1940	"	<u>2,650</u>	<u>4,125,819</u>						

Total Males - Schedule II 16,328 \$27,237,400

<u>Schedule III:</u>											
Female	-	1925	Entrants	39	\$ 64,172						
		1926	"	61	90,027						
		1927	"	60	94,297						
		1928	"	100	140,631						
		1929	"	117	166,008						
		1930	"	157	216,498						
		1931	"	165	228,645						
		1932	"	127	169,173						
		1933	"	81	110,804						
		1934	"	215	286,372						
		1935	"	168	229,176						
		1936	"	565	719,518						
		1937	"	725	916,390						
		1938	"	4,417	5,602,419						
		1939	"	3,371	3,920,159						
		1940	"	<u>2,272</u>	<u>2,539,290</u>						

Total Females - Schedule II 12,640 \$15,512,579

SCHEDULE II - TOTAL.....28,968 \$42,749,979

TOTAL NEW MEMBERS - AS OF MAY 31, 1940.....30,589 \$45,336,943

SCHEDULE H
(Part 1)

SUPERANNUATION ANNUITIES - AS OF MAY 31, 1940

ORIGINAL MEMBERS

Attained Age 1940	Number	M A L E			F E M A L E	
		Member's Annuity	State Annuity	Number	Member's Annuity	State Annuity
60	5	\$ 1,139.23	\$ 7,148.07	1	\$ 241.06	\$ 834.52
61	8	1,584.60	4,826.67	3	439.04	1,096.07
62	6	2,098.44	5,672.83	7	1,319.02	3,406.95
63	20	5,195.91	15,052.21	7	1,231.38	3,467.03
64	23	6,017.71	17,810.51	15	2,292.17	6,152.77
65	30	11,304.27	31,316.95	14	2,453.80	6,194.64
66	29	6,170.81	20,810.08	10	1,317.91	4,557.08
67	30	8,750.40	36,128.58	13	2,334.45	4,748.44
68	42	8,954.42	29,015.46	12	1,804.79	6,576.86
69	49	10,468.43	33,525.05	12	1,984.19	7,228.10
70	35	6,911.62	25,358.66	11	1,528.62	7,162.07
71	33	6,214.63	27,063.53	16	1,971.37	4,970.29
72	34	5,200.28	29,343.63	10	1,025.25	3,258.44
73	17	2,991.41	12,133.56	8	1,093.85	3,676.40
74	31	5,472.72	23,813.79	6	333.06	2,992.39
75	16	1,174.16	11,622.06	9	458.76	2,416.15
76	21	1,410.48	14,443.53	9	921.75	3,142.10
77	18	854.85	11,737.66	5	84.17	2,576.79
78	19	970.33	21,056.12	8	292.84	2,063.16
79	13	616.84	20,328.91	7	242.91	1,789.36
80	13	1,063.21	14,094.28	2	61.52	495.84
81	13	323.55	9,988.53	6	353.38	3,417.29
82	9	280.52	11,450.24	2	85.00	778.39
83	9	315.80	7,316.26	-	-	-
84	8	768.12	4,879.01	-	-	-
85	6	1,012.13	2,191.43	2	65.20	739.60
86	8	289.81	6,356.93	1	2.31	525.28
87	3	3.17	1,029.27	-	-	-
88	2	4.24	1,274.54	1	-	-
89	3	5.34	2,475.55	-	1.02	418.60
90	1	140.99	1,703.54	-	-	-
93	1	2.72	683.20	-	-	-
Totals -555		\$97,882.15	\$459,711.44	197	\$25,736.90	\$86,736.61

SCHEDULE H
(Part 2)

