

**Eighth Annual Report**  
of the  
**Teachers' Retirement System**  
of the  
**State of Kentucky**  
**1947-48**



November, 1948

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COMMONWEALTH OF KENTUCKY  
**DEPARTMENT OF EDUCATION**  
FRANKFORT

BOSWELL B. HODGKIN  
SUPERINTENDENT PUBLIC INSTRUCTION

## FOREWORD

The Teachers' Retirement System of the State of Kentucky is an integral part of the public education program of the Commonwealth and as such is worthy of the support of the taxpayers.

The teachers themselves also have a responsibility; that of understanding the purposes, relationships, and benefits provided by the Retirement System.

Its main purpose is to provide an orderly way for the retirement of ill and aged teachers and to supplement their financial resources by the payment for life of guaranteed retirement allowances.

The payments "for life" require current provision for the future. During the active professional life of the teacher, she and the state set aside contributions sufficient, with accumulated interest, to pay a deferred salary based upon age, service, and contributions during membership.

Appropriations for retirement should be considered as of equal importance and benefit as appropriations for per capita. For the ensuing year, 1948-49, the appropriations for retirement of teachers is \$3,915,481.64, and per capita \$21,500,000.00, total \$25,415,581.64 for teachers' salaries, current and deferred.

The Eighth Annual Report has been prepared at considerable expense, and I express the hope that it will be read and also discussed during at least one faculty meeting.

BOSWELL B. HODGKIN  
Superintendent of Public Instruction

## LETTER OF TRANSMITTAL

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COMMONWEALTH OF KENTUCKY  
**TEACHERS' RETIREMENT SYSTEM**  
FRANKFORT

Honorable Earle C. Clements  
Governor of Kentucky  
Frankfort, Kentucky

Dear Governor Clements:

We have the honor to respectfully submit to you this the Eighth Annual Report of the Board of Trustees of the Teachers' Retirement System of the State of Kentucky prepared in accordance with KRS 161.320.

The last actuarial valuation of the assets and liabilities (July 1, 1948), the last balance sheet, accumulated cash and securities of the System, membership, service, withdrawals, deaths, and other pertinent information are all included in this Report in proper form.

The Retirement System is actuarially sound and in excellent financial condition due to your budget recommendations and favorable action by the General Assembly of 1948.

Record of the proceedings of the Board of Trustees is maintained in good order, the funds of the System safely invested, and the Law faithfully carried out.

Respectfully yours,

MARY J. MAGUIRE  
Chairman, Board of Trustees

N. O. KIMBLER  
Secretary, Teachers' Retirement System

## INTRODUCTION

The Eighth Annual Report is for the year 1947-48, but it is prepared and compiled after June 30, 1948, the close of the year. For this reason we feel justified in referring to some conditions which may obtain in the ensuing fiscal or scholastic year.

Your Retirement System is actuarially sound. Appropriations made during the last session of the General Assembly are already effective as this report is being written. For the deficiency on prior service, \$2,439,606.64 has been placed in the Allowance Reserve Fund as recommended by the Governor, and substantial current appropriations provided. This greatly relieves the tension on those responsible for the smooth and effective operation of the Retirement System and guarantees the retirement allowances previously approved.

Your Retirement System should be far more than an office in the State Capitol, or a law to be complied with, or assets of a certain amount. It should be a cement to hold its members together; an inducement to young people to come into the profession to stay; an agency of security to teachers, human and personal in many instances; and of immeasurable benefit to the pupil children of the state.

Previous reports should be kept for reference since history, suggestions, and expert opinions cannot all be contained in any one report.

It is essential that the membership understand their Retirement System. Since the General Assembly, Retirement Board, and Secretary are amenable to the desires and demands of the members and other citizens, it is dangerous to the Retirement System for the members to be innocent of an adequate understanding of the rudimentary principles of an annuity system; and of what is already provided for in the present Law.

For these and other reasons the Law requires that an annual report be made. If it carries no information or educative material, or if it be ever so excellent but is not read, its issuance is a waste of time and money.

That the membership needs to study the literature is very obvious. Too frequently suggestions as to amendments or administration are received with reference to provisions already in the Law, or in practice, indicating that the person making the suggestion is not at all familiar with the present Law or its administration.

The Retirement Law was practically rewritten in January, 1946, and the amendments adopted by the General Assembly went into effect July 1, 1946. There seems to be general approval on the part of the membership. During the 1948 session of the General Assembly emphasis was placed upon appropriations calculated to make the Retirement System actuarially sound, and these were received.

Due to the inflationary trends of this period and further opportunity to study the Law, suggestions for further changes of a practical nature are in order. Resolutions and suggestions should be sent to the Secretary, to the nearest Board member, or to the Chairman of the Board.

Suggestions for improving the Law should be measured by two standards: (1) The cost to members and State, (2) The benefit such improvement will be to the pupil children of the public schools. Later in this report there is a discussion of suggestions and proposed amendments received up to this time.

### **Administration**

In 11 states the members pay part or all of the cost of administration. In 19 states cost of administration is paid by state or local employees. In the remaining states there are various means of financing cost of administration.

In Kentucky the cost of administration comes out of the appropriation. The Board of Trustees approves an annual budget prepared by the Secretary, and this becomes the Expense Fund of the System. It may not exceed an amount equal to 4% of the receipts of the State Accumulation Fund. In other words the taxpayers provide for the cost of administration of the Retirement System, and the Board of Trustees are responsible for the disbursement of the Expense Fund.

Each member of the Board of Trustees takes the constitutional oath and in addition thereto an oath to "diligently and honestly administer the affairs of the Board and that he will not knowingly violate or willingly permit to be violated any provisions of the law applicable to the retirement system."

Kentucky has what is considered to be the most favorable and most democratic plan of administration and members should zealously co-operate in carrying out the provisions of the Law. Members of the Board of Trustees serve without pay, but their actual and necessary expenses incident to attendance upon meetings are paid by reimbursement.

In every respect the Statutes governing state agencies, institutions, and departments are complied with and the state routine of business applying to the Retirement System is faithfully carried out.

### **Members of the Board**

Miss Mary J. Maguire, Chairman, Teacher Henry Clay High School, Lexington.

Mr. L. C. Curry, Vice-Chairman, Superintendent Bowling Green Public Schools, Bowling Green.

Mr. William S. Milburn, Principal Louisville Male High School, Louisville.

Mrs. Anna H. Settle, Lay member, Attorney, Louisville.

\*Hon. Boswell B. Hodgkin, Superintendent of Public Instruction, Ex officio member, Frankfort.

\*Hon. Edward F. Seiller, State Treasurer, Ex officio member, Frankfort.

\*Hon. A. E. Funk, Attorney General, Ex officio member, Frankfort.

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\* Ex officio members began to serve January 1, 1948.

## Office Personnel

N. O. Kimbler, B.S., M.A., Executive Secretary.

Vera Beckham, A.B., Assistant.

†William Ray Holt, B.S. in Commerce, Accountant.

†Weldon Jones, Supervisor.

Lora Mae Blanford.

Alean McDonald.

Jean Lillis

Helen Meade.

Dorothy Lathrem.

Anna Mae Bates

Wilma Landrum.

Lois Kerby

Sophia Johnson

Edward K. Martin, M.D., Medical Director.

Personnel is employed by the Board upon recommendation of the Executive Secretary. There has been no partisan or political interference whatsoever, and the staff is governed by merit and ability to do the work. That such a small staff can handle such a volume of business attests to its efficiency and diligence.

The Executive Secretary and every member of the staff are under bond. The mail handled is, indeed, not all of the work, but it is indicative. In all, 45,641 pieces of mail went out during 1947-48. Of this, 19,802 were first-class and mostly dictated letters. During the year approximately 400,000 lines of entries were made on ledgers; 1,442 transfers were made; 2,385 accounts were closed; 3,833 new accounts opened; 5,300 checks were issued; and the records of 33,569 teachers maintained.

## Retirement Office

The Retirement Office is on the first floor of the Capitol Building and adjacent to the offices of the Department of Education. It consists of a single office 30' x 50' in dimensions. Due to the nature of the work, there is a considerable amount of noise which interferes with dictation of letters and concentration on close work. There are in operation most of the time four Burroughs posting-calculating machines, five adding machines and calculators, and seven typewriters. The office is crowded with ten desks, fourteen fireproof filing cabinets and tubs, and twenty-seven regular filing cabinets, three index card files, and a large fireproof combination lock safe.

For efficient work, the loud machines should be in an office by themselves. Double the present space is needed, but at this time there is no space into which to expand. There is a very useful storeroom 8' x 16' attached. An inventory of all equipment and furniture is kept current and a copy filed with the Commissioner of Finance as required by Law.

All of the space, heat, and light are provided by the State free of rent.

## STATISTICAL

During 1947-48 there were considered to be 19,484 members paying contributions. In some cases two members pay from the same covered position, one being on leave of absence.

Table I Membership 1940-48, gives an analysis of contributing members, or previously contributing members, even though some have not

† Mr. William Ray Holt resigned to accept a better position in private business in Lexington, and Mr. Weldon Jones resigned and was employed by transfer in the Division of Accounts and Control of the State Government. Mr. F. L. Phillips, B.C.S., A.B., M.A., Accountant, has been added to the office personnel.



filed service forms. Very few teachers in active service at this time have failed to do so; the bulk of those not filing being individuals who taught for a short time only and who slipped by feeling it was unnecessary. There were 1,524 such cases, far too many, in 1947-48.

Thousands of accounts must be maintained for teachers not now teaching. During 1947-48 postage paid return reply cards were mailed to 4,857 teachers who had not taught for three years or more. We get a response from about 50% who advise us of plans to teach again, or a desire to withdraw permanently.

**Table I. Membership 1940-48**

	SERVICE RECORDS			Members Without Service Records	Totals All Members
	With Prior Service	Without Prior Service	Total With Records Filed		
Members _____	23,154	7,749	30,903	9,489	40,392
Added during 1947-48	370	1,939	2,309	1,524	3,833
<b>Total</b> _____	<b>23,524</b>	<b>9,688</b>	<b>33,212</b>	<b>11,013</b>	<b>44,225</b>
Withdrawn _____	5,481	2,259	7,740	1,719	9,459
Deceased _____	303	17	320	41	361
Retired _____	836 6,620	0 2,276	836 8,896	0 1,760	836 10,656
<b>Total</b> June 30, 1948 —	<b>16,904</b>	<b>7,412</b>	<b>24,316</b>	<b>9,253</b>	<b>33,569</b>

During the eight years accounts have been set up and maintained for 44,225 teachers in all. Of this number 33,212 filed enrollment forms A-1 or A-2, providing the office with the full name, address, and the name of a beneficiary to whom to pay the account in case of death before retirement, and other useful data. The remaining 11,013 have not done so. While during the year the number of such withdrawing is greater than the number coming in, there still remains 9,253 on whom the data is not available.

Table I indicates the great change over the period, and for the year, in the personnel of the teaching forces of the State. New accounts were set up for 3,833 teachers, and accounts were closed for 2,385. The number of contributing members for 1947-48 is 19,484; the number of active accounts to which interest was added each month 29,218, and the number of inactive accounts 4,351; that is, accounts receiving no contributions for more than three years. The total number of accounts being handled on the last day of the year were 33,569. Table I does not include 113 teachers who retired July 1, 1948.

On the whole, Table I does not indicate that teaching is a profession in Kentucky, but rather that thousands on the fringe drop in and out in a most disconcerting manner.

Table II, Members with Prior Service End of Eighth Year, presents the prior service credit in force among active members. It does not include the prior service of members who have retired, excepting the 113 who retired July 1, 1948; who have died; or who have withdrawn. The

prior service of deceased and withdrawn teachers is liquidated relieving the State of that obligation. Reference to the Actuary's Balance Sheet, page 36, will show the value of the prior service credit held by active and retired teachers.

A comparison of this Table II with Table II in previous reports will indicate the gradual reduction of aggregate years of prior service. There is still a comparatively large amount outstanding, 178,742.3 years.

It is the State's obligation to provide in its annual appropriation an amount equal to 2% of the aggregate prior service salaries of members holding prior service credit. This is being done. Please refer to Table IIA, Temporary Appropriations for Prior Service. Two per cent of \$14,823,845.36 is \$296,477.00, the measure of the annual "temporary" appropriation over and above the amount needed to "match" members' contributions.

After the amendments of 1946, the average prior service salary of \$876.94 is no longer a true measure or true factor. By reason of the minimum of \$300.00 for 30 years of service, or, in other words, \$10.00 per service credit year up to 30 years, this low prior service average salary is automatically increased, when needed, from the true average to \$1,174.00 in order to provide the minimum (basis age 65). In the tables used by the Actuary, any prior service salary (individual average) less than \$1,174.00 is increased to \$1,174.00.

When this is done, the average prior service salary for 16,904 members becomes \$1,366.35 in estimating the obligation for prior service. In round numbers, the passage of the Retirement Law in 1940 made it possible to validate a quarter of a million years of prior service. The state was, indeed, very generous, although it limited the maximum to 30 years for the individual member. Other states were more restrictive, but have had to liberalize the granting of prior service from time to time.

The prior service obligation is reduced by deaths and withdrawals. It is not reduced by retirements. At retirement the obligation is translated into money and placed to the credit of the Allowance Reserve Fund. During the eight years the state has been entirely relieved of the obligation corresponding to 44,626.57 years, reducing the number for which it is obligated to 202,000.93 years of which 26,044.33 have matured by retirements and have been paid for by the State—the proper funds being on deposit now in the Allowance Reserve Fund.

**Table II. Members With Prior Service End of Eighth Year**

From July 1, 1940 Thru June 30, 1948	Number	Prior Service Years		Prior Service Salary	
		Total	Average	Total	Average
Members with Prior Service					
Records Filed .....	23,524	246,627.50	10.5	\$20,376,667.23	\$ 891.71
Deductions					
Withdrawn .....	5,481	39,267.67	7.2	4,999,353.08	912.13
Deceased .....	303	5,358.90	17.7	345,243.39	1,139.43
Retired .....	836	23,258.63	27.8	808,215.40	966.76
Totals and Averages					
June 30, 1948 .....	16,904	178,742.30	10.6	\$14,823,845.36	\$ 876.94

As members with prior service credit advance in age, the present worth of the unmatured obligation for prior service increases. However, recent appropriations previously referred to have decreased the obligation for prior service markedly, leaving an unliquidated balance of approximately \$6,000,000.00.

