

**Seventh Annual Report**  
of the  
**Teachers' Retirement System**  
of the  
**State of Kentucky**

**1946-47**



**OCTOBER, 1947**

STATE OF KENTUCKY  
TEACHERS' RETIREMENT SYSTEM  
FRANKFORT, KENTUCKY

January 19, 1948

A D D E N D A

Since the publication of the Seventh Annual Report, the General Assembly of the State of Kentucky has met, and upon the recommendation of the Governor, a Budget Bill containing an appropriation of \$2,439,606.64 for the State's obligation for prior service to September 30, 1947, was passed unanimously.

There was made, also, an appropriation of \$1,475,975.00 for 1948-49 and \$1,477,875.00 for 1949-50. Each of these two appropriations contains \$300,000.00 for the obligation for prior service maturing during the respective years.

After the effective dates of these appropriations, the Kentucky Teachers' Retirement System will be actuarially sound.

The Seventh Annual Report emphasizes the "deficiency" for prior service. For this reason this is added; in order to give the reader a more accurate understanding of the actuarial condition of the Retirement System on and after the effective dates of these appropriations.

N. O. Kimbler, Secretary

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COMMONWEALTH OF KENTUCKY  
DEPARTMENT OF EDUCATION  
FRANKFORT

JOHN FRED WILLIAMS  
SUPERINTENDENT OF PUBLIC INSTRUCTION

FOREWORD

No state teachers retirement system has made greater strides in its first seven years than that of Kentucky. On a fair rating it is sixteenth from the top, among the forty-eight states.

Every member of the profession serving in the public school system, exclusive of the University of Kentucky, has an equity in it; and every public school child stands to be better served by reason of its existence.

The values and services of the Kentucky Teachers' Retirement System depend upon the understanding and interest of its members.

To this end we commend the reading of this Report by all to whom it may come. It has been compiled at considerable expense. The strength and weakness of the System are objectively set forth.

The recent amendments effective July 1, 1946, have been well received and have already done much good; they have in proportion increased the financial obligations of the System. The next step is to meet these obligations with a full reserve in the Allowance Reserve Fund. Security is of first importance.

After this is done, and not before, the benefits of the System may with safety be further increased. With proper interest this will soon come.

Every teacher and school official has the responsibility of being informed and of taking an active interest in the proper development of an adequate, useful, and effective retirement program.

JOHN FRED WILLIAMS  
Superintendent of Public Instruction

## LETTER OF TRANSMITTAL

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COMMONWEALTH OF KENTUCKY  
TEACHERS' RETIREMENT SYSTEM  
FRANKFORT

Honorable Simeon Willis  
Governor of Kentucky  
Frankfort, Kentucky

Dear Governor Willis:

The Seventh Annual Report of the Board of Trustees of the Teachers' Retirement System of the State of Kentucky, made in compliance with KRS. 161.320, is respectfully submitted.

The last actuarial valuation of the assets and liabilities December 31, 1946, 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.

Report of the Auditor of the Commonwealth of Kentucky, made under KRS. 43.050, has been filed and reference thereto is made.

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 Teachers' Retirement System of the State of Kentucky was seven years old July 1, 1947. Seventeen states of the Union have younger systems; thirty states older systems. Kentucky can, therefore, profit by the experience of other states. We can observe the events, appropriations, and amendments which guarantee solvency and actuarial soundness; for example, in the Ohio System established September 1, 1920, Pennsylvania System established July 1, 1919, or New York System established August 21, 1921. These represent three of the best and soundest systems. They are in excellent condition because their respective Legislatures have met their obligations for prior service in full, have matched the members' contributions according to law and have not set the retirement allowance above the financial ability of the system.

We can also learn from the younger systems like West Virginia, North Carolina, and Tennessee which have had the influence of more present day thinking upon their respective retirement laws.

We can profit from the experience of those systems which have had trouble, and if we are intelligent and practical, we can avoid the pitfalls. Recently the Governor and General Assembly of California found it necessary to give the California System several million dollars to make it solvent. A less wealthy state could not have done this; however any state could have liquidated this obligation as it was being incurred at the rate of a few hundred thousand dollars per annum. It is easier and less expensive to do it right and at the proper time.

Recently eight states including Kentucky have amended their retirement laws. All forty-eight states have retirement systems of some sort. Kentucky is among the best so far as her law is concerned, and her retirement allowance is about average in amount. After the obligation for prior service is properly taken care of by appropriations, Kentucky can safely provide a larger retirement allowance.