SUPERANNUATION ANNUITIES - AS OF MAY 31, 1940

NEW MEMBERS

Attained Age 1940	Number	M A L E			F E M A L E		
		Member's Annuity	State Annuity	Number	Member's Annuity	State Annuity	Number
60	1	\$ 234.15	\$ 334.00	2	\$ 300.14	\$ 301.30	
61	4	434.03	423.72	-	-	-	
62	3	582.05	648.39	2	124.54	126.48	
63	4	945.31	989.91	2	250.98	176.74	
64	3	438.40	363.89	4	521.93	448.77	
65	11	1,500.82	1,281.33	3	359.20	309.15	
66	13	1,394.91	1,215.95	3	397.64	346.90	
67	7	737.11	588.95	1	72.67	66.03	
68	7	743.24	584.75	1	78.75	54.93	
69	8	1,770.91	1,263.05	1	114.90	87.75	
70	1	84.26	125.73	2	333.67	242.97	
71	3	286.08	193.92	-	-	-	
72	5	1,071.59	728.90	-	-	-	
73	-	-	-	1	115.21	75.91	
75	1	105.32	66.00	1	62.52	39.87	
77	4	531.34	286.29	-	-	-	
78	1	100.40	55.67	-	-	-	
79	1	295.29	135.34	-	-	-	
80	1	3.79	706.08	-	-	-	
Totals - 78		\$11,359.60	\$10,041.90	23	\$2,732.15	\$2,276.80	
Original Members (Schedule H Part 1)	555	97,882.15	459,711.44	197	23,736.90	86,736.61	
Totals - 633		\$109,241.75	\$469,753.34	220	\$26,469.05	\$89,063.41	

SCHEDULE I

ANNUITIES TO SURVIVING BENEFICIARIES MEMBERS WHO ELECTED OPTIONS #2 OR #3

Attained Age 1940	Number	M A L E		Number	F E M A L E	
		Member's Annuity	State Annuity		Member's Annuity	State Annuity
38	-	-	-	1	\$ 30.33	\$ 1,721.25
39	-	-	-	1	87.40	351.21
41	-	-	-	1	46.51	232.96
42	1	\$ 89.44	\$ 131.55	-	-	-
49	-	-	-	1	93.93	243.81
52	-	-	-	1	100.25	1,923.52
54	-	-	-	1	222.47	1,100.17
56	-	-	-	1	117.51	353.99
60	-	-	-	2	412.92	1,268.23
62	-	-	-	3	318.42	745.29
63	-	-	-	5	429.42	5,591.71
64	-	-	-	2	283.50	1,461.08
65	-	-	-	3	390.20	5,306.51
66	-	-	-	3	70.87	3,294.28
67	-	-	-	2	34.93	470.94
68	-	-	-	2	66.65	625.61
69	-	-	-	4	531.14	1,415.16
70	-	-	-	5	729.11	3,845.70
71	-	-	-	2	216.21	1,332.05
72	-	-	-	3	127.18	4,952.44
73	-	-	-	2	9.35	2,689.02
74	-	-	-	2	5.46	3,857.69
75	-	-	-	1	22.80	950.90
76	-	-	-	5	151.58	2,555.12
77	-	-	-	6	269.76	4,181.48
80	-	-	-	1	.84	484.53
81	-	-	-	1	2.34	1,837.50
82	-	-	-	1	1.26	448.19
83	-	-	-	2	90.19	869.26
84	-	-	-	1	5.96	1,792.80
Totals -	1	\$ 89.44	\$ 131.55	65	\$ 4,858.49	\$ 53,913.20
SUP RANNUATION ANNUITIES						
Schedule H -	635	109,241.75	469,753.34	220	26,469.05	89,063.41
GRAND TOTALS -	634	\$109,331.19	\$469,884.69	285	\$31,327.54	\$142,976.61

SCHEDULE J
(Part 1)