**Table IIA. Temporary Appropriations for Prior Service Available July 1, 1942, Through June 30, 1948**

Year	Aggregate Prior Service Salaries	Legal Appropriation of 2%	Amount Appropriated	Remaining Unappropriated
1940-41	\$17,118,618.38	\$ 342,372.37	\$ .....	\$ 342,372.37
1941-42	16,899,681.77	337,993.64	.....	337,992.64
1942-43	16,997,806.67	339,956.13	68,007.63	271,948.50
1943-44	16,417,966.20	328,359.32	79,205.38	249,153.94
1944-45	15,932,987.94	318,659.76	126,531.94	192,127.82
1945-46	15,288,597.28	305,771.95	133,605.33	172,166.62
1946-47	15,362,882.72	307,257.65	52,737.51	254,520.14
1947-48	13,412,912.96	268,258.26	52,359.59	214,898.67
Totals		\$2,548,629.08	\$512,447.38	\$2,035,181.70

By constructing Table IIA to show the special deficiency appropriation of \$2,439,606.64, which was available on July 1, 1948, it is evident that the State has, at the time this Report is being written, fulfilled the obligation set out in Section 161.550, KRS. The value of this appropriation to the System's usefulness cannot be overstated. All of the funds represented in this Table IIA has been, or will be paid to the members already retired for their prior service credit.

It should be kept in mind that the amendment providing for increased retirement allowances, effective July 1, 1946, did not increase the 2% contribution required from the State. Therefore, any seeming surplus shown by this table is not a real surplus. On July 1, 1948, the balance in the Allowance Reserve Fund was \$2,409,493.52. This is the first time the Fund has shown an adequate balance. It is invested at 2½%, but the principal will be reduced quarterly as retirement allowances are paid. The present 800 living retired teachers will during their life expectancy receive a little in excess of \$3,600.00 each on the average; this indicates there is no surplus in this fund account.

Table III distributes the 1,939 new members whose enrollment Forms A-2 were received during 1947-48. These members have no prior service in Kentucky; a very few have service in other states which may be transferred to Kentucky, but very little of such service is prior to July 1, 1941.

The highest average salary, \$1,824.21, is for members 26 years old, excepting eight members in the age 52 bracket who receive \$1,855.80. The average for the class of new entrants is \$1,404.37.

This is quite a contrast with the data presented in Table IV which shows the ages and prior service salary of 370 new entrants with prior service.

**Table III. Distribution by Ages of 1,939 New Entrants without Prior Service who have Filed A-2's after Tables were made July 1, 1947**

Age	Number	SALARIES	
		Total	Average
18	306	\$ 311,096.27	\$1,016.65
19	206	227,877.25	1,106.20
20	175	210,083.33	1,200.48
21	170	238,407.14	1,402.39
22	130	200,373.79	1,541.34
23	95	140,499.85	1,478.95
24	75	118,038.89	1,573.85
25	84	135,226.86	1,609.84
26	62	113,100.99	1,824.21
27	62	95,559.43	1,541.28
28	51	86,772.61	1,701.42
29	50	86,977.63	1,739.55
30	45	73,363.19	1,630.40
31	37	58,835.34	1,590.14
32	32	51,849.17	1,620.29
33	30	46,503.25	1,550.23
34	39	62,381.27	1,599.52
35	28	44,163.29	1,577.44
36	27	41,400.05	1,533.34
37	25	41,861.45	1,674.46
38	29	43,524.01	1,500.83
39	25	41,078.86	1,643.15
40	18	30,349.13	1,686.07
41	17	25,297.30	1,433.08
42	17	28,314.09	1,655.53
43	14	23,429.00	1,673.50
44	8	12,109.50	1,513.69
45	13	21,114.12	1,624.16
46	15	26,837.13	1,789.16
47	12	21,282.20	1,773.52
48	3	5,253.81	1,751.27
49	5	6,515.15	1,303.03
50	4	7,102.50	1,775.63
51	4	6,851.65	1,712.91
52	8	14,846.43	1,855.80
53	2	2,121.60	1,060.80
54	1	1,681.20	1,681.20
55	4	5,992.95	1,498.24
56	4	6,563.00	1,642.00
57	2	1,763.00	884.00
58	0	0.00	0.00
59	0	0.00	0.00
60	1	1,035.00	1,035.00
61	2	2,348.60	1,174.30
62	0	0.00	0.00
63	1	2,400.00	2,400.00
64	0	0.00	0.00
65	1	864.00	864.00
66-70	0	0.00	0.00
Totals and Averages	1,939	\$2,723,070.38	\$1,404.37

The average prior service salary of \$665.95 for their last five years prior to July 1, 1941, shows that for new entrants salaries have increased more than 100% in approximately eight years.

The mode for number entering is at age 39. Many teachers take a new start when their own children are old enough to attend school. The older people with considerable prior service are attracted back to a pro-

**Table IV. Distribution by Ages of 370 New Entrants with Prior Service who Filed A-1's after Tables were made July 1, 1947**

Age	Number	PRIOR SERVICE		SALARIES	
		Total	Average	Total	Average
18-22	0	0.0	0.0	\$ 0.00	\$ 0.00
23	2	4.0	2.0	1,019.35	509.68
24	1	3.0	3.0	564.90	564.90
25	0	0.0	0.0	0.00	0.00
26	2	4.9	2.5	874.60	437.30
27	4	14.0	3.5	2,413.50	603.38
28	5	18.0	3.6	2,408.10	481.62
29	7	18.6	2.7	4,424.90	632.13
30	6	16.4	2.7	3,014.43	502.40
31	14	56.7	4.1	7,593.25	542.73
32	18	79.2	4.4	11,260.40	625.58
33	17	61.9	3.6	11,339.02	669.94
34	19	94.6	5.0	11,974.31	630.23
35	21	80.1	3.8	11,724.98	558.33
36	19	78.6	4.1	13,295.00	699.74
37	13	69.9	5.4	8,639.20	668.40
38	18	96.1	5.3	11,728.10	651.56
39	26	159.8	6.1	16,959.52	652.29
40	13	77.7	6.0	7,553.75	581.44
41	16	83.4	5.2	12,086.02	755.38
42	11	78.0	7.1	7,863.50	714.86
43	13	81.3	6.3	9,628.87	740.68
44	7	37.7	5.4	6,121.00	874.43
45	11	91.2	3.3	8,536.95	776.09
46	14	126.1	9.0	9,832.80	707.27
47	16	117.0	7.3	10,249.35	640.58
48	5	20.7	4.1	3,780.00	776.00
49	9	109.1	12.1	8,289.90	921.10
50	8	72.6	9.1	4,924.20	615.53
51	6	44.9	7.5	3,940.11	656.69
52	1	21.0	21.0	1,404.00	1,404.00
53	6	64.6	10.8	4,989.20	831.53
54	3	33.0	11.0	1,457.50	485.83
55	3	22.0	7.3	1,622.00	540.66
56	7	94.0	13.4	5,480.75	782.96
57	5	95.5	19.1	4,215.20	843.04
58	5	67.9	13.6	2,164.50	432.90
59	7	74.9	10.7	3,455.10	493.59
60	1	12.3	12.3	450.00	450.00
61	5	93.7	18.7	5,243.00	1,048.60
62	2	17.6	9.8	2,450.00	1,225.00
63	4	49.3	12.3	1,770.00	442.50
64-70	0	0.0	0.0	0.00	0.00
Totals and Averages	370	2,441.8	6.6	\$246,402.26	\$ 665.95

fession they previously left; but as yet the number is not significant—about one-half of one per cent.

The Retirement System has an Actuary available for consultation, surveys, and investigations at any time. A general survey and a revised **Valuation Balance Sheet** is made annually. At the end of each five-year period a thorough investigation is made and a new valuation is the outcome. At the end of the first ten-year period (after July 1, 1950) a thorough investigation will again be made and the Tenth Annual Report will carry Table J, Assumed Withdrawals, Deaths, and Disability Rates Per 1,000 Members, and any necessary revision of the same. Our own experience as a retirement system will be given full weight.

For Table J and for Table V the reader is respectfully referred to the Sixth Annual Report. Table V is a Test Table comparing our experience with the assumptions set up in the beginning.

Deaths before retirement are much lower than the assumptions. We feel that not all deaths are reported, especially those of young teachers and teachers temporarily out of the service. Deaths of the retired teachers are all reported and so far conform to the assumptions more closely.

Termination of membership by withdrawal is much higher than the Table J assumes, and this is favorable to the System. According to the table 980 members should have been expected to withdraw during 1947-48; whereas the number actually withdrawing was 1,744—favorable by an approximate margin of 80%.

Due to war conditions and low salaries in Kentucky, the withdrawal rate is abnormally high. It is doubtful if our basic tables should attempt to forecast a continuation of this high withdrawal rate. Systems much older and in which salaries are much better are also experiencing high withdrawal rates; rates far above their own previous experience.

Since we have extended our 1937 Standard Annuity Mortality Table to age 85, it is included in this the Eighth Annual Report. This is necessary because of the advanced age of many of our retired teachers. We have 3 retired teachers who are 88 years old and 34 who are 80 or older; 13 more will reach age 80 within the year.

In two decades the table will have to be extended to age 100. Longevity may well influence the contributions members will pay in the future and otherwise affect the finances of the System.

We show the table beginning at age 50 because that is the earliest age for retirement. Discount Factors stop at age 70 because that is the compulsory retirement age.

Column  $a\frac{3}{x}$  shows the amount of dollars invested at 3% required to pay an annuity of \$1.00, using both principal and interest, upon retirement at a given age. For example, a member retiring at age 51 for disability and receiving a retirement allowance of \$600.00 will require an invested reserve of \$10,502.00, and she will receive both principal and 3% compound interest in a normal length of life. A member retiring at age 65 on a retirement allowance of \$1,000.00 will require and use in like manner \$12,393.09.

This table has food for thought for any who do not know the financial value of an annuity and for those who have suggested that the maximum

1937 Standard Annuity Mortality Table

Age	$l_x$	$d_x$	$q_x$	3% $a_x$	Discount Factors Equal to 70 a 3%
50	914226	5816	.006362	17.84964	.59121
51	908410	6234	.006863	17.50283	.60293
52	902176	6679	.007403	17.15249	.61524
53	895497	7149	.007983	16.79884	.62820
54	888348	7651	.008613	16.44204	.64183
55	880697	8189	.009288	16.08243	.65618
56	872517	8741	.010018	15.72020	.67130
57	863776	9333	.010805	15.35566	.68724
58	854443	9957	.011653	14.98909	.70404
59	844486	10612	.012566	14.62080	.72178
60	833874	11302	.013554	14.25107	.74050
61	822572	12021	.014614	13.88028	.76028
62	810551	12774	.015760	13.50872	.78119
63	797777	13556	.016992	13.13677	.80331
64	784221	14368	.018321	12.76477	.82672
65	769853	15207	.019753	12.39309	.85151
66	754646	16072	.021297	12.02211	.87779
67	738574	16956	.022958	11.65224	.90565
68	721618	17859	.024749	11.28381	.93523
69	703759	18773	.026675	10.91726	.96663
70	684986	19694	.028751	10.55296	1.00000
71	665292	20615	.030986	10.19131	Comput- sory retire- ment at age 70
72	644677	21526	.033390	9.83271	
73	623151	22420	.035978	9.47754	
74	600731	23286	.038763	9.12620	
75	577445	24113	.041758	8.77904	ment at age 70
76	553332	24889	.044950	8.43646	
77	528443	25600	.048444	8.09883	
78	502843	26232	.052167	7.76647	
79	476611	26770	.056167	7.43975	age 70
80	449841	27199	.060464	7.11806	
81	422642	27506	.065081	6.80441	
82	395136	27672	.070032	6.49642	
83	367464	27688	.075349	6.19521	
84	339776	27539	.081050	5.90105	
85	312237	27215	.087161	5.61416	

allowance be set for age 65 rather than at age 70. Time is of the essence in any annuity system. Any plan which reduces the number of years for interest accumulation and contributions, and increases the number of years during which annuities are paid should be given careful study and analysis.

If a retired teacher now receiving \$800.00 per year had retired at 65 instead of at 70, the reserve would have lost \$592.00 in contributions and \$4,000.00 in retirement allowances plus 3% compound interest on the whole. Lowering the table will not provide for these losses; they may be provided for by increased contributions.