### History<sup>1</sup>

The Kentucky Teachers' Retirement Law was passed during the Extraordinary Session of 1938 and was known as the Porter-Rayburn Act. No appropriation was made for the biennium 1938-40 because it was to become operative July 1, 1940. However, members of the Board of Trustees were elected and qualified prior to July 1, 1940.

During the regular Session 1940 the Porter-Rayburn Act was amended and reenacted as "An Act providing a Teacher Retirement System for the State of Kentucky."

For the biennium 1940-42 one million dollars was appropriated. On July 1, 1940, office space was provided in the Capitol, a staff employed, and a system of office procedures set up. Members began paying their

<sup>1</sup> Acts of 1912, sec. 2978d-1 to sec. 2978d-18.

Acts of 1914, c. 17, p. 62; amended 1926, c. 88, p. 301.

Acts of 1933, 1st ex. s. c. 1.

Acts of 1940, c. 192, p. 742.

Acts of 1946, KRS 161.220 to 161.710 (Acts 1946, c. 111, secs. 1, 2, 3, 4, 5, and c. 102).

contributions at the beginning of the scholastic year 1940-41 and out of the appropriation their contributions were "matched." No teachers were to be retired before July 1, 1942.

None of the appropriation for 1940-42 was available to apply on the obligation for prior service.

No amendments to the Act were made after the adjournment of the Regular Session of 1940 until the Regular Session of 1946, at which time amendments relating to "annual salary", "annual compensation", "out-of-state service", "member's contribution", "retirement allowance", and "disability allowance" were adopted. These amendments in effect provided a new retirement law, basing the per cent of contribution upon the "attained age" instead of upon the "age of entrance", and by providing a more just and equitable method for calculating the retirement allowance.

A special appropriation of \$212,000.00 was made for the biennium of 1946-48 to cover increases in retired teachers' pensions and to match increased contributions provided for in the Amendments.

Not all retired teachers' allowances (pensions) were increased; those receiving less than \$10.00 per service year were increased to that amount for the first thirty years of service for which the member could receive service credit. This was in effect a minimum of \$300.00 for thirty or more years of service.

These amendments became effective July 1, 1946, and have the general approval of the membership. However, the members of the Retirement System look forward to further improvement in the Retirement Law, and to further increases in the minimum benefits of the System, even though they may be required to contribute larger amounts.

### **Characteristics**

In course of time an ongoing concern, whether public or private, tends to be identified by certain desirable or undesirable characteristics or habits from the viewpoint of those served.

The Board of Trustees and the office personnel during the seven years have been able, by their service, to create adequate confidence and good will, so essential to any sort of annuity system. There have been no distracting or partisan influences whatsoever. The Board has maintained an adequate staff of well-trained, conscientious workers, several of whom were formerly teachers.

All business is handled promptly, checks for payment of obligations are issued and mailed so as to reach payee on date payment is due, all letters from members not answered on the day received are answered on the following day; forms requested are mailed on day request is received, and requests for information are given due and prompt attention.

Every courtesy is extended to those served by the office staff regardless of the cost in time or effort.

All investments are properly made according to Law; accounts are maintained up to date for all Funds, of which there are five; the member's individual ledger is handled with care and interest credited each month in order to have the average balance for the year; and all such work is current. All ledger work is filed in fireproof containers or files.



## Administration

Cost of administration is provided for by the Board of Trustees which may approve a budget for an amount of not more than 4% of the receipts of the State Accumulation Fund. Cost of Administration for 1946-47 was \$33,113.58. (See Table **Cost of Administration**, page 53.) In an office with receipts of \$2,006,815.86 and disbursements of \$2,142,661.32, mostly in comparatively small amounts, this is a reasonable cost for administration, amounting to eight-tenths of 1% of funds handled.

## Members of the Board serving 1946-47

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. Edward L. Cawood,\* Lay member, Banker, Harlan.

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

Hon. J. F. Williams, Superintendent of Public Instruction, Ex officio member, Frankfort.

Hon. T. W. Vinson, State Treasurer, Ex officio member, Frankfort.

Hon. Eldon S. Dummit, Attorney General, Ex officio member, Frankfort.

Each member has given generously of his time and deserves the thanks of the staff and of the members of the System. No Board could be more faithful. They serve without pay.

## 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, Stenographer.

Lois Kerby, Clerk.