DISABILITY ANNUITIES - AS OF MAY 31, 1940

ORIGINAL MEMBERS

<u>Attained Age 1940</u>	<u>Number</u>	<u>M A L E</u>		<u>Number</u>	<u>F E M A L E</u>	
		<u>Member's Annuity</u>	<u>State Annuity</u>		<u>Member's Annuity</u>	<u>State Annuity</u>
33	-	-	-	1	\$ 53.94	\$ 228.96
34	1	\$ 345.06	\$ 324.94	2	121.62	627.67
35	-	-	-	1	96.00	401.10
38	1	32.53	626.72	2	132.12	665.58
39	1	43.53	208.47	1	74.94	287.51
40	1	127.47	412.53	-	-	-
41	1	21.64	425.55	1	27.52	234.71
42	1	154.16	359.10	1	55.80	245.65
43	2	149.89	375.61	1	107.98	214.43
44	2	86.72	920.48	1	134.64	414.21
45	-	-	-	1	10.54	299.51
47	2	648.52	717.68	1	41.36	321.04
49	1	15.96	432.24	-	-	-
50	2	639.03	1,261.23	-	-	-
51	3	259.25	1,299.66	-	-	-
52	3	1,475.16	1,035.94	1	175.57	262.97
53	2	115.44	655.19	1	142.61	253.39
54	3	1,644.44	2,373.20	5	694.70	1,295.98
55	-	-	-	2	143.64	604.66
56	-	-	-	1	148.25	275.56
57	5	1,463.07	1,848.15	-	-	-
58	1	301.83	388.17	1	152.33	159.89
59	3	623.13	1,361.42	1	185.33	259.27
60	2	230.31	551.59	2	235.15	239.25
62	3	832.13	1,578.89	-	-	-
63	1	223.41	193.19	1	29.40	347.01
64	1	83.46	105.20	2	284.14	502.23
65	-	-	-	1	264.72	193.60
66	1	188.42	1,048.61	1	272.76	474.08
69	2	77.72	750.09	-	-	-
71	1	.93	451.41	-	-	-
Totals -	46	\$9,735.26	\$20,221.47	32	\$3,586.06	\$8,831.16

SCHEDULE J
(Part 2)

DISABILITY ANNUITIES - AS OF MAY 31, 1940

NEW MEMBERS

Attained Age 1940	Number	M A L E		Number	F E M A L E	
		Member's Annuity	State Annuity		Member's Annuity	State Annuity
27	-	-	-	1	\$ 44.90	\$ 262.93
29	-	-	-	1	46.21	260.11
30	-	-	-	1	43.69	305.32
31	1	\$ 54.06	\$ 197.30	1	79.26	369.09
33	1	111.30	237.30	1	23.55	120.65
34	2	83.40	753.53	2	70.70	605.93
36	-	-	-	2	110.99	483.50
37	2	183.48	765.68	-	-	-
38	1	74.67	483.63	-	-	-
39	-	-	-	-	-	-
40	1	79.84	572.56	1	46.30	309.05
41	1	156.27	477.33	-	-	-
42	2	226.42	1,206.03	-	-	-
43	1	84.99	565.51	2	132.42	353.57
45	1	105.24	461.16	-	-	-
46	1	81.36	368.64	-	-	-
49	3	335.55	962.68	-	-	-
52	3	421.94	1,359.06	1	25.42	80.86
53	-	-	-	1	67.20	173.06
55	1	33.36	173.34	-	-	-
57	2	184.38	255.37	-	-	-
58	-	-	-	-	-	-
59	1	134.88	127.60	1	28.12	77.91
60	-	-	-	-	-	-
61	1	120.47	56.79	1	80.53	23.22
62	1	147.61	193.19	-	-	-
64	1	193.70	129.15	-	-	-
65	1	141.41	-	-	-	-
Totals -	28	\$2,934.33	\$9,153.05	16	\$804.09	\$3,425.20
Original Members (Schedule J Part 1)	46	9,785.26	20,221.47	32	3,596.06	8,831.16
GRAND TOTALS -	74	\$12,719.59	\$29,374.52	48	\$4,390.15	\$12,256.36

SCHEDULE K
(Part 1)