Table VI. Members Deceased Before Retirement 1940-48

Attained Age at Death	Number			Prior Service		Salaries	
	Male	Female	Total	Total	Average	Total	Average
20 and under	1	1	2	0	0	\$ 1,010.35	\$ 505.18
21	2	0	2	2.0	1.0	921.21	460.61
22	1	1	2	4.0	2.0	1,001.35	500.68
23	0	4	4	9.0	2.3	2,453.05	614.51
24	2	2	4	9.5	2.4	3,149.34	787.34
25	4	3	7	15.0	2.1	5,847.35	835.34
26	1	3	4	12.5	3.1	3,124.80	781.20
27	5	3	8	24.0	3.0	5,469.21	683.65
28	1	2	3	18.0	6.0	1,891.05	630.35
29	11	3	14	45.1	3.2	10,605.08	757.51
30	7	4	11	44.0	4.0	8,013.13	728.92
31	4	5	9	60.8	6.8	7,112.95	790.33
32	2	4	6	38.7	6.5	4,178.57	696.43
33	5	2	7	47.9	6.8	7,942.07	1,134.58
34	7	6	13	140.4	10.8	11,464.61	881.89
35	3	5	8	64.0	8.0	7,130.61	891.33
36	3	4	7	69.8	10.0	5,831.71	975.96
37	2	4	6	62.1	10.4	6,424.37	1,070.73
38	6	7	13	148.9	11.5	12,219.23	939.94
39	1	4	5	32.0	6.4	5,350.13	1,070.03
40	2	10	12	143.1	11.9	10,369.03	864.09
41	2	4	6	73.6	13.1	4,757.85	792.98
42	2	4	6	92.5	15.4	6,946.90	1,157.82
43	2	6	8	117.3	14.7	7,351.82	918.98
44	2	7	9	136.2	15.1	7,562.92	840.32
45	3	4	7	97.4	13.9	9,399.45	1,342.78
46	3	2	5	93.0	18.6	2,329.04	565.81
47	3	2	5	88.5	17.7	5,965.21	1,193.04
48	0	4	4	48.7	12.2	3,946.02	986.51
49	2	3	5	98.8	19.8	3,494.08	698.82
50	6	2	8	167.5	20.9	8,966.35	1,120.79
51	1	3	4	98.6	24.7	3,802.80	950.70
52	1	7	8	157.0	19.6	8,632.79	1,079.10
53	0	3	3	74.0	24.7	3,096.52	1,032.17
54	1	4	5	106.7	21.3	8,070.00	1,614.00
55	2	4	6	140.0	23.3	7,622.15	1,270.36
56	2	5	7	117.2	16.7	6,585.00	940.71
57	1	2	3	65.0	21.7	4,832.05	1,610.68
58	1	7	8	225.6	28.3	10,159.05	1,269.88
59	1	7	8	231.0	28.9	7,400.50	925.06
60	2	8	10	249.2	24.9	11,033.37	1,103.39
61	5	7	12	324.1	27.0	16,930.90	1,410.90
62	2	8	10	263.6	26.4	12,688.45	1,268.85
63	3	5	13	276.0	21.2	14,890.85	1,138.53
64	0	0	0	0	0	0.00	0.00
65	5	0	5	83.7	16.7	5,793.08	1,153.61
66	0	5	5	118.0	23.6	7,055.60	1,411.12
67	7	3	10	241.4	24.1	11,939.45	1,193.95
68	4	9	13	297.4	22.9	13,676.90	1,052.07
69	3	4	7	190.1	27.2	9,081.93	1,297.42
70-78	1	4	5	90.0	18.0	5,958.60	1,191.72
Totals and Averages	142	210	352	5358.9	15.2	\$352,899.33	\$1,002.55



Table VI, Members Deceased Before Retirement 1940-48, gives the data for all deceased members reported to the office during the eight years. It does not include deceased retired teachers.

During 1947-48, 22 men and 32 women were reported deceased. Approximately 15% had not appointed beneficiaries by filing enrollment forms. The accounts of these who have not filed are paid to someone appointed and qualified by the Probate Judge.

The loss of these 54 members by death brings the grand total to 352. The 11 men deceased at age 29 are accounted for by the war.

**Table VIA. Members Deceased Before Retirement 1947-48**

Attained Age at Death	Number			Prior Service		Salaries	
	Male	Female	Total	Total	Average	Total	Average
18-24	0	0	0	0	0	\$ 0.00	\$ 0.00
25	0	1	1	0	0	644.85	644.85
26	0	1	1	0	0	567.00	567.00
27	0	1	1	0	0	1,494.00	1,494.00
28	0	1	1	3.0	3.0	395.85	395.85
29	2	0	2	0	0	2,367.00	1,183.50
30	0	1	1	0	0	982.09	982.09
31	1	2	3	12.3	4.1	2,264.78	754.93
32	1	0	1	0	0	896.00	896.00
33-34	0	0	0	0	0	0.00	0.00
35	2	2	4	22.0	5.5	3,176.61	794.15
36	1	1	2	16.0	8.0	1,199.77	599.88
37	0	0	0	0	0	0.00	0.00
38	1	0	1	12.0	12.0	464.45	464.45
39	0	1	1	9.0	9.0	504.00	504.00
40	1	2	3	14.0	4.7	2,473.68	824.56
41	1	2	3	39.7	13.2	2,487.15	829.05
42	1	0	1	13.0	13.0	1,920.00	1,920.00
43	0	0	0	0	0	0.00	0.00
44	0	1	1	16.9	16.9	499.80	499.80
45	1	1	2	19.0	9.5	2,971.82	1,485.91
46	0	1	1	11.0	11.0	545.30	545.30
47	0	1	1	22.0	22.0	539.91	539.91
48	0	1	1	5.0	5.0	2,000.00	2,000.00
49-51	0	0	0	0	0	0.00	0.00
52	0	1	1	0	0	700.00	700.00
53-54	0	0	0	0	0	0.00	0.00
55	0	1	1	29.0	29.0	1,014.75	1,014.75
56-58	0	0	0	0	0	0.00	0.00
59	0	1	1	30.0	30.0	565.20	565.20
60	1	1	2	54.0	27.0	2,900.00	1,450.00
61	0	0	0	0	0	0.00	0.00
62	1	1	2	56.0	28.0	3,390.00	1,695.00
63	4	2	6	79.7	13.3	5,882.60	980.43
64	0	0	0	0	0	0.00	0.00
65	3	0	3	48.7	16.2	3,204.03	1,068.03
66	0	2	2	30.0	15.0	3,620.00	1,810.00
67	0	1	1	30.0	30.0	1,640.00	1,640.00
68	0	2	2	55.4	27.7	1,975.50	987.75
69	1	0	1	15.0	15.0	2,000.00	2,000.00
70	0	0	0	0	0	0.00	0.00
Totals and Averages	22	32	54	642.7	11.9	\$55,256.19	\$1,023.82

Those with and without prior service are included in the same table and the average of 15.2 years is for the total. The amount of prior service is comparatively large. It appears that most of the deaths are for teachers with much experience. This is not exactly true; the deaths of younger teachers are often not reported. The members should see to it that all deaths are reported to the Retirement Office. A postal card notice is sufficient.

The deaths above age 70 occurred during 1940-42 while there were no retirements. The increase of mortality about age sixty indicates that teachers should exercise extra care at that age and retire if health so indicates.

The Seventh Annual Report discusses the causes of death among teachers as shown by our experience.

Table VII includes 768 members with prior service who withdrew during 1947-48. As previously stated we received 370 new members with prior service. During 1947-48 we lost by withdrawal 976 members without prior service and received 1,939 new members without prior service. The losses were 1,744 and the comparative gains 2,309. This results in an accumulation of accounts for teachers now teaching. The System continues to enroll each year more members than withdraw, and as a consequence we have 33,569 accounts, of which 19,484 received contributions during 1947-48. Of the remaining 14,085 accounts, 6,286 have not received contributions for three years or more and are placed in an inactive control account. The cash in these inactive accounts amounts to \$193,017.76, and it is invested for the benefit of the System. These inactive accounts receive no interest. This is favorable to the System. In the active control there are 27,283 accounts; 19,484 of which were credited each month with contribution and interest, and 7,799 accounts credited each month with interest only. Because there are so many accounts and entries, it requires great care to keep the Fund in balance. It is balanced each month; often each day.

From July 1, 1940, to July 1, 1948, a total of 9,016 members have withdrawn and thereby cancelled 39,267.67 years of prior service credit. The amount refunded to withdrawing members in 1947-48 is \$141,581.51; the total for eight years \$569,654.43. A like amount was concurrently transferred to the Guarantee Fund.

Superintendents should not sign an application for refund until the withdrawing member's last contribution has reached the Retirement Office. Contributions for the whole month must be posted to the members' accounts and the Fund balanced before refunds can be deducted from the control for the Fund. This requires not less than 30 days and may require almost 60 from the time the application is received, depending upon date of receipt. All such business has a definite routine, and there is no slowing it or expediting it. They are always paid on the earliest date possible. See Schedule 6 on page 50.

Table VIII shows a distribution of all of the members of the Retirement System who have filed Form A-1 and who have prior service credit. There are 14,857 members holding 164,601.6 years of prior service credit. A significant number of these teachers are for one reason or another not teaching at this time, but since they may retain their prior

service credit during an absence of not more than six scholastic years, all of it is still valid.

Their aggregate prior service salary amounts to \$13,763,111.71, and the average prior service salary is \$926.37. These low prior service

**Table VII. Members who have Withdrawn before Retirement 1940-48**

Entrance Age	Number Without P.S.	Number With P.S.	Prior Service		P.S. Salaries	
			Total	Average	Total	Average
20 and Under	612	259	277.1	1.1	\$ 155,321.14	\$ 599.70
21	356	262	495.8	1.9	184,354.60	703.64
22	277	303	766.4	2.3	235,572.37	764.85
23	182	314	993.7	3.2	246,816.59	786.04
24	161	370	1492.8	4.0	291,257.03	787.18
25	134	362	1682.9	4.6	304,448.75	841.02
26	104	390	2132.96	5.47	321,117.14	823.38
27	98	349	2136.6	6.1	299,468.82	858.08
28	88	327	2302.6	7.0	278,545.31	851.82
29	95	288	2207.3	7.7	241,357.28	833.05
30	116	333	2783.5	8.4	299,249.60	898.65
31	99	280	2413.7	8.6	259,736.86	927.63
32	78	268	2505.1	9.3	248,557.63	927.45
33	86	214	1990.89	9.30	208,041.60	972.16
34	61	195	2020.2	10.4	193,172.25	990.68
35	50	197	1003.3	5.1	190,921.91	969.15
36	50	155	1615.5	10.4	162,413.47	1,047.83
37	54	140	1582.1	11.3	142,687.01	1,019.19
38	55	114	1200.8	10.5	117,686.22	1,032.84
39	43	77	902.3	11.7	72,930.38	947.15
40	42	83	868.8	10.5	74,791.57	901.10
41	32	77	879.1	11.4	76,154.88	989.02
42	40	57	688.6	12.1	58,080.13	1,018.95
43	28	38	475.0	12.5	35,029.52	921.83
44	24	38	401.81	10.57	32,323.78	850.63
45	16	37	417.4	11.3	36,535.88	987.46
46	24	42	390.4	9.3	38,377.94	913.76
47	17	19	234.0	12.3	17,734.35	933.39
48	14	24	193.1	8.0	20,199.30	841.64
49	21	32	388.6	12.1	28,735.81	897.99
50	19	22	316.3	14.4	15,282.00	694.64
51	18	19	215.1	11.3	18,063.16	950.69
52	17	21	234.0	11.1	20,087.91	956.57
53	7	14	116.9	8.4	10,587.60	756.26
54	14	16	175.8	11.0	10,254.86	640.93
55	8	14	145.4	10.4	10,046.40	717.60
56	8	8	90.8	11.4	4,770.00	596.25
57	10	11	133.3	12.1	8,203.57	746.78
58	6	12	113.6	9.5	8,021.18	668.43
59	6	5	52.6	10.5	4,291.00	858.20
60	7	6	95.1	15.9	4,438.00	739.67
61	5	5	70.1	14.0	2,837.78	567.56
62	5	4	25.3	6.3	4,402.50	1,100.63
63	2	3	27.0	9.0	2,799.00	933.00
64	3	3	39.0	13.0	1,441.00	480.33
65	3	3	35.01	11.67	2,213.00	737.67
66-69	3	0	0	0	0.00	0.00
70	3	0	0	0	0.00	0.00
Totals and Averages	3201	5815	39,267.67	6.7	\$4,999,358.08	\$ 859.73

salaries are disappointing to teachers with a comparatively large amount of prior service credit at time of retirement. A teacher who has 30 years

**Table VIIA. Members who have Withdrawn before Retirement 1947-48**

Entrance Age	Number Without P.S.	Number With P.S.	Prior Service		Salaries	
			Total	Average	Total	Average
18	58	2	2.0	1.0	\$ 981.05	\$ 490.53
19	78	15	20.7	1.3	8,147.76	543.18
20	76	17	29.9	1.8	10,704.33	629.67
21	99	28	52.8	1.9	19,805.75	707.35
22	79	37	89.6	2.4	27,273.11	737.11
23	52	28	81.7	2.9	21,366.81	763.10
24	43	38	163.9	4.3	29,719.40	782.09
25	29	48	222.8	4.6	38,237.46	796.61
26	33	42	230.4	5.5	35,318.69	840.92
27	26	54	335.6	6.2	41,977.98	777.37
28	33	45	312.2	6.9	34,039.66	756.44
29	30	32	228.3	7.1	25,882.59	808.83
30	31	38	324.0	8.5	32,160.82	846.34
31	31	31	250.2	8.1	27,111.49	874.53
32	20	36	325.2	9.0	28,858.47	801.62
33	28	21	181.8	8.7	19,843.17	944.91
34	20	36	355.7	9.9	31,336.37	870.45
35	21	24	234.5	9.8	22,869.15	952.88
36	9	27	263.0	9.8	25,123.40	930.63
37	15	26	256.4	9.9	22,572.56	868.18
38	23	19	192.0	10.1	19,101.69	1,005.35
39	13	11	115.4	10.5	11,565.35	1,051.40
40	10	13	105.1	8.1	10,538.50	814.50
41	10	16	200.1	12.5	15,736.85	983.55
42	14	5	33.5	6.7	3,224.90	644.98
43	7	4	48.8	12.2	5,808.18	1,452.05
44	11	11	122.4	11.1	8,011.38	728.31
45	7	7	75.1	10.7	6,360.69	908.67
46	6	6	45.4	7.6	5,864.00	977.33
47	3	4	29.8	7.5	2,830.00	707.50
48	7	7	44.3	6.3	3,322.52	474.68
49	10	7	47.9	6.8	5,110.20	730.03
50	8	4	38.8	9.7	2,435.00	608.75
51	5	4	56.2	14.1	4,815.00	1,203.75
52	5	3	11.0	3.7	1,451.80	483.93
53	4	4	33.8	8.5	1,896.00	349.00
54	3	3	8.0	2.7	1,070.00	356.67
55	1	3	12.6	4.2	1,362.90	454.30
56	1	1	13.8	13.8	450.00	450.00
57	3	3	32.0	10.7	732.77	244.26
58	1	3	38.0	12.7	1,468.00	489.33
59	1	0	0	0	0.00	0.00
60	2	2	35.1	17.6	653.00	329.00
61	2	1	1.0	1.0	210.00	210.00
62	2	1	6.0	6.0	810.00	810.00
63	2	1	4.0	4.0	252.00	252.00
64	0	0	0	0	0.00	0.00
65	1	0	0	0	0.00	0.00
66-69	0	0	0	0	0.00	0.00
70	3	0	0	0	0.00	0.00
Totals and Averages	976	768	5,310.8	6.9	\$617,970.75	\$ 804.65

of prior service credit which is evaluated at 1% per year, if her prior service salary is \$926.37, would be due to receive only \$277.91 as the part of her retirement allowance which is based upon prior service credit.