Annie Laurie Smith, Clerk.

Helen Meade, Clerk.

Jean Lillis, Clerk.

Margaret Nesselrode, Clerk.

Anna Mae Bates, Machine Operator.

Alean MacDonald, Machine Operator.

Opal Brownie Gordon, Machine Operator.

Ida Christopher,§ Clerk.

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

Personnel is employed by the Board upon recommendation of the Executive Secretary. This staff has proven its efficiency in handling a multitude of small accounts at a time when teacher turnover has created a very unstable condition. Correspondence, service records, and ledger

\* Mr. Edward L. Cawood's term expired June 30, 1947. Mrs. Anna H. Settle, Attorney, Louisville, was elected to succeed Mr. Cawood.

† Mr. William S. Milburn was elected by the Board to fill the unexpired term of Mr. Morton Walker who resigned November 1, 1946.

§ Part-time employee.

accounts of 40,392 individuals have been handled by the office since July 1, 1940.

### Retirement Office

The office is located in the Capitol Building adjacent to the offices of the Department of Education. The space is fairly adequate, but with the accumulation of records more space will be needed next year.

During 1946-47 members filed 2,244 service record Forms A-1 or A-2, bringing the total to 30,903. There are 9,489 members or former members who have not filed. Participating units filed 3,044 pay roll reports; all pay roll reports are bound permanently and kept as a subsidiary record. In handling members' accounts more than 400,000 lines of entries were made on their individual ledgers. During the year we sent out 20,763 pieces of first-class mail and 28,117 pieces of other classification, and approximately an equal amount was received and processed.

Between participating units 2,292 teachers transferred during or at the beginning of 1946-47. Refunds were made to 2,198 members leaving the profession or deceased. On June 30, 1947, members had 28,917 active accounts; on July 1, 1947, 2,103 of these became inactive because no contribution had been received during the preceding three years.

The proceedings of the Board of Trustees, which meets quarterly, are kept in good order under permanent binding and are filed with permanent records of Fund accounts in the fireproof safe, which has combination lock. All records of assets and liabilities are adequately supported by vouchers and subsidiary records.

### STATISTICAL

During 1946-47 there were considered to be 19,414 dues-paying members including those in military service, on leave of absence, and on deferred retirement. All contributing members who are not actively employed in the profession have filed necessary records. Some who are teaching have not filed service forms, and, therefore, we do not have date of birth, prior service record, and other information. All former teachers withdrawing and receiving refunds are included as "withdrawals" even though they have not filed service forms.

**Table I. Membership 1940-47**

	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
Withdrawn .....	4,713	1,283	5,996	1,276	7,272
Deceased .....	257	9	266	32	298
Retired .....	711 5,681	1,292	711 6,973	1,308	711 8,281
<b>TOTAL as of June 30, 1947 .....</b>	<b>17,473</b>	<b>6,457</b>	<b>23,930</b>	<b>8,181</b>	<b>32,111</b>

**Table II. Members with Prior Service End of Seventh Year**

From July 1, 1940 Thru June 30, 1947	Number	Prior Service Years		Prior Service Salary	
		Total	Average	Total	Average
Prior Service Records Filed	23,154	244,185.7	10.5	\$20,730,264.97	\$895.32
Withdrawn	4,713	33,956.87	6.7	4,381,387.33	868.11
Deceased	257	4,716.2	15.8	297,613.14	988.70
Retired	711	20,019.93	28.2	688,381.78	968.19
Totals and Averages	17,473	185,492.7	10.6	\$15,362,882.72	\$879.12

Table II and Table IIA present the state's annual obligation for retirement allowances based upon all prior service credit held by members and valid at this time. The number of years of prior service shown in this table will be reduced each year by withdrawals, deaths, and retirements. 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.

The state has not been able to appropriate the entire amount each year as shown in Table IIA and for that reason on June 30, 1947, its obligation for prior service was in arrears \$1,976,183.80. Included in this amount was an increase of \$876,739.60 by reason of the 1946 amendments which increased certain retirement allowances for members previously retired and provided for increased current allowances. The deficit in the Allowance Reserve Fund was further increased by the retirement of 117 members July 1, 1947, bringing the accumulated deficit to \$2,439,606.64.

If the amount indicated in Table IIA had been appropriated at the proper time, the interest accumulation would have taken care of the difference between \$1,821,012.36 and the above amount.