WITHDRAWAL ANNUITIES - AS OF MAY 31, 1940

ORIGINAL MEMBERS

Attained Age 1940	Number	M A L E		Number	F E M A L E	
		Member's Annuity	State Annuity		Member's Annuity	State Annuity
34	-	-	-	2	\$ 72.13	\$ 34.06
35	-	-	-	2	122.63	79.95
36	-	-	-	2	148.59	87.56
37	1	\$ 88.58	\$ 108.52	-	-	-
38	1	74.60	41.51	4	204.27	157.21
39	3	235.18	292.78	-	-	-
40	2	217.32	196.43	2	75.44	50.54
41	1	110.69	100.95	3	166.52	154.30
42	3	451.11	458.17	-	-	-
43	2	196.54	153.20	2	149.55	134.12
44	2	350.02	376.01	4	198.57	241.65
45	2	240.71	241.33	1	78.41	130.70
46	6	552.74	568.55	2	146.93	139.80
47	7	1,057.64	2,193.93	4	334.30	405.12
48	4	624.70	753.41	2	154.49	256.68
49	5	323.24	1,418.79	4	370.77	404.67
50	8	1,243.13	1,857.95	1	43.08	124.69
51	5	797.45	2,958.77	3	279.28	519.62
52	5	678.18	1,731.30	8	914.55	1,620.62
53	8	1,289.06	2,759.53	9	1,060.53	1,680.72
54	10	1,572.68	3,305.13	6	642.82	1,019.81
55	13	2,999.22	7,517.24	6	598.26	1,031.36
56	13	2,399.89	6,365.45	8	964.02	1,936.69
57	18	3,357.20	11,994.12	3	202.53	2,237.98
58	15	3,198.49	8,361.24	7	788.13	2,024.93
59	26	4,426.50	16,827.75	8	924.10	2,078.73
60	20	4,263.65	12,629.94	9	1,653.71	3,764.45
61	15	3,550.71	12,733.23	4	647.26	1,546.55
62	10	2,198.52	7,239.70	5	655.82	2,385.06
63	7	1,196.96	5,033.57	4	562.13	1,361.03
64	7	1,745.13	5,002.16	6	775.03	2,320.11
65	5	528.82	3,481.10	1	84.20	167.21
66	4	480.11	1,616.11	1	11.18	100.92
67	2	455.70	1,853.42	-	-	-
70	1	39.62	605.57	-	-	-
71	2	173.84	1,978.37	-	-	-
Totals -	233	\$41,622.98	\$122,755.28	123	\$15,649.08	\$28,696.84

SCHEDULE K
(Part 2)

WITHDRAWAL ANNUITIES - AS OF MAY 31, 1940

NEW MEMBERS

<u>Attained Age 1940</u>	<u>Number</u>	<u>M A L E</u>		<u>Number</u>	<u>F E M A L E</u>	
		<u>Member's Annuity</u>	<u>State Annuity</u>		<u>Member's Annuity</u>	<u>State Annuity</u>
34	1	\$ 72.23	\$ 34.80	-	-	-
35	-	-	-	1	\$ 23.31	\$ 11.48
38	1	115.34	62.42	-	-	-
39	-	-	-	2	30.15	45.00
42	1	165.31	123.92	1	56.26	32.32
43	2	131.87	70.94	-	-	-
44	-	-	-	1	55.51	31.22
47	1	60.42	48.86	-	-	-
50	-	-	-	1	114.69	75.35
52	1	241.83	201.20	1	69.17	60.33
54	-	-	-	1	63.63	52.28
55	1	357.99	308.00	1	250.41	196.38
56	1	311.87	262.36	-	-	-
58	-	-	-	2	376.75	381.38
61	2	355.43	359.68	-	-	-
62	1	253.93	260.76	-	-	-
Totals -	12	\$ 2,086.22	\$ 1,732.94	10	\$ 1,088.88	\$ 887.74
Original Members (Schedule K Part 1)	233	41,622.98	122,755.28	123	13,649.08	28,696.84
GRAND TOTALS -	245	\$43,709.20	\$124,488.22	133	\$14,737.96	\$29,584.58