**Table VIII. Distribution of Members of the Kentucky Teachers' Retirement System who Have Prior Service Credit with Attained Age as of July 1, 1948—One-Year Intervals**

Attained Age	Number of Members	Prior Service Years		Prior Service Salary	
		Total	Average	Total	Average
18-22	1	1.6	1.6	\$ 1,005.54	\$1,005.54
23	21	21.7	1.03	20,866.65	993.65
24	81	112.4	1.39	79,523.55	981.77
25	139	227.3	1.64	116,549.20	838.48
26	237	493.5	2.08	118,263.33	499.00
27	307	569.6	1.86	233,765.73	761.42
28	399	899.6	2.25	286,760.41	718.70
29	416	1,173.2	2.82	288,161.99	692.70
30	468	1,747.3	3.73	340,012.20	726.52
31	509	1,718.2	3.38	377,871.02	742.38
32	598	2,676.0	4.47	456,760.52	763.81
33	600	2,895.7	4.83	466,449.02	777.42
34	641	3,826.5	5.97	507,882.94	792.33
35	658	4,400.1	6.69	532,008.56	808.52
36	662	4,984.1	7.53	557,514.10	842.17
37	646	5,825.7	9.02	571,583.99	884.80
38	620	6,147.4	9.92	560,774.18	904.47
39	621	6,621.2	10.66	572,507.77	921.91
40	584	6,494.2	11.12	562,264.96	962.77
41	547	6,522.0	11.92	546,255.57	998.64
42	519	6,507.4	12.54	514,817.63	991.94
43	458	6,020.9	13.15	468,499.00	1,022.92
44	402	5,649.0	14.05	419,292.73	1,043.02
45	381	5,529.3	14.51	414,476.03	1,087.86
46	349	5,190.3	14.87	378,171.54	1,083.59
47	308	4,934.9	16.02	341,036.75	1,107.26
48	281	4,706.1	16.75	312,469.53	1,111.99
49	254	4,632.5	18.24	295,978.38	1,165.27
50	244	4,505.3	18.46	277,694.87	1,138.09
51	234	4,437.5	18.96	257,706.71	1,101.31
52	254	4,302.3	16.94	284,683.69	1,120.80
53	260	4,720.3	18.16	268,359.34	1,032.15
54	251	4,656.9	18.55	274,554.84	1,093.84
55	230	4,526.5	19.63	255,517.25	1,110.94
56	232	4,606.7	19.86	259,793.26	1,119.80
57	177	3,506.1	19.81	199,158.30	1,125.19
58	189	3,921.2	20.75	201,531.50	1,066.30
59	151	3,145.1	20.83	167,036.81	1,106.20
60	130	2,716.1	20.89	135,387.07	1,041.44
61	138	3,043.1	22.09	127,282.45	922.34
62	107	2,469.6	23.08	121,444.25	1,124.99
63	98	2,295.9	23.43	110,415.45	1,126.69
64	102	2,428.0	23.80	105,956.65	1,038.79
65	83	2,052.1	24.72	99,478.98	1,198.54
66	103	2,484.7	24.12	108,023.62	1,048.77
67	52	1,359.6	26.15	55,837.11	1,073.79
68	67	1,779.2	26.66	68,399.54	1,020.89
69	49	1,112.8	22.71	44,146.20	900.94
Totals and Averages	14,857	164,601.6	11.08	\$13,763,111.71	\$ 926.37

The amendment in 1946 attempted to alleviate this situation by providing a minimum of \$10.00 per service credit year for not more than 30 years of total service credit. This makes it necessary in calculating the obligations of the Retirement System to use a higher prior service salary—that of \$1,174.00 instead of \$926.37. This is assuming that the average age of retirement will be 65 and that the age factor .85151 will apply.

The total obligation for prior service is given in the report of the Actuary which is included in the Eighth Annual Report. The State is reducing its obligation properly, and if it continues to do so, the obligation will be liquidated at the proper time. Any amendment to the Teachers' Retirement Act increasing the minimum retirement allowance will increase the State's obligation for prior service.

The younger members reported on Table VIII have a comparatively small amount of prior service credit in their respective age brackets because the attained age is used in this table, and most of their service credit is for subsequent service. The maximum amount of service credit for any member as of July 1, 1948, is 37 years. A comparison of this average prior service salary of \$926.37, that is the average salary of the member for the five years of service prior to July 1, 1941, with present salaries indicates the progress which has been made in increasing salaries in Kentucky. While the per cent of increase has been large, salaries in Kentucky are still comparatively low.

Table IX presents the number of teachers who have retired to June 30, 1948, by years and by reason for retirement. On July 1, 1948, an additional 113 members retired, bringing the grand total to 947. This number is in accordance with our estimates from time to time. To June 30, 1948, \$851,009.30 has been paid to retired teachers. This is an average of approximately \$1,020.00 each, and of this number, 689 are still living as of June 30, 1948, and will by receiving their retirement allowances continue to increase this average. We may expect the retirement of a sufficient number of teachers each year to increase the net number by slightly more than 100 for many years to come. Unless the Retirement System can rapidly accumulate reserves in the early part of its existence, it will run into difficulty when the number of retired teachers begins to level off.

**Table IX. Number of Teachers Retired and Benefits Paid  
July 1, 1942, to June 30, 1948**

Year	Superannuation		Disability		Total Number Retired	Total Benefits Paid	Retired Teachers Deceased	Retired Teachers Living
	Number Retired	Benefits Paid	Number Retired	Benefits Paid				
1942-43	233	\$ 62,439.36	13	\$ 1,426.56	246	\$ 63,865.92	17	229
1943-44	93	80,688.98	9	2,260.49	102	82,949.47	17	314
1944-45	71	101,452.30	6	2,862.12	77	104,314.42	14	377
1945-46	109	129,761.78	9	3,703.69	118	133,465.47	34	461
1946-47	142	200,903.68	23	13,430.52	165	214,334.20	31	595
1947-48	115	234,185.94	11	17,893.88	126	252,079.82	32	689
Total	763	\$809,432.04	71	\$41,577.26	834	\$851,009.30	145	689

The significant increase in life expectancy will defer the levelling off date. It should be noted that approximately one teacher out of ten retiring retires for disability.

There is no discrepancy between Table IX and Table Xa, which presents the number of living retired teachers as of August 31, 1948.

According to our tables, it will require \$3,043,007.88 to pay the retirement allowances of members already retired as of July 1, 1948. All deceased teachers have been eliminated from Table Xa in arriving at these figures.

Many teachers expressed surprise that the appropriation of \$2,439,606.64 was necessary to pay for the prior service credit of members already retired, but this table indicates that the amount was not overestimated. The unexpended balance of the \$2,439,606.64 will be continuously invested in order to meet this need.

Reference is made to column 4 (Table Xa) "Needed to Pay Annuity of \$1.00". For a teacher retiring at age 50, it will require \$17,849.64 and all of the interest which it will earn at the rate of 3% compounded annually to pay each dollar of the annuity which she receives. For example, if the annuity of a teacher retiring at age 50 is \$500.00, it will require \$8,924.82 invested at 3% compound interest, and during her lifetime she will receive both the investment and the interest. It is not reasonable to suppose that the member and the State will have joint-accumulated accounts in the amount of \$8,924.82 by the time the member reaches the age of 50.

All members retiring between the age of 50 and 59, inclusive, have their retirement allowances calculated as though they were age 60. The purpose of this is to give a slight advantage to the teacher who must retire for disability, because she will on the average have a smaller number of years of service credit.

Table Xa indicates the cost which may be expected. Any annuity system is expensive, and its cost must be taken into consideration in making contemplated increases in retirement allowances. In Table Xa the model age is 70, but it will be observed that we have three teachers who have lived 18 years beyond the age of 70.

These tables are presented so that the membership of the Retirement System may have some factual bases for suggestions for improvement of the Retirement System. Many of the suggestions we receive indicate a lack of understanding of the needs of the teachers and of the fundamental principles of an annuity system. Some of these proposals will be discussed in the next section of this report.

**Table Xa. Living Retired Teachers by One-Year Intervals**  
**Attained Age at July 1, 1948**

Attained Age	Number Living	Aggregate Annuity	Needed to Pay Annuity of \$1.00	Cost for Life Expectancy
50	2	\$ 581.80	17.84964	\$ 10,384.92
51	2	615.84	17.50288	10,778.94
52	7	2,164.56	17.15249	37,127.59
53	7	2,045.48	16.79884	34,361.69
54	7	1,804.00	16.44204	29,661.44
55	2	588.00	16.08243	9,456.47
56	7	2,095.88	15.72020	32,947.66
57	4	1,100.00	15.35566	16,891.23
58	9	2,574.36	14.98909	38,587.31
59	9	2,615.00	14.62080	38,233.39
60	16	5,025.24	14.25107	71,615.05
61	21	6,349.56	13.88028	88,133.67
62	18	5,846.32	13.50872	78,976.30
63	24	6,957.00	13.13677	91,392.51
64	22	7,015.76	12.76477	89,554.56
65	21	7,046.36	12.39309	87,326.17
66	27	8,404.32	12.02211	101,037.66
67	33	11,207.52	11.65224	130,592.71
68	32	10,817.60	11.28381	122,063.74
69	29	10,016.04	10.91726	109,347.71
70	82	33,140.36	10.55296	349,728.89
71	77	31,562.24	10.19131	321,660.57
72	61	24,809.36	9.83271	243,943.24
73	76	28,719.72	9.47754	272,192.30
74	44	17,795.86	9.12620	162,404.01
75	43	15,818.32	8.77904	138,869.66
76	30	11,487.48	8.43646	96,913.67
77	18	6,475.23	8.09883	52,442.19
78	21	8,010.16	7.76647	62,210.67
79	13	5,609.00	7.43975	37,265.71
80	9	3,360.96	7.11896	23,926.54
81	4	1,435.72	6.80441	9,769.23
82	7	2,430.00	6.49642	15,786.30
83	4	1,424.76	6.19521	8,826.69
84	2	752.36	5.90105	4,439.71
85	3	973.96	5.61416	5,467.97
86	1	300.00	5.33473	1,600.42
87	1	630.00	5.06292	3,189.64
88	3	812.64	4.79888	3,899.76
	798 <sup>1</sup>	\$289,818.32		\$3,043,007.88

<sup>1</sup>Table Xa shows number of living retired teachers as of August 31, 1948.



## LEGISLATIVE

In the following paragraphs we discuss some of the suggestions we have recently received. The discussion is objective, with opinions so designated.

### **A Minimum of \$500.00 for 30 Years of Service**

It has been proposed that the minimum retirement allowance for service be no less than \$16.67 per service credit year up to 30 years and \$500.00. In view of the present inflation this is a reasonable proposal and one which should be studied.

If this proposal had been the law during 1947-48, it would have cost \$101,755.72 for the year. A total reserve of \$3,826,307.01 would have been required as of July 1, 1947, in order to meet the increased obligation, for the 719 retired teachers concerned. This is an increase of \$1,084,394.51, or an average increase of approximately \$1,500.00 per teacher.

Also the State's contribution of \$300,000.00 per year for prior service would have to be increased about 33 $\frac{1}{3}$  %.

The greatest burden would be accumulated in the next few years; with additional subsequent service credit many teachers would receive more than \$500.00 and, therefore, would not come in this category. At this time 542 retired teachers are receiving from \$300.00 to \$500.00 per year.

The advantages recommend this proposal if the State is willing to finance it.

Some might object that retired teachers and teachers retiring later will get no increase if their retirement allowances equal or exceed \$500.00. The teacher receiving \$300.00 under the present law would receive an increase of 66 $\frac{2}{3}$  %, while the teacher receiving \$500.00 or more would receive no increase.

By reason of the number of members who have done only intermittent service or who have come into the profession late in life, any minimum should be expressed in relation to 30 years of service.

### **With Reference to Investments**

Brokers and School Revenue Bond Buyers have for years been interested in amending the Retirement Law so that funds may be invested in school revenue bonds; municipal revenue bonds and revenue bonds issued by the state colleges and agencies. Under the present Constitution school districts must resort to revenue bonds. In general, attorneys approving the issuance and legality of school revenue bonds opposed the revision of the Constitution, notwithstanding the fact that under the present Constitution there is no constitutional bases for such bonds.

The brokers prepared and had introduced legislation calculated to permit the Retirement System to invest in school revenue bonds. In order to provide some control over the issuance and liquidation of these obligations, concurrent legislation was introduced giving such control to the State Board of Education. Those who should have been interested in the control legislation shied away from it, and, consequently, both bills failed of passage.

Up to this time the Retirement System has invested in Government Bonds exclusively. There is need for diversification. Looking forward

twenty to twenty-five years we find that millions of our securities will be called or fall due in 1967-72. Such a large sum of money to be invested at one time would pose a dangerous situation. If Government Bonds go below par, it will not be advisable to sell; but to hold until due, and for this reason present holdings cannot profitably be diversified during the life of these investments.

Five state retirement systems of the United States are limited to the same extent as Kentucky. Eight states may invest in securities eligible for life insurance companies; eight in securities eligible for savings banks; ten states, not including the sixteen mentioned above, may invest in county bonds; and fifteen additional states may invest in school bonds. Four states may invest in securities eligible for sinking funds of their respective states.

On the whole, Kentucky is too limited and some provision for a reasonable diversification should be made.

### **Noncertified Employees of Boards of Education**

Unless the Federal Social Security program is expanded to include employees of Boards of Education, other than certified professional personnel now in the Teachers' Retirement System, we may expect increased pressure for the Teachers' Retirement System to include noncertified employees of school districts.