It is recommended by the Actuary of the System, the Board of Trustees, and the Secretary that in order to liquidate this obligation the state should now appropriate \$450,250.00 per year until the whole amount of the deficit for prior service is liquidated, and then drop back to 2% of the aggregate prior service salaries.

As members retire, the obligation for prior service becomes payable, and, therefore, all of the \$450,250.00 cannot be used to liquidate the deficiency. Only the amount left after pensions are paid can be so used or credited; however the sum total of the state's obligation will be reduced by the full amount of \$450,250.00, and when it is all paid, it is paid.

From the actuarial study as at December 31, 1946, the actuarial worth of the entire obligation for prior service not already paid was \$7,840,588.67 distributed as follows: deficit on teachers already retired \$2,150,305.26, for members eligible to retire but still in teaching service \$1,162,693.12, and for members teaching, but not yet eligible to retire, \$4,527,590.28.

This does not include \$459,358.46 already paid by the state for prior service and which has been paid out currently for that part of the retirement allowance based upon prior service.

Since the \$7,840,588.67 is a present value figure, the unpaid amount will increase at the rate of 3% compound interest. Any reserve which the state sees fit to build up will in effect be a deposit bearing 3% compound interest and in this sense the earlier the state can liquidate the deficit and build up a reserve, the less it will cost the state.

It is devoutly hoped that the General Assembly will appropriate \$450,250.00 per annum for prior service beginning now so that the Retirement System may remain intact and continue to function as a sound state agency.

If for any reason this appropriation for prior service is not made, it will be necessary for the Courts, by declaratory judgment, to determine out of which funds retirement allowances shall be paid, and the means of protection to be provided for the funds or deposits of active members who will retire in the future.

For the protection of contributions (deposits) of active members, the System must according to law segregate all receipts in accordance with the purpose for which they are held. It is unlawful and unconstitutional to use an active teacher's account for the purpose of paying the retirement allowance or pension of a retired teacher. This is very clear in the Retirement Law (Statutes).

This will be discussed further and more in detail in this report under the heading **Actuarial**.

**Table IIA. Temporary Appropriations for Prior Service—State Accumulation Fund A/c #2—Through June 30, 1947**

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	.....	337,993.64
1942-43 .....	16,997,806.67	339,956.13	68,007.63	271,948.50
1943-44 .....	16,417,966.20	328,359.32	79,138.58	249,220.74
1944-45 .....	15,932,987.94	318,659.76	126,307.42	192,352.34
1945-46 .....	15,288,597.28	305,771.95	133,637.08	172,134.87
1946-47 .....	15,362,882.72	307,257.65	52,267.75	254,989.90
Total ...		\$2,280,370.82	\$459,358.46	\$1,821,012.36

Table IIA does not take into consideration the increase in the obligation for prior service due to the amendments. However, the total of \$1,821,012.36 remaining unappropriated, had it been appropriated at the proper time, would now, with accumulated interest, be \$2,058,419.20, and would be sufficient to practically offset the 6/30/47 deficit of \$1,976,183.80 which is the condition anticipated by Section 161.550.

Due to the fact that all members have not filed service forms, Table I may be incorrect as to members without service records. The number of years of prior service credit outstanding is 185,492.7, and the aggregate salaries is \$15,362,882.72.

**Table III. Distribution by Ages of 1,833 New Entrants without Prior Service who have Filed A-2's after Tables were made July 1, 1946**

Age	Number	SALARIES	
		Total	Average
18-20	613	\$ 654,545.73	\$1,067.77
21	169	226,043.84	1,337.54
22	119	161,316.66	1,355.60
23	83	116,470.94	1,403.26
24	64	90,476.42	1,413.69
25	78	121,111.86	1,552.72
26	73	114,406.73	1,567.22
27	74	116,824.59	1,578.71
28	67	112,295.86	1,676.06
29	39	60,620.76	1,554.38
30	46	71,657.53	1,557.77
31	38	60,768.31	1,599.18
32	46	69,561.35	1,512.20
33	24	34,239.03	1,426.63
34	33	47,926.85	1,462.33
35	29	43,855.83	1,512.27
36	21	28,916.10	1,376.96
37	28	51,061.67	1,823.63
38	21	31,610.20	1,505.25
39	15	22,537.86	1,502.52
40	21	33,741.80	1,606.75
41	17	28,849.26	1,697.02
42	17	28,727.54	1,639.86
43	11	17,632.00	1,602.91
44	11	14,794.72	1,344.97
45	7	9,272.45	1,324.64
46	9	17,266.75	1,918.53
47	12	16,359.88	1,363.32
48	5	6,741.44	1,348.29
49	8	12,262.12	1,532.77
50	7	12,666.00	1,809.43
51	0	0.00	0.00
52	6	12,425.00	2,070.83
53	0	0.00	0.00
54	4	9,600.00	2,400.00
55	2	4,005.00	2,002.50
56	3	4,034.00	1,344.67
57	3	5,029.40	1,676.47
58	4	7,017.00	1,754.25
59	1	1,850.00	1,850.00
60	0	0.00	0.00
61	1	2,400.00	2,400.00
62-63	0	0.00	0.00
64	2	4,116.00	2,058.00
65	0	0.00	0.00
66	1	1,246.50	1,246.50
67	1	975.80	975.80
68-70	0	0.00	0.00
Totals and Average	1,833	\$2,487,261.33	\$1,356.93