SCHEDULE L

SUMMARY OF ANNUITIES - AS OF MAY 31, 1940

		<u>ORIGINAL MEMBERS</u>		<u>NEW MEMBERS</u>		
	<u>Number</u>	<u>Member's Annuity</u>	<u>State Annuity</u>	<u>Number</u>	<u>Member's Annuity</u>	<u>State Annuity</u>
<u>SUPERANNUATION -</u>						
Male.....	556	\$ 97,971.53	\$459,942.79	73	\$11,359.60	\$10,041.90
Female.....	262	28,595.39	140,699.51	23	2,732.15	2,275.80
Total.....	818	\$126,566.98	\$600,642.60	101	\$14,091.75	\$12,318.70
<u>DISABILITY -</u>						
Male.....	46	\$ 9,785.26	\$ 20,221.47	28	\$ 2,934.33	\$ 9,153.05
Female.....	32	3,586.06	8,831.16	16	804.09	3,425.20
Total.....	78	\$ 13,371.32	\$ 29,052.63	44	\$ 3,738.42	\$12,578.25
<u>WITHDRAWAL -</u>						
Male.....	233	\$ 41,622.98	\$122,755.28	12	\$ 2,086.22	\$ 1,732.94
Female.....	123	13,649.08	28,696.84	10	1,033.88	887.74
Total.....	356	\$ 55,272.06	\$151,452.12	22	\$ 3,120.10	\$ 2,620.68
<u>TOTAL ANNUITIES -</u>	<u>1,252</u>	<u>\$195,210.56</u>	<u>\$781,047.35</u>	<u>167</u>	<u>\$21,005.27</u>	<u>\$27,517.63</u>

Total Annuities Payable to Original and New Members

Members' Annuities - \$216,215.63 - State Annuities - \$803,564.98 - Total Annuities - \$1,024,780.61

SCHEDULE M
(Part 1)

COMPARISON of MEMBERSHIP

	AS OF MAY 31, 1936		AS OF MAY 31, 1937		AS OF MAY 31, 1938	
	Number	Total Salary	Number	Total Salary	Number	Total Salary
<u>ORIGINAL MEMBERS - ACTIVE</u>						
SCHEDULE I - Male.....	116	\$ 275,479	108	\$ 251,774	88	\$ 214,088
- Female.....	51	70,211	43	61,427	36	53,470
SCHEDULE II - Male.....	1,444	4,094,215	1,300	3,753,517	1,322	3,924,880
- Female.....	483	712,305	439	667,652	380	615,207
TOTAL MEMBERSHIP AND SALARIES.....	2,094	\$ 5,152,110	1,890	\$ 4,734,360	1,826	\$ 4,807,645
<u>NEW MEMBERS - ACTIVE</u>						
SCHEDULE I - Male.....	1,614	\$ 2,541,867	2,359	\$ 3,731,888	1,849	\$ 3,033,537
- Female.....	682	675,541	797	831,779	596	705,980
SCHEDULE II - Male.....	5,370	9,141,456	6,321	13,830,480	14,125	23,778,093
- Female.....	2,703	2,932,444	3,710	4,059,176	8,655	10,096,203
TOTAL MEMBERSHIP AND SALARIES.....	10,369	\$15,291,308	15,187	\$22,452,323	25,225	\$37,663,645
<u>TOTAL OF ORIGINAL AND NEW MEMBERS AND SALARIES.....</u>						
	12,463	\$20,443,418	17,077	\$27,186,703	27,051	\$42,471,289
<u>ANNUITANTS</u>						
ORIGINAL MEMBERS.....	1,161	-	1,232	-	1,337	-
NEW MEMBERS.....	61	-	84	-	121	-
TOTAL ANNUITANTS.....	1,222	-	1,316	-	1,458	-
TOTAL MEMBERSHIP.....	13,685	-	18,393	-	28,509	-