Legislation introduced at the last session of the General Assembly was intended to include business managers, bookkeepers, stenographers, clerks, building engineers, janitors, firemen, cleaners, carpenters, maintenance men, bus drivers, mechanics, and lunchroom and cafeteria workers, employed by boards of education and boards of regents or trustees.

There were in 1947-48 approximately 7,600 such workers in public education in Kentucky; about one for every three teachers.

Generally speaking, such an increase in membership would increase the cost to the State by about 30% of the present cost of the Teachers' Retirement System.

Aside from the cost, several problems present themselves:

1. Should all the 7,600 be required to hold membership, or should certain classifications; as for example, bus drivers, cafeteria workers, etc. be denied membership?
2. Should a period of tenure be required before the individual becomes eligible to membership?
3. Should contributions and interest from July 1, 1940, be required before membership and prior service credit is established?
4. If these employees are later made eligible for Social Security, what should then be done?

These problems should be thoroughly examined before bills are prepared. The actuarial cost should be calculated and a proportionate share of the cost for prior service and all of the current cost for the biennium should be appropriated in the bill providing for the membership of noncertified employees. We have estimated the annual cost at \$401,040.43 per year on the bases of an average of 10 years of prior service; 23.3% refusing membership; and 64% of the remainder reaching

retirement age; average salary \$1,833.33; and average membership service of 25 years.

Whether it is better from the standpoint of service to the children of Kentucky to improve and strengthen the Teachers' Retirement System, keeping it exclusively for teachers, or to expand it to include noncertified employees is a matter which should receive careful study by teachers and citizens of the State. It is not a matter on which the Secretary and Retirement Board should be required to pass judgment.

It is evident that every desirable improvement in the Retirement Law will cost the State in larger appropriations and, therefore, those interested must choose the most urgent or most desirable changes since all cannot be had.

On the foregoing the following alternatives are presented:

1. Confine membership of noncertified employees to office workers only.
2. Sponsor enabling legislation which would permit any governmental unit including school districts to set up reserves for the payment of annuities to their own local employees. This would relieve the State of the financial burden of their retirement.
3. Wait for the expansion of Social Security to cover all noncertified employees.
4. Keep the Teachers' Retirement System exclusively for teachers, and increase its benefits to retired teachers.

### **Public Junior Colleges**

During the last session of the General Assembly the Retirement Law was amended to include the faculties of the public junior colleges organized under 165.160 to 165.260, KRS. Membership and service credit was provided for on the same bases as for teachers coming into membership in 1940 and thereafter.

Those who optioned to do so paid contributions and interest for each year of service after July 1, 1940, to July 1, 1948, and received prior service credit free of cost for service performed prior to July 1, 1940; others came in as new teachers.

This amendment concerned about 21 teachers presently employed in the Junior College at Paducah and in the Junior College at Ashland.

### **Compulsory Retirement at Age 75**

The teachers' tenure law makes it necessary to have a compulsory retirement age. The present compulsory retirement age is 70; and the average age for the 113 teachers who retired July 1, 1948, was on that date 66.1 years. This in itself indicates that age 75 is too high. If tenure protection were removed at age 65, there would probably be no need for a compulsory retirement age. It is our opinion that the compulsory retirement age should not be reduced below age 70.

### **Making the Salary as Defined the Best Five Successive Years Instead of the Last Five Years**

This would not change the retirement allowance of a significant number of members. It would allay some fear that receding salaries will reduce some retirement allowances.

Such a change would require much more clerical work in making tables. Under the present Law the last five years are readily available for tabulation. If the five best consecutive annual salaries had to be averaged, it would require much more looking, adding, and deciding. In view of the facts that salaries have been on the increase since 1838; that almost every member is on a salary schedule or receives a higher salary than the schedule provides; that in course of time emphasis will be upon an annuity based upon the accumulated contributions of the individual and State, there appears to be no great need for this change. However, the extra cost will be found in administration rather than in increased retirement allowances.

A sounder plan would be to base the retirement allowance on the average of all the annual salaries, rather than on the last five years; but for convenience, and also to increase the retirement allowance, it is on the last five years in prior service and in subsequent service.

### **Deferred Retirement After 20 Years of Service**

Under the present Law deferred retirement is after 30 years, the member paying contributions and accumulating service credit to age 60 at which time she is eligible to retire. If disabled, the member may retire after age 50.

The proposed legislation for deferred retirement after 20 years of service does not contemplate the repeal of the section providing for deferred retirement after 30 years of service.

Under the proposed legislation the member would not have the privilege of continuing to pay her retirement contribution, but would merely leave her account in the Retirement System, in the 'Teachers' Savings Fund. The account would be paid to her beneficiary in case of her death before retirement.

There is a requirement that the member must have at least 10 years of subsequent service credit.

Such legislation is being discussed throughout the United States. It is considered good legislation by a majority of members and retirement system officials.

In our opinion such a proposal if enacted into Law would mean that all members with 20 or more years of service credit, at least 10 years of which are for subsequent service, would eventually become annuitants. The cost to the State must, of course, be considered. The whole estimated cost would be very difficult to determine, but it is easy to calculate the cost for the most favorable case, that of a person coming into membership July 1, 1940.

Such a teacher would have an accumulated account in 1960 of \$1,600.84; and on July 1, 1978, at time of retirement at age 60, \$2,724.63. The State's matching fund would increase this to \$5,449.26. Her retirement allowance would be, at age 60, \$533.16 and would require a reserve of \$7,598.00. The cost to the State or to the Retirement System is found by subtracting \$5,449.26 from \$7,598.00, which is \$2,148.74.

If the most favorable case cost the State \$2,148.74 per individual taking deferred retirement under this proposal, some plan should be devised to take care of the extra cost. This may be done by increasing the con-

tributions and/or deferring date on which annuity starts to an age later than 60 years. It appears that age 65 would be satisfactory, excepting in case of disability.

### **Make the Maximum Retirement Allowance Available at Age 65 Instead of Age 70**

We are not sure what is meant by this proposal. It has never been proposed by the General Assembly; but by several members of the Retirement System. It appears to us that it would be better to increase the retirement allowance at every age and to leave it as is, based upon a valid table of life expectancy.

It is not just and usually it is inexpedient to penalize or rob one class of persons' accounts for the benefit of others, and we cannot believe this is desired by any member.

In discussing this proposal, we submit that from age 65 to age 70 the contributions of a member may, at \$96.00 per year, aggregate \$480.00; and from age 65 to age 70 she would receive approximately \$4,000.00 if retired, making a total increase in her reserve of \$4,480.00 by reason of her continued service to age 70.

A teacher retiring at 70 instead of at 65 would, therefore, have a comparatively much greater reserve than if she retired at 65. This extra reserve is spread over her life expectancy. The honest thing to do is to let her retain this advantage.

It is one thing to be depleting your reserve; it is quite another to be building it up by regular contributions. For example, the teacher who will receive \$1,032.00 in five years from now, at age 70, would receive \$703.00 retiring now at age 65. The reason for the difference should be obvious.

### **Earlier Retirement For Disability**

Members permanently disabled retire at ages 50 to 59, inclusive, and with 20 or more years of service credit. The age requirement is considered too high and probably should be reduced to 40 years. No extra contribution is made for the retirement allowances of members retiring for disability, and the proportion at this time is approximately 10%. However, it is eminently desirable to lower the age by reason of the principles underlying the purposes of a teachers' retirement system, and to provide for the increased cost if experience proves it necessary.

One of the great problems of administration is found in the unfair desire on the part of some who have family duties or other circumstances which would make it more pleasant or more profitable to retire early and continue comparatively active and normal living outside the profession.

The foregoing brief discussions deal with the major suggestions for amendments at this time. We hope that those offering suggestions, first read the Law and think through the proposal before submitting it.

The test of all proposed legislation is found in the answer to this question: Does this proposed change in the Retirement Law ultimately benefit the pupil children of Kentucky? If the answer is "No", the change should not be made; if the answer is "Yes", further consideration, including probable cost, may be given to it.

## ACTUARIAL

### Introduction

We all look forward with a great deal of interest to the report of the Actuary whose calculations and advice have guided the Retirement System for eight years. His training, experience, and personal traits of character make him a valuable adviser. At the present time he is Executive Secretary of two important retirement systems and Actuarial Consultant to a number of teacher retirement systems in the United States.

The Actuary's calculations of the Liabilities of the Retirement System include that created by the retirement of 113 members as of July 1, 1948, in the amount of \$509,784.00. The gross liabilities accrued and deferred for retired teachers and present members who are expected to retire amount to \$46,682,907.09, of which \$12,882,145.28 is already in the Funds of the System and available for use. The balance in the Allowance Reserve Fund was on July 1, 1948, \$2,367,816.16, and the balance on September 30, 1948, was \$2,420,972.33.

Deferred assets representing the present worth of all present members' contributions in the amount of \$11,402,563.88 is a minimum amount made up of 2%, 3%, and 4% contributions. As the members in the age 20 bracket and age 30 bracket attain greater ages, their percentage contributions will increase to 4% under the present law. For this reason the \$4,556,478.04 indicated deficiency in contributions is not considered a real threat to the soundness of the System.

The report of the Actuary does not admit of a cursory reading. To understand it, one should read the whole report carefully. For this reason the entire report is included.

L. C. CORTRIGHT

Actuary

509 South Sixth Street

Springfield, Ill.

October 21, 1948

Members of the Board of Trustees, and  
Mr. N. O. Kimbler, Secretary,  
Teachers' Retirement System  
of the State of Kentucky,  
Frankfort, Kentucky

Gentlemen:

Pursuant to engagement, I have the honor of presenting herewith a Valuation Balance Sheet showing the financial condition of the Teachers' Retirement System of the State of Kentucky, from a technical standpoint as of July 1, 1948, together with a descriptive narrative followed by comments pertaining thereto.

The courteous and considerate cooperation of Mr. N. O. Kimbler, Secretary, and his able staff in supplying with promptness the statistical data required for the preparation of this Valuation Balance Sheet is hereby acknowledged with appreciation.

Respectfully submitted,

L. C. CORTRIGHT

Actuary

**VALUATION BALANCE SHEET**  
of the  
**TEACHERS' RETIREMENT SYSTEM OF THE STATE OF KENTUCKY**  
as of July 1, 1948

**Basis of Valuation**

The Valuation Balance Sheet, herewith displayed, was prepared as of July 1, 1948, and shows the results of the valuation of the assets and liabilities of the Teachers' Retirement System of the State of Kentucky and indicates the financial condition, from a technical standpoint, as of that date on the basis of assumed retirement at age 65. The valuation was based upon the benefit and contribution provisions of the plan of operation underlying the System in accordance with the Kentucky Teachers' Retirement law as amended July 1, 1946. With the use of the statistical data and the age, service and salary characteristics of the membership of the System, made available by N. O. Kimbler, Secretary, in the form required to reflect the changes in the law as amended July 1, 1946, supplemented by proper actuarial formulae involving both Monetary Tables and Service Tables, heretofore adopted for use by the Board of Trustees, calculations were made in accordance with actuarial requirements to establish the assets and liabilities of the System as of July 1, 1948, and the Valuation Balance Sheet was prepared reflecting the results of these calculations. A technique is used in this process which is similar, in many respects, to that followed by accountants in the preparation of a financial balance sheet. The Valuation Balance Sheet prepared by the actuary, however, differs from a financial balance sheet in that it is exhibited on a prospective basis. It reflects, in addition to the financial operation of the System occurring previous to the statement, the effect of future operations on the financial condition of the System in accordance with the actuary's forecast and assumptions as to the operation of several interactive elements, such as, rates of death, rates of disability, rates of withdrawal from active service and rates of superannuation retirement.

**Valuation Balance Sheet**

The assets of the System were divided into two general categories, Current Assets and Deferred Assets. The Current Assets, i.e., assets in hand, consisted of the balances in several fund accounts of the System and are represented by cash, securities, receivables and other items. They reflect the current asset position of the System as of July 1, 1948. The Deferred Assets, i.e., prospective assets, reflect the effect of future operations on the financial condition of the System. The Deferred Assets are represented by several items, as follows:

- (1) Present Value of Teachers' contributions mandatory by reason of Subsequent Service, July 1, 1948, (A'), i.e., the value at Balance Sheet date of future contributions to be made by the teachers who will eventually qualify for retirement benefits.
- (2) Present Value of State contributions mandatory by reason of Subsequent Service, July 1, 1948, (A''), i.e., the value at the Balance Sheet date of future matching contributions to be made by the State.

- (3) Indicated deficiency from future Subsequent Service contributions (no covering provisions in Act), i.e., the amount at the Balance Sheet date by which the present value of Teachers' future contributions, matched by the State, falls short of the present value of benefits mandatory by reason of Subsequent Service as provided in the Act.
- (4) Actuarial Reserve Deficiency, consisting of the present value of the accrued obligation mandatory by reason of Prior Service, July 1, 1948, on account of both active members and members eligible to retire who eventually will qualify for retirement benefits, i.e., the value at the Balance Sheet date of future contributions to be made by the State on account of Prior Service of the existing membership.
- (5) Current Assets Deficiency, the present value of the accrued Prior Service obligation due retired teachers, July 1, 1948, i.e., the value at the Balance Sheet date of the future contributions yet to be made by the State to liquidate the already existing obligation to teachers currently receiving retirement benefits.

The liabilities of the System are likewise divided into two general categories, Current Liabilities and Deferred Liabilities. The liabilities in these two categories, in the aggregate, represent all of the obligations of the System. The Current Liabilities reflect the current liability position of the System as of July 1, 1948. They consist of the balances in the several fund accounts of the System together with minor outstanding items, as follows:

- (1) Expense Fund—its name indicates its character.
- (2) Teachers' Savings Fund, i.e., the accumulated contributions of member teachers since coming into membership in the System, subject either to refund in the event of withdrawal from service or to use by the System to provide, in part, for the retirement benefits for those teachers who will eventually qualify for them.
- (3) State Accumulation Fund, i.e., the accumulated matching contributions of the State which are not subject to refund and will be used by the System eventually to provide for the balance of the retirement benefits provided in the Act on account of Subsequent Service that is not provided by the teachers' own accumulated contributions.
- (4) Allowance Reserve Fund, i.e., the accumulated contributions of retired teachers transferred from the Teachers' Savings Fund at time of retirement; the accumulated matching contributions of the State for retired teachers transferred from the State's Accumulation Fund at time of retirement; the State's prior service contribution for retired teachers.
- (5) Guarantee Fund, i.e., the fund into which are deposited all income from investments and any other income or moneys the disposition of which is not otherwise provided. This fund is in the nature of a contingent fund.