SCHEDULE M
(Part 2)

COMPARISON OF MEMBERSHIP

	<u>AS OF MAY 31, 1939</u>		<u>AS OF MAY 31, 1940</u>	
	<u>Number</u>	<u>Salary</u>	<u>Number</u>	<u>Salary</u>
<u>ORIGINAL MEMBERS - ACTIVE</u>				
SCHEDULE I - Male.....	67	\$ 184,432	63	\$ 180,422
- Female.....	32	46,364	34	51,894
SCHEDULE II - Male.....	1,309	4,008,973	1,322	4,295,309
- Female.....	401	691,741	403	690,017
<u>TOTAL MEMBERSHIP</u>				
AND SALARIES.....	1,309	\$ 4,921,565	1,322	\$ 5,215,632

	<u>AS OF MAY 31, 1939</u>		<u>AS OF MAY 31, 1940</u>	
	<u>Number</u>	<u>Salary</u>	<u>Number</u>	<u>Salary</u>
<u>NEW MEMBERS - ACTIVE</u>				
SCHEDULE I - Male.....	1,440	\$ 2,448,389	1,218	\$ 2,082,330
- Female.....	439	536,875	403	504,634
SCHEDULE II - Male.....	14,602	25,015,235	16,328	27,237,400
- Female.....	11,300	13,924,239	12,640	15,512,579
<u>TOTAL MEMBERSHIP</u>				
AND SALARIES.....	27,781	\$41,924,776	30,589	\$45,336,943
<u>TOTAL OF ORIGINAL AND NEW MEMBERS AND SALARIES.....</u>	29,590	\$46,856,341	32,411	\$50,552,575

<u>ANNUITANTS</u>	
ORIGINAL MEMBERS.....	1,237
NEW MEMBERS.....	132
<u>TOTAL ANNUITANTS.....</u>	1,429
<u>TOTAL MEMBERSHIP.....</u>	31,019

PART VII

APPROPRIATIONS

APPROPRIATIONS

Section 4 (7) (c) of the State Employees' Retirement Law is as follows:

"Certify biennially the amount of appropriation, which shall be made by the Commonwealth and other agencies to the State Employees' Retirement Fund, which amounts shall be based on estimates furnished by the actuary, and shall be credited to the proper accounts created by this act."

These appropriations are to be sufficient to provide, on a reserve basis, the State's share of the cost of the retirement allowances and other benefits.

In the case of the original members, appropriations are made so that, on June 1st of each year, a payment is made into the reserve account maintained out of the State funds for the benefit of the original members. This account is designated as State Annuity Reserve Account Number Two.

The appropriation made for the biennium, June 1, 1931 to May 31, 1933 was \$1,050,000 and a like amount was appropriated for the biennium June 1, 1933 to May 31, 1935; for the bienniums June 1, 1935 to May 31, 1937; June 1, 1937 to May 31, 1939; and June 1, 1939 to May 31, 1941, the appropriation was \$1,000,000 each.

As a result of this investigation and the current valuation, the Retirement Board should give consideration to the question of asking for increased appropriations beginning with the coming biennium, creditable to State Annuity Reserve Account Number Two for the benefit of the original members. As shown by the valuation balance, the net present value of future appropriations to this account as of May 31, 1940 is \$9,346,288.76 as compared with \$8,987,279.91 as of May 31, 1939, an increase of \$359,008.85. Furthermore,

the balance in the State Annuity Reserve Account Number Two as of May 31, 1940 was \$3,716,059.24 as against \$3,924,502.09 as of May 31, 1939, a reduction of \$208,442.85.

The present value of the State annuities payable to original members and beneficiaries now on the annuity roll is \$6,232,945 which is considerably in excess of the balance in the State Annuity Reserve Account Number Two.