The Deferred Liabilities, i.e., prospective liabilities, are represented by various items, as follows:

- (1) The Present Value of benefits mandatory by reason of the Subsequent Service of active members, July 1, 1948, (B'), i.e., the



value at the Balance Sheet date of the Subsequent Service (membership service) of those of the active membership who will eventually qualify for retirement benefit, in accordance with the measure provided in the Act.

- (2) Present Value of benefits mandatory by reason of Subsequent Service, members eligible to retire, July 1, 1948, (B"), i.e., the value at the Balance Sheet date of the Subsequent Service (membership service) of those of the existing membership who are eligible to retire but have not, as yet, retired.
- (3) Present value of benefits mandatory by reason of Prior Service, July 1, 1948, i.e., the value at the Balance Sheet date of the benefits provided by the act for those of the existing membership who will eventually qualify for retirement benefits, measured in terms of Prior Service.
- (4) Present Value of benefits mandatory by reason of prior service-retired teachers, July 1, 1948, (B'''), i.e., the value at Balance Sheet date of the Prior Service obligation for teachers who have already retired, which has not been completely liquidated by the State's prior service contributions.

For the purposes of this Valuation Balance Sheet it was assumed that the amount in hand in the Teachers' Savings Fund and the State's Accumulation Fund, together with the balance in the Guarantee Fund, would be sufficient at this Balance Sheet date to offset the accrued obligations on account of Past Membership service of the members.

From the standpoint of actuarial requirements, a sound financial condition exists when the System has current assets equal to the difference between the total liabilities for all pension obligations and the present value of future contributions, both by member teachers and the State, on account of service to be rendered by the members subsequent to the date of the Valuation Balance Sheet and by the State alone on account of the obligations it has assumed for Prior Service. This difference represents the computed actuarial reserve required to meet the liabilities of the System for the various pension obligations assumed under the governing law. In this respect the Valuation Balance Sheet speaks for itself, but will be treated further under "Comments on the Valuation Balance Sheet".

#### **Comments on the Valuation Balance Sheet**

The foregoing Valuation Balance Sheet shows total liabilities of the System as of July 1, 1948, for all purposes, amounting to \$46,682,907.09. To meet these liabilities the System has on hand, in its several fund accounts, assets in the amount of \$12,882,145.28. The difference amounts to \$33,800,761.81, which represents the Deferred Assets, i.e., the prospective assets of the System, and consists of the value at the Balance Sheet date of prospective contributions to be made by both member teachers and the State covering future service amounting to \$27,361,551.80, and the value at Balance Sheet date of prospective contributions to be made by the State covering its deferred obligations for Prior Service amounting to \$6,439,210.01. Technically speaking, the Present Value of prospective contributions due from the State to cover Prior Service constitutes the Actuarial Reserve Deficiency of the System as of the Balance Sheet date, July 1, 1948, which, however, is to be amortized by regular annual ap-

appropriation over a specified number of years in the future according to the plan currently being undertaken.

There are only two items appearing among the Deferred Assets that require special mention in this discussion. They are the Indicated Deficiency from future Subsequent Service contributions (no covering provision in Act) amounting to \$4,556,478.04, and the net **Allowance Reserve Fund** deficit July 1, 1948, amounting to \$549,111.81. The former, the indicated deficiency from members' and State's contributions, is significant, at this time, only insofar as it points out a continuation of the same trend that has made itself manifest in all previous valuations. Since the law, as amended July 1, 1946, modifies to some extent both members' and State's contributions, this trend may be lessened in future valuations although the lessening has not as yet become marked. If, on the other hand, the trend continues to manifest itself in future valuations, some covering provision in this respect will have to be introduced into the law by amendment. The present law, as amended, contains no such covering provision. The latter, the net **Allowance Reserve Fund** deficit, July 1, 1948, is of minor consequence since the appropriation for the current fiscal year 1948-49, which in the aggregate, amounts to \$1,475,975.00, contains approximately \$300,000.00 to be applied during the year on the obligations of the State for Prior Service. Similarly, the appropriation for the fiscal year 1949-50, which has already been made by the General Assembly, in the Aggregate amount of \$1,477,875.00, contains a like amount to be allocated for the same purpose. Further improvement in the financial soundness of the Retirement System is indicated when we take into consideration the appropriation already made that will be forthcoming to the System during the ensuing biennium.

### Conclusions

The Valuation Balance Sheet, herein discussed, prepared as of July 1, 1948, reflects a very satisfactory financial outlook, and shows a very substantial improvement in the financial soundness of the Retirement System as compared with the last preceding Balance Sheet made as of December 31, 1946. The figures going into the makeup of this Valuation Balance Sheet have, of course, increased substantially due to the changes that have occurred in the membership characteristics, statistical data and the element of elapsed time since December 31, 1946. However, the financial showing, from a technical standpoint, is very much more satisfactory, which fact should be gratifying indeed to those responsible for the administration of the System, as well as to the members and beneficiaries whose future interests are so dependent upon the financial stability of the plan of operation underlying the Retirement System. The manifest interest shown and the very real help extended to the Retirement System by the Governor of the Commonwealth of Kentucky and the General Assembly with respect to the special appropriation to supplement the State's accrued Prior Service obligation due retired teachers was very outstanding. It is a source of gratification to your actuary to see that many of the recommendations made in previous reports have been favorably acted upon.

Respectfully submitted,

L. C. CORTRIGHT  
Actuary

L. C. CORTRIGHT, ACTUARY

Kentucky Teachers' Retirement Law as Amended July 1, 1946

**VALUATION BALANCE SHEET—JULY 1, 1948**

(On basis of assumed retirement at age 65)

**ASSETS**

**Current Assets, (technical position as of 7-1-48)**

Cash .....	\$ 2,737,606.21	\$ .....
Accounts Receivable .....	8.00	
Bond Investments .....	10,075,000.00	
Unamortized Premiums .....	69,517.41	
Accrued Interest on Bonds Purchased ....	13.66	
Furniture and Fixtures .....		

\$12,882,145.28

Less—Items Outstanding	} See Liabilities.....	\$ .....
Encumbrances		
Due Districts		

**Net Current Assets,**  
(technical position as of 7-1-48) ..... \$12,882,145.28

<b>Deferred Assets: (Present Value on 3% interest assumption, etc.)</b>	
Present Value Teachers' Contributions mandatory by reason of Subsequent Service, 7-1-48, (A') .....	\$11,402,536.88
Present Value State's contributions mandatory by reason of Subsequent Service, 7-1-48 (A'') .....	11,402,536.88
Indicated deficiency from future Subsequent Service contributions (no covering provision in Act) .....	4,556,478.04

**Deferred Assets mandatory by reason of Subsequent Service** ..... \$27,361,551.80

**Actuarial Reserve Deficiency:**

Deferred obligations of the Commonwealth of Kentucky. Present Value	
Accrued obligation mandatory by reason of Prior Service, 7-1-48:	
Active Members .....	\$ 4,608,727.66
Members eligible to retire .....	1,281,370.54
	<u>\$ 5,890,098.20</u>

**Current Asset Deficiency:**

Present Value of Accrued Prior Service obligation due retired teachers, 7-1-48 \$ 2,916,927.97

**Less: State's Prior Service Contributions**  
(net available 7-1-48) ..... 2,367,816.16

**Net Allowance Reserve Fund Deficit,**  
7-1-48 ..... 549,111.81

**Deferred Assets mandatory by reason of Prior Service** ..... \$ 6,439,210.01

**TOTAL ASSETS** ..... \$46,682,907.09

## LIABILITIES

### Current Liabilities, (technical position as of 7-1-48)

Outstanding Items .....		\$	120.46
Expense Fund .....			403.59
Teachers' Savings Fund—			
Accumulated contributions by reason			
of Subsequent Service, 7-1-48 .....			4,985,062.32
State Accumulation Fund—			
Accumulated contributions (State) by			
reason of Subsequent Service, 7-1-48 .....			4,984,793.40
Allowance Reserve Fund:			
Retired teachers' S.S. contributions			
with accumulated interest, 7-1-48.... \$	45,814.00		
State S.S. contribution, Retired			
Teachers' with accumulated interest,			
7-1-48 .....	80,308.62		
State P.S. contributions, Retired			
Teachers, 7-1-48 .....	\$2,439,606.64		
Less: Allowance Reserve			
Fund deficiency, 6-30-48	71,790.48	2,367,816.16	2,493,938.78
Guarantee Fund, 7-1-48 .....			417,826.73
Current Liabilities, (technical			
position as of 7-1-48) .....			<u>\$12,882,145.28</u>

### Deferred Liabilities: (Present Value on 3% interest assumption, etc.)

Present Value Benefits mandatory by			
reason of Subsequent Service			
active members, 7-1-48, (B') .....			\$27,202,648.37
Present Value Benefits mandatory by			
reason of S.S., members eligible to			
retire 7-1-48, (B''') .....			158,903.43
Deferred Liabilities mandatory by			
reason of S.S. (B' plus B''') .....			<u>\$27,361,551.80</u>

Present Value Benefits mandatory by			
reason of Prior Service, 7-1-48:			
Active Members (B) .....		\$	4,608,727.66
Members Eligible to retire (B'') ..			1,281,370.54

Present Value Benefits mandatory by			
reason of Prior Service—Retired			
Teachers (B''') .....	\$ 2,916,927.97		

Less: State's Prior Service Contributions			
(net available 7-1-48) .....	2,367,816.16		

549,111.81

Deferred Liabilities mandatory by			
reason of Prior Service .....		\$	6,439,210.01

TOTAL LIABILITIES .....			<u>\$46,682,907.09</u>
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## FINANCIAL

An annuity system has at least two important major characteristics, (1) the creation of reserves prior to the period of greatest need, (2) the accumulation of interest on safe investments. Invested regularly at 2½% compound interest, the principal is doubled in 28 years. For example, in 1940-41 teachers deposited in their Savings Fund \$476,136.77; some of this has been withdrawn, but the remaining amount will have been increased 100% by 1968. This increase in reserve, due to interest, reduces the cost of annuities both to the member and to the State. If the reserves are maintained at the proper level, approximately 50% of the total cost will be borne by accumulated interest.

For this reason a full reserve retirement system kept actuarially sound is much less expensive to the State. It is also a real security since the funds for the payment of retirement allowance are actually accumulated during the active career of the member and are intact and ready for use at time of retirement.

The fiscal management of the funds of your Retirement System is a highly important responsibility and one that should be safeguarded from political or selfish influence. Even though investments are made in U. S. Treasury securities, the best results follow careful study and attention. Our investment policy includes, (1) the exclusive investment in U. S. Government Bonds, (2) a review of the market and its trends daily, (3) the making of investments to hold, rather than to sell later, (4) to sell when a profit can be made and also a reinvestment at a lower price and greater yield, (5) investment at time accumulated cash is available, (6) holding a sufficient cash balance for immediate disbursements, only. Following these policies the Retirement System has earned in interest and profits \$852,066.60 since July 1, 1940. This constitutes 8.5% of all invested assets at this time.

As conditions warrant, policies will be changed accordingly. The present rate of interest earnings is 2.47%.

### Schedule 2

#### INVESTMENTS HELD

#### Teachers' Retirement System

June 30, 1948

Name and Description	Par Value	Net Yield
U. S. Treasury Defense, Series G .....	\$ 750,000.00	2.50%
U. S. Treasury 2½%, 6/15/62-67 .....	225,000.00	2.50%
U. S. Treasury 2½%, 12/15/63-68 .....	1,000,000.00	2.50%
U. S. Treasury 2½%, 6/15/64-69 .....	850,000.00	2.50%
U. S. Treasury 2½%, 12/15/64-69 .....	300,000.00	2.50%
U. S. Treasury 2½%, 3/15/65-70 .....	700,000.00	2.50%
U. S. Treasury 2½%, 3/15/66-71 .....	450,000.00	2.50%
U. S. Treasury 2½%, 6/15/67-72 .....	1,150,000.00	2.50%
U. S. Treasury 2½%, 12/15/67-72 .....	4,400,000.00	2.42%
U. S. Treasury 2½%, Series A-1965 .....	250,000.00	2.50%
	<hr/> \$10,075,000.00	
Average Net Yield .....		2.47%

The Guarantee Fund receives interest earned by investments until same in proper amount is transferred to the trust funds of the System. Table XI indicates that the System can safely operate as a 3% system. During 1947-48 Guarantee Fund receipts would have supported a 4.14% system; consequently the Guarantee Fund shows a substantial balance. This is one of the finest features of the Retirement System and, perhaps, the least understood by the members.

In a good retirement system the employer contributes as much or more than the employee member. Table A, Distribution of Appropriations, presents the amount of the annual appropriations and their use. To June 30, 1948, \$5,834,000.00 in appropriations had been made to the Teachers' Retirement System. This is approximately \$300.00 for each covered position in the State. This is not too much to ask the State to do in the added interest of better service to the children of the State.

It is very small when compared with the total outlay for educational services.

The appropriation for 1948-49 is \$1,475,975.00, and for 1949-50, \$1,477,875.00. The special appropriation available July 1, 1948 was for \$2,439,606.64. When \$2,439,606.64 is added to \$512,447.38, the total appropriations for prior service are found to be \$2,952,054.02. The balance of this obligation is \$6,439,210.01, to be reduced by approximately \$300,000.00 in 1948-49.