While financing the cost of State annuities to original members is quite an obligation, nevertheless, it is after all a temporary and passing problem since original membership is limited to those who have rendered service to the State prior to January 1, 1925 and have qualified for such membership.

In the case of new members, the Commonwealth's share of the cost of providing State annuities for them is a continuing matter.

The new members will ultimately constitute the entire body of members but this, of course, will be at a rather remote date. As a result of the investigation, there have been developed, as noted hereinbefore, service tables. The rate of withdrawal from service has a considerable effect on the amount of the State's contributions. There has been a record of heavy withdrawals from service among the new employes.

PART VIII
RECOMMENDATIONS

RECOMMENDATIONS

The provision of the State Employees' Retirement Law that the actuary of the Retirement Board shall make periodic actuarial investigations into the mortality and service experience of the contributors and beneficiaries and also valuations of the various accounts created by this act, requires also that the Retirement Board shall adopt such mortality or other tables as shall be deemed necessary as a result of such investigations and valuations.

On the basis of the results of this investigation and valuation, the following recommendations are submitted for the consideration of the Retirement Board:

1. That the life and service table set forth in this report be used as the basis for the future calculation of reserve requirements on account of active members and as the basis of determining the amounts of required biennial appropriations.

2. That a revised schedule of factors, a copy of which is submitted herewith, be used when disability retirement allowances are granted hereafter, which will more nearly conform to the actual mortality experience among the disabled lives. The revised factors are on the basis of 60% of the rate of mortality experienced according to the Hunter Table of Mortality among Disabled Lives, with interest at the rate of 4%, and with adjustments at the younger ages.

NOTE: The effect of the new factors will be to reduce somewhat the members' annuities provided for by the accumulated deductions and to increase correspondingly the reserves required initially and in subsequent years to provide for the State annuities to disabled members.

3. That a modification be made in the application of the factors now used in connection with the withdrawal annuities by entering the schedule of factors for continuous annuities at ages seven (7) years younger than the actual ages instead of at the actual ages as heretofore applied.

NOTE: The effect of the modification in the application of the factors will be to reduce somewhat the members' annuities provided for by the accumulated deductions and to increase correspondingly the reserves required initially and subsequently on the State annuities. The purpose of this is to offset the lower mortality being experienced in connection with the withdrawal annuities as compared with the rate of mortality experienced under the superannuation retirement allowances.

4. That an increase over the preliminary askings be sought in the amount of the appropriation for the biennium 1941 to 1943 for the State Annuity Reserve Account Number Two.

5. That a reduction in the preliminary askings be sought in the amount of the appropriation for the biennium 1941 to 1943 for the Contingent Reserve Account.

RECOMMENDED TABLE OF FACTORS

to be used in determining initial reserve
when a disability allowance is granted

<u>Age</u>	<u>Cost of \$1.00 of Disability Allowance</u>	<u>Age</u>	<u>Cost of \$1.00 of Disability Allowance</u>
20	10.5357	40	10.3485
21	10.5354	41	10.2889
22	10.5350	42	10.2234
23	10.5345	43	10.1611
24	10.5339	44	10.0802
25	10.5332	45	10.0012
26	10.5324	46	9.9214
27	10.5314	47	9.8404
28	10.5302	48	9.7511
29	10.5288	49	9.6595
30	10.5271	50	9.5655
31	10.5251	51	9.4688
32	10.5226	52	9.3685
33	10.5191	53	9.2706
34	10.5141	54	9.1744
35	10.5053	55	9.0863
36	10.4882	56	9.0013
37	10.4625	57	8.9196
38	10.4345	58	8.8401
39	10.3968	59	8.7635

Basis - 60% of Hunter Table of Mortality Among Disabled
Lives, with adjustments at younger ages.
Interest at the rate of 4%.
Disability retirement allowance payable in instal-
ments at beginning of each month.