**Table A—Distribution of Appropriations**  
**July 1, 1940, to June 30, 1948**

Year	Appropriation	Operating Expense	State Accumulation Fund		Reverted to General Fund
			To Match Teachers Savings	For Prior Service	
1940-41 .....	\$ 500,000.00	\$ 23,669.38	\$ 476,089.49	\$ 0.00	\$240.63
1941-42 .....	500,000.00	18,232.93	481,713.03	0.00	54.04
1942-43 .....	650,000.00	22,817.03	559,672.98	68,007.63	2.36
1943-44 .....	650,000.00	24,633.20	546,161.42	79,205.38	0.00
1944-45 .....	799,000.00	25,908.68	646,559.38	126,531.94	0.00
1945-46 .....	823,000.00	31,390.43	658,004.24	133,605.33	0.00
1946-47 .....	956,000.00	36,039.67	867,222.82	52,737.51	0.00
1947-48 .....	956,000.00	36,409.41	867,231.00	52,359.59	0.00
	<u>\$5,834,000.00</u>	<u>\$218,601.23</u>	<u>\$5,102,654.36</u>	<u>\$512,447.38</u>	<u>\$297.03</u>

Table XI. Relation of Receipts of Guarantee Fund to Interest Payments to Trust Funds

Year	Balances at Dec. 31; Funds Receiving 3% Interest from Guarantee Fund	Guarantee Fund. Earn- ings on Investments Held	% of Trust Fund Balances	Guarantee Fund Receipts From Withdrawals	% of Trust Fund Balances	Total Net Earnings of Guarantee Fund	% of Trust Fund Balances	3% Interest Paid to TSF, SAF and ARF	Surplus Re- maining in Guarantee Fund at Close of Year
1940-41	\$ 389,592.81	\$ 5,091.96	1.31%	\$ 2,229.71	.57%	\$ 7,321.67	1.88%	\$ 10,468.59	\$ 3,141.92*
1941-42	1,374,890.67	23,999.54	1.75%	21,736.62	1.58%	47,736.16	3.33%	39,874.47	2,719.77
1942-43	2,367,790.86	62,976.31	2.68%	41,739.55	1.76%	104,715.36	4.42%	73,394.94	34,029.65
1943-44	3,435,897.23	79,202.93	2.31%	50,183.11	1.46%	129,386.04	3.77%	101,071.17	62,355.56
1944-45	4,546,764.68	115,572.02	2.54%	53,149.57	1.17%	163,721.59	3.71%	133,666.16	97,410.99
1945-46	5,823,642.49	163,671.56	2.81%	109,877.27	1.88%	273,048.83	4.69%	169,241.61	201,218.31
1946-47	7,169,133.27	180,529.08	2.52%	137,256.74	1.91%	317,785.82	4.43%	206,191.87	312,812.26
1947-48	8,701,778.61	221,023.21	2.54%	139,068.97	1.60%	360,092.17	4.14%	252,610.79	335,093.35
Totals						\$1,406,808.14		\$986,514.50	

\* Deficit.

**List of Applicants Approved for Retirement and Annuity**  
**Effective First Quarter 1948-49**  
**July 1, 1948**

District or Institution	Cert. No.	Age	P. S.	S. S.	P. S. Sal.	S. S. Sal.	Member's Contribution	Annuity	Reserve
<b>County</b>									
Anderson County	20,245	66	29	5.7	\$ 447.51	\$ 960.90	\$ 224.64	\$ 300.00	\$ 3,607.00
Ballard County	3,737	60	28	7	1,193.95	1,709.00	459.42	351.48	5,436.00
Barren County	22,155	60	30	3	504.00	901.17	113.75	300.00	4,275.00
Breathitt County	23,340	59	27	5.1	380.80	709.71	155.40	300.00	4,386.00
Breckinridge County	1,134	60	28	6	439.60	617.00	180.83	300.00	4,275.00
Butler County	1,338	57	27.7	7	510.12	1,010.20	295.87	300.00	4,607.00
Caldwell County	2,322	70	15	7	589.56	920.85	267.43	220.00	2,322.00
Caldwell County	12,637	59	30	7	428.95	577.50	186.50	300.00	4,386.00
Carter County	3,304	70	30	4.8	560.40	767.22	189.13	300.00	3,166.00
Casey County	23,375	63	21.2	5	527.00	882.70	189.92	262.00	3,442.00
Christian County	1,956	53	24.1	7	543.17	811.25	257.43	300.00	5,040.00
Christian County	22,991	67	14.4	5.6	422.20	716.55	165.77	200.00	2,330.00
Clay County	22,640	63	27.8	4	417.86	921.83	155.32	300.00	3,941.00
Clark County	2,014	50	13	7	1,371.32	2,045.00	682.72	341.80	6,101.00
Crittenden County	2,343	70	30	7	1,800.00	1,800.00	638.65	729.00	7,693.00
Fayette County	2,910	70	23.6	7	953.40	1,534.05	467.81	387.24	4,037.00
Fayette County	2,903	70	17.5	7	948.56	1,517.85	462.59	325.44	3,434.00
Fayette County	3,029	70	24	7	1,307.00	1,483.00	496.54	469.92	4,959.00
Gallatin County	3,530	70	30	7	964.00	1,639.30	473.46	461.36	4,869.00
Garrard County	22,342	63	27	3	564.40	813.43	104.32	300.00	3,941.00
Garrard County	3,652	61	21	7	578.17	871.15	269.05	280.00	3,886.00
Graves County	3,891	50	17	7	679.41	1,064.60	325.10	240.00	4,284.00
Greenup County	23,162	70	3.7	1	231.08	852.00	35.42	100.00	1,055.00
Harlan County	20,134	70	30	4.1	600.05	1,159.32	233.54	300.00	3,166.00
Henderson County	4,835	64	30	7	520.47	1,131.25	321.97	300.00	3,323.00
Hopkins County	5,291	69	30	7	497.56	851.40	254.43	300.00	3,275.00
Jackson County	23,526	69	26	6.8	443.30	834.70	223.75	300.00	3,275.00
Jackson County	22,934	70	6	3	310.00	940.25	117.32	100.00	1,055.00



**List of Applicants Approved for Retirement and Annuity—Continued**  
**Effective First Quarter 1948-49**  
**July 1, 1948**

District or Institution	Cert. No.	Age	P. S.	S. S.	P. S. Sal.	S. S. Sal.	Member's Contribution	Annuity	Reserve
<b>County—Cont.</b>									
Jefferson County	5,429	69	30	7	1,252.90	1,999.00	616.45	566.24	6,182.00
Johnson County	5,902	70	30	6.7	521.50	769.78	234.23	300.00	3,166.00
Kenton County	15,511	70	30	6	870.75	1,163.70	319.08	366.00	3,862.00
Knott County	23,540	65	15	7	546.00	958.25	261.07	220.00	2,736.00
Knott County	22,902	70	19	5	409.15	786.00	168.53	240.00	2,533.00
Lawrence County	19,771	60	30	7	1,284.70	905.25	277.95	355.80	5,171.00
Lawrence County	23,074	70	2	3	183.75	665.33	33.17	100.00	1,055.00
Lee County	6,782	64	25	7	445.19	772.40	233.19	300.00	3,829.00
Leslie County	6,967	60	30	2	350.00	350.00	60.32	300.00	4,275.00
Leslie County	6,976	51	24.9	5	342.17	679.30	160.33	299.00	5,233.00
Letcher County	7,062	70	30	7	476.60	773.50	242.61	300.00	3,166.00
Letcher County	7,037	62	30	7	478.81	773.50	242.95	300.00	4,053.00
Lewis County	21,453	66	15.4	5	455.20	735.30	157.26	204.00	2,453.00
Logan County	23,122	70	12.5	6	312.25	678.80	165.69	185.00	1,952.00
Logan County	22,164	70	30	4.8	397.45	732.45	148.69	300.00	3,166.00
Magoffin County	23,520	65	16	6	408.60	671.80	163.45	220.00	2,726.00
Martin County	8,243	60	13.7	6.8	462.00	751.80	230.02	205.00	2,921.00
Mason County	8,373	70	30	7	667.50	1,121.85	341.16	318.04	3,356.00
Monroe County	20,698	63	24	6	462.00	784.00	190.66	300.00	3,941.00
Montgomery County	23,107	70	30	1	425.00	719.50	38.89	300.00	3,166.00
Morgan County	9,245	60	30	7	390.50	602.40	184.37	300.00	4,275.00
Ohio County	19,910	70	30	5.2	429.00	634.86	144.58	300.00	3,166.00
Owen County	9,841	63	25	5	750.96	1,012.20	255.00	300.00	3,941.00
Perry County	10,039	69	30	6.7	508.20	949.95	267.82	300.00	3,275.00
Pike County	10,346	61	24.3	5.7	734.16	1,100.99	296.73	300.00	4,164.00
Powell County	23,505	65	30	5.8	760.00	613.36	186.29	300.00	3,718.00
Pulaski County	23,457	63	26	6	436.66	900.05	213.68	300.00	3,941.00
Rockcastle County	11,116	67	26	6.5	561.94	981.14	290.28	300.00	3,496.00

Russell County	11,305	61	24	7	502.17	808.15	239.61	300.00	4,164.00
Russell County	11,281	70	30	7	547.65	1,372.50	382.51	308.40	3,255.00
Russell County	11,308	54	14.8	7	481.03	852.25	259.12	218.00	3,584.00
Simpson County	23,268	70	24	1	646.59	1,174.75	47.45	250.00	2,633.00
Simpson County	20,499	69	21	6	567.00	945.50	226.00	270.00	2,948.00
Spencer County	11,613	70	30	7	583.64	1,053.70	314.86	300.00	3,166.00
Todd County	13,753	62	30	6	1,800.00	2,056.00	629.10	566.40	7,651.00
Trigg County	11,833	60	30	6	355.60	413.30	125.50	300.00	4,275.00
Trigg County	20,972	66	14	6	342.00	616.60	148.00	200.00	2,404.00
Union County	20,535	70	22	5.4	\$ 699.59	\$ 1,057.95	\$ 243.57	\$ 274.00	\$ 2,892.00
Warren County	12,005	60	26	7	696.58	995.90	311.48	300.00	4,275.00
Washington County	19,976	70	1	6	533.40	901.85	220.99	100.00	1,055.00
Webster County	12,326	64	22	4	387.00	584.44	127.85	260.00	3,319.00
Whitley County	12,475	64	30	5	392.00	775.80	187.85	300.00	3,829.00
<b>Independent</b>									
Augusta	11,973	61	27	6	880.90	1,531.15	403.13	300.00	4,164.00
Barbourville	13,391	65	30	7	2,000.00	2,159.20	663.12	703.96	8,724.00
Catlettsburg	14,512	70	30	7	1,780.00	1,755.60	520.66	718.36	7,581.00
Catlettsburg	20,568	70	9	5.9	729.00	1,065.00	258.06	160.40	1,693.00
Covington	13,309	70	30	7	1,700.00	2,129.80	699.26	733.64	7,742.00
Covington	13,223	70	30	7	1,800.00	2,150.60	718.39	765.80	8,146.00
Covington	13,213	70	23	7	1,808.00	2,102.60	712.70	636.60	6,718.00
Covington	13,261	70	11	7	2,000.00	2,160.00	749.19	446.80	4,715.00
Harrodsburg	14,644	69	27	7	752.40	1,220.40	379.34	320.24	3,496.00
Hopkinsville	14,950	70	30	7	862.20	1,221.60	386.69	386.96	4,084.00
Lancaster	15,119	70	30	7	798.96	1,124.80	349.27	357.80	3,776.00
Lexington	15,303	70	21.7	7	1,452.00	1,738.20	583.67	497.60	5,251.00
Lexington	15,444	64	30	7	1,397.00	2,029.85	665.61	522.63	6,672.00
Lexington	15,443	70	15	7	1,640.00	2,073.85	684.59	463.76	4,894.00
Lexington	15,442	66	23	7	1,495.00	2,029.85	671.23	488.92	5,873.00
Lexington	15,289	65	18	6.5	1,254.00	1,306.20	437.59	300.64	3,725.00
Louisville	15,655	67	19.6	7	2,000.00	2,160.00	750.54	560.40	6,530.00
Louisville	16,223	70	30	7	1,980.00	2,160.00	747.98	820.80	8,662.00
Louisville	15,998	70	19	7	1,900.00	2,160.00	750.47	587.80	6,203.00
Louisville	15,662	70	15	7	1,790.00	2,160.00	728.69	495.32	5,227.00
Louisville	15,622	70	30	7	1,935.00	2,160.00	750.57	807.32	8,520.00
Louisville	15,825	70	30	7	1,840.00	2,160.00	745.69	773.80	8,219.00

**List of Applicants Approved for Retirement and Annuity—Continued**  
**Effective First Quarter 1948-49**  
**July 1, 1948**

District or Institution	Cert. No.	Age	P. S.	S. S.	P. S. Sal.	S. S. Sal.	Member's Contribution	Annuity	Reserve
<b>County—Cont.</b>									
Louisville	16,773	70	30	7	1,980.00	2,160.00	750.51	320.80	8,662.00
Louisville	15,819	70	30	7	1,695.00	2,160.00	726.27	735.30	7,759.00
Louisville	15,974	70	30	7	2,000.00	2,160.00	750.48	326.80	8,725.00
Louisville	15,931	70	30	7	2,000.00	2,160.00	750.49	326.80	8,725.00
Louisville	16,643	70	27.6	7	1,955.00	2,160.00	750.53	756.40	7,982.00
Lynch	21,519	70	26	5	936.00	1,831.60	391.54	390.72	4,018.00
Mayfield	17,222	65	30	6	783.17	1,094.85	318.71	300.00	3,718.00
Newport	17,570	65	25	7	1,754.00	1,934.00	646.03	546.32	6,771.00
Newport	17,558	70	30	7	1,996.00	2,044.00	706.03	813.44	8,584.00
Owenton	17,884	60	30	7	919.52	1,114.00	397.02	300.00	4,275.00
Paducah	18,008	70	30	7	1,062.00	1,547.10	490.38	481.04	5,076.00
Paris	18,145	70	30	7	900.00	1,320.00	412.98	408.60	4,312.00
Paris	18,144	67	30	7	655.00	1,225.00	364.96	300.00	3,496.00
Paris	18,119	61	21	7	1,350.00	1,702.00	561.69	351.40	4,878.00
Princeton	18,303	70	30	7	905.42	1,278.75	406.80	405.92	4,284.00
Providence	18,322	70	30	7	707.47	1,050.00	334.15	325.64	3,436.00
Russell	18,458	70	23.1	7	1,039.80	1,638.00	521.50	474.56	5,008.00
Russell	18,482	70	22	7	945.00	1,323.00	421.46	346.80	3,660.00
Ky. School for Blind	18,946	70	28.6	7	1,140.00	1,428.00	474.81	476.00	5,023.00
Murray State College	19,230	61	21	5	2,000.00	2,000.00	521.39	433.36	6,015.00
Dept. of Education	20,634	69	23.5	6	1,701.32	2,160.00	548.23	574.40	6,271.00
<b>Totals</b>	<b>113</b>		<b>2785.7</b>	<b>695.1</b>	<b>\$104,820.40</b>	<b>\$136,281.65</b>	<b>\$42,226.73</b>	<b>\$43,463.02</b>	<b>\$509,784.00</b>
<b>Averages</b>		<b>66.1</b>	<b>24.65</b>	<b>6.1</b>	<b>\$ 927.02</b>	<b>\$ 1,206.03</b>	<b>\$ 373.63</b>	<b>\$ 384.63</b>	<b>\$ 4,511.26</b>

**BALANCE SHEET**  
**Teachers' Retirement System**  
**June 30, 1948**

**ASSETS**

**Current Assets:**

Cash .....	\$ 155,366.99	
Due from Districts (Underpayments) ....	8.00	
Total .....		\$ 155,374.99

**Investments:**

U. S. Treasury 2½ % Bonds .....	\$9,075,000.00	
U. S. Treasury 2½ % Bonds, Series A, 1965 .....	250,000.00	
U. S. Savings Bonds, Series G .....	750,000.00	
Total .....		10,075,000.00

**Deferred Charges to Income:**

Unamortized Premium .....	\$ 69,517.41	
Accrued Interest on Bonds Purchased ....	13.66	
Total .....		69,531.07

<b>TOTAL ASSETS</b> .....		<b>\$10,299,906.06</b>
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**LIABILITIES AND FUND BALANCES**

**Current Liabilities:**

Encumbrances Outstanding .....	\$ 113.25	
Due to Districts (Overpayments) .....	7.21	
Total .....		\$ 120.46

**Fund Balances:**

Expense Fund .....	\$ 403.59	
Teachers' Savings Fund .....	5,027,284.95*	
State Accumulation Fund .....	4,884,383.45*	
Allowance Reserve Fund:		
Teachers' Contributions .....	3,591.37	
State Contribution—Permanent .....	38,085.99	
State Contribution—Temporary (Deficit) .....	—71,790.48*	
Guarantee Fund .....	417,826.73	
Total .....		10,299,785.60

**TOTAL LIABILITIES AND  
FUND BALANCES** .....

**\$10,299,906.06**

\* Discrepancy and deficit caused by inadequate appropriation for 1947-48.

## RECEIPTS AND DISBURSEMENTS

### Teachers' Retirement System

July 1, 1947, to June 30, 1948

Cash Balance July 1, 1947 ..... \$ 156,144.85

#### Receipts:

Teachers' Savings .....	\$1,012,282.86
State Contribution—Permanent .....	867,231.00
State Contribution—Temporary .....	52,259.59
State Contribution—Expenses .....	36,409.41
Interest Earned on Investments .....	221,023.20

Total Receipts ..... 2,189,306.06

Total Cash Available ..... \$2,345,450.91

#### Disbursements:

Administrative Expenses .....	\$ 36,654.76
Refunds to Teachers .....	141,581.51
Retirement Allowance Payments .....	252,374.54
Investments Purchased .....	1,759,473.11

Total Disbursements ..... 2,190,083.92

Cash Balance June 30, 1948 ..... \$ 155,366.99

Statement of receipts and disbursements show that more than \$4,250,000.00 worth of business was handled at a cost of only \$36,409.41. The Teachers' Savings Fund is by far the largest and most active savings bank in the state. Interest at the rate of  $\frac{1}{4}$  of 1% is credited to each account each month. Approximately 200,000 contributions were received and entered to individual accounts. Refunds aggregating \$141,581.51 were paid to 1,771 different payees. The whole office work is a mass of great detail, and it is not practical to try to review it. The cost on receipts and disbursements is .83 of 1%.

It is often said that a government office is not as efficient and economical as a private business office. We challenge that opinion.

## COST OF ADMINISTRATION

### Teachers' Retirement System

July 1, 1940, to June 30, 1948

Year	Receipts of State Accumulation Fund	Administrative Expense	Per Cent of Receipts
1940-41 .....	\$476,089.49	\$23,669.88	4.97%*
1941-42 .....	481,713.03	18,232.93	3.79%
1942-43 .....	627,680.61	22,317.03	3.56%
1943-44 .....	625,300.00	24,633.20	3.94%
1944-45 .....	772,866.80	25,908.68	3.35%
1945-46 .....	791,641.32	31,390.43	3.97%
1946-47 .....	919,490.57	36,113.58	3.93%
1947-48 .....	919,490.59	36,409.41	3.96%

\* 4% limitation not applicable to first year of operation of system.

At the time of the writing of this Report the number of teachers on the annuity roll would be sufficient to man the public schools of the following 15 county districts: Anderson, Bath, Boyd, Bullitt, Carroll, Edmonson, Fulton, Gallatin, Harrison, Jessamine, LaRue, Livingston, Mercer, Owen, and Powell. More than a quarter of a million dollars was paid to retired teachers during 1947-48, and by December 31, 1948, the first million dollars will have been disbursed to retired teachers.

At the close of the year 1947-48, 43 members retired from independent districts, and 70 from county districts. Respectively their basic data are as follows: Prior service salaries \$1,446.96 and \$608.59; Subsequent service salaries \$1,773.23 and \$960.70; total service credit 32.9 years and 29.7 years; age 68.3 years and 64.8 years; and retirement allowances \$528.81 and \$296.06.

Their aggregate contributions plus interest was \$42,226.73, but it will require \$509,784.00 to pay their retirement allowances for the life expectancy. This class of 113 retiring teachers have contributed 8.33% toward their retirement benefits and the State 91.67%.

It will be observed that low retirement allowances follow low salaries, and comparatively low tenure. If those with 30 years or more of service credit are considered, the average retirement allowance is \$427.66; the minimum \$300.00 and the maximum \$826.80. The average reserve requirement for the class of 113 is \$5,844.00; the lowest \$1,055.00, and the highest \$8,725.00. It is a widely accepted principle that the reserve for the retiring teacher be completely built up during her active professional career, so that her retirement allowance will not depend upon appropriations to be made after her retirement.

## Funds

As the name indicates, the Teachers' Retirement System is a system of funds, to be handled in a systematic way for the protection of the equity and vested interest of each individual. If all assets were in one fund, it would not be possible to determine actuarial unsoundness or possible to protect the personal interest of each member.

The Teacher's Savings Fund receives and retains, on a savings account basis, the monthly contributions of members. This savings fund feature is highly desirable, and in our opinion it should never be changed or the interest rate diminished as long as the System is a 3% system.

The State Accumulation Fund receives the matching contribution of the State. It, too, receives 3% compound interest from the System and constitutes a 3% reserve fund. The taxpayer saves significantly by this arrangement. The principal is increased 100% by interest each 24 years. The power of compound interest, which was familiar to our forefathers, is practically unknown to our people today. These two trust funds operate for the long-term future.

To illustrate, suppose a young teacher 22 years old makes a contribution of \$40.00 during the year. The State matches it, making \$80.00 set aside for her retirement. In 24 years this is increased by interest credited by the System to \$160.00. The teacher is now 46; and her \$40.00 contribution is \$160.00. If she continues in the profession to compulsory retirement age, the \$160.00 will be \$320.00. Therefore, at age 70 her first contribution of \$40.00 is \$320.00, and all of the \$320.00 is available to provide

for her. The \$320.00, contribution for her first year of service, will provide an annuity of \$30.32 for life. This is true, in proportion to the elapse of time, for every contribution she will have made.

At time of retirement the teachers' accumulated account and the matching amount are transferred to the Allowance Reserve Fund. The Law provides that, if necessary, a larger amount than a "matching" amount may be transferred from the State Accumulation Fund, but so far this has not been done. Upon this transfer the teacher's rights becomes what is called "vested". It is fixed and determined and the courts have always held that this right cannot be diminished or destroyed. The balance in the Allowance Reserve Fund receives 3% interest, but interest to the teacher, her beneficiary or estate ceases upon retirement; however individual accounts are maintained for retired teachers.

There are three items in the individual retired teacher's account; her accumulated account, the State's matching amount, and the additional amount necessary to pay her allowance for her life expectancy.

If death occurs before she has received as retirement allowance her own accumulated account, the remainder is paid to her beneficiary. At this time the teacher's accumulated account will pay her retirement allowance for somewhat less than one year. With longer membership service the one year will increase to approximately four years.

Reference is respectfully made to the Balance Sheet of the System. In this Report it is essential that the reader take careful note as to whether the statistical, actuarial, or financial statement is for June 30, 1948; July 1, 1948, or a later date. In order to make the Report more useful, conditions as of varying dates are reported rather than a static condition on June 30, 1948.

Under present policies and under present management of the Board of Trustees, the assets of the System have in eight years increased from zero to approximately \$13,000,000.00. The Retirement Law has been greatly improved, and there is expected further improvement. The least the membership can safely do is to read the Reports and other literature and give intelligent support to policies and management which guarantee safety and continued progress.

Respectfully submitted,

N. O. KIMBLER, Executive Secretary  
Teachers' Retirement System  
of the State of Kentucky.

Schedule 5  
TEACHERS' SAVINGS AND STATE CONTRIBUTIONS  
Teachers' Retirement System  
July 1, 1940, to June 30, 1948

Year	Teachers' Savings Regular	Reinstatements	STATE CONTRIBUTION				Total
			Subsequent Service	Prior Service	Expense Fund	Total From State	
1940-41	\$ 476,136.77	\$ 0.00	\$ 476,069.49	\$ 0.00	\$ 23,669.88	\$ 499,759.37	\$ 975,896.14
1941-42	481,690.66	41.55	481,713.03	0.00	18,232.93	499,945.96	981,678.17
1942-43	559,783.87	141.00	559,672.98	63,007.63	22,317.03	649,997.64	1,209,922.51
1943-44	546,787.56	530.70	546,161.42	79,133.58	24,633.20	649,933.20	1,197,251.46
1944-45	646,733.13	1,532.32	646,559.38	126,307.42	25,908.68	798,775.48	1,447,045.93
1945-46	657,957.16	1,710.26	658,004.24	133,637.08	31,390.43	823,031.75	1,482,699.17
1946-47	867,521.73	2,868.82	867,222.82	52,267.75	35,637.07	955,127.64	1,825,518.19
1947-48	1,010,250.24	2,027.34	867,221.00	52,359.59	36,409.41	956,000.00	1,968,277.58
	\$5,246,866.12	\$8,851.99	\$5,102,654.36	\$511,718.05	\$218,198.63	\$5,832,571.04	\$11,088,289.15



**Schedule 6**  
**REFUNDS**  
**Teachers' Retirement System**  
**July 1, 1940, to June 30, 1948**

Date	WITHDRAWAL		DEATH		SPECIAL		TOTAL	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
1940-41	151	\$ 2,036.96	12	\$ 235.54	—	\$ —	163	\$ 2,272.50
1941-42	738	20,231.70	38	1,878.55	2	29.32	778	22,139.57
1942-43	900	37,563.07	58	4,704.18	4	35.77	962	42,303.02
1943-44	872	46,706.43	40	4,604.58	8	127.39	920	51,438.40
1944-45	914	48,760.45	52	6,567.58	8	168.27	974	55,496.30
1945-46	1,647	103,947.17	62	8,654.01	5	50.64	1,714	112,651.82
1946-47	2,170	135,277.90	37	6,298.25	17	195.16	2,224	141,771.31
1947-48	1,764	128,537.47	53	12,657.50	16	386.54	1,833	141,581.51
Totals	9,156	\$523,061.15	352	\$45,600.19	60	\$993.09	9,568	\$569,654.43

**Schedule 7 (A)**  
**RETIREMENT ALLOWANCES PAID**

Year	Retired for Superannuation	Retired for Disability	Total Allow- ances Paid
1942-43	\$ 63,073.45	\$ 1,451.56	\$ 63,865.92
1943-44	82,327.44	2,260.49	82,949.47
1944-45	101,452.30	2,862.12	104,314.42
1945-46	129,761.78	3,703.69	133,465.47
1946-47	200,903.68	13,430.52	214,334.20
1947-48	234,185.94	17,893.88	252,079.82
Totals	\$811,704.59	\$41,602.26	\$851,009.30

**Schedule 7 (B)**  
**FUNDS FROM WHICH RETIREMENT ALLOWANCES**  
**HAVE BEEN PAID**

July 1, 1942, to June 30, 1948

Year	Paid From Teachers' Contributions	Paid From State Contributions	Total Allowances Paid
1942-43	\$ 15,791.10	\$ 48,074.82	\$ 63,865.92
1943-44	9,363.05	73,586.42	82,949.47
1944-45	14,120.62	90,193.80	104,314.42
1945-46	24,296.95	109,168.52	133,465.47
1946-47	39,159.38	175,174.82	214,334.20
1947-48	37,891.27	214,188.55	252,079.82
Totals	\$140,622.37	\$710,386.93	\$851,009.30

TEACHERS' RETIREMENT SYSTEM  
OF THE STATE OF KENTUCKY  
Capitol Building  
FRANKFORT

October 26, 1948

RE: AUDITOR'S REPORT

We are advised that due to the small staff in the State Auditor's Office and the great volume of auditing throughout the state, it will not be possible for the State Auditor to audit the Funds of the Teachers' Retirement System early enough for audit to be contained in this report.

Audit will be made later in the fiscal year and report made to the Governor of the Commonwealth and filed as a public record.

The Funds of the Retirement System have been audited each fiscal year and the audit contained in the Annual Report.

N. O. KIMBLER, Secretary