Table III gives an accurate picture of the new members of the profession for 1946-47. They have never taught in Kentucky prior to July 1, 1946. The one hundred members filing Form A-2 and withdrawing the same year are not included. Compared with 1945-46 there were 703

more new members and the average annual salary increase was \$331.99. It is possible that this significant increase in salary attracted several hundred people to the work of teaching.

**Table IV. Distribution by Ages of 411 Teachers with Prior Service who Filed A-1's after Tables were made July 1, 1946**

Age	Number	PRIOR SERVICE		SALARIES	
		Total	Average	Total	Average
18-21	0	0	0	\$ 0.00	\$ 0.00
22	1	2.7	2.7	437.85	437.85
23	1	3.0	3.0	419.30	419.30
24	3	6.6	2.2	1,792.50	597.50
25	2	5.0	2.5	1,424.85	712.42
26	7	21.5	3.1	3,859.10	551.30
27	4	13.8	3.5	2,950.50	737.63
28	8	27.0	3.4	6,061.30	757.66
29	14	41.3	2.95	9,245.65	660.40
30	7	15.5	2.2	3,981.78	568.83
31	16	37.7	2.4	12,383.15	805.51
32	18	62.1	3.5	11,181.91	621.21
33	15	78.3	5.2	9,347.83	623.19
34	18	86.3	4.8	11,618.62	645.48
35	18	87.8	4.9	10,581.75	587.88
36	24	122.2	5.1	14,596.53	608.19
37	18	101.1	5.6	12,938.02	718.78
38	27	123.3	4.6	18,825.91	697.26
39	19	113.1	5.95	14,698.65	773.61
40	14	94.8	6.8	12,412.00	886.57
41	18	102.8	5.7	12,630.40	701.69
42	11	76.1	6.9	8,540.60	776.42
43	16	103.2	6.5	14,261.05	891.32
44	14	109.5	7.8	11,926.74	851.91
45	15	94.9	6.3	10,630.90	708.73
46	11	84.1	7.6	7,026.63	638.78
47	13	97.7	7.5	10,026.86	771.30
48	4	41.2	10.3	3,276.00	819.00
49	6	64.0	10.7	3,768.30	628.13
50	7	60.2	8.6	4,828.50	689.79
51	7	79.3	11.3	4,489.60	641.37
52	3	33.9	11.0	1,196.00	398.67
53	2	6.0	3.0	1,006.00	503.00
54	7	98.3	14.0	3,266.70	466.67
55	4	50.3	12.6	1,553.25	388.31
56	7	71.8	10.3	4,267.80	609.69
57	5	57.0	11.4	1,842.00	368.40
58	2	21.4	10.7	1,296.00	648.00
59	2	29.9	14.9	1,512.00	756.00
60	1	25.4	25.4	484.40	484.40
61	5	90.3	18.1	3,035.50	607.10
62	3	27.0	9.0	1,896.00	632.00
63	3	44.1	14.7	2,557.50	852.50
64	4	72.0	18.0	3,119.00	779.75
65	4	64.5	16.1	3,961.75	990.44
66-67	2	8.0	4.0	470.00	235.00
68	1	3.7	3.7	225.00	225.00
Totals and Averages	411	2,658.8	6.5	\$282,357.23	\$687.00

Table IV gives a distribution by ages of 411 former teachers who returned to the profession in 1946-47 or recently. Their average prior

service is 6.5 years, and the model age is 38 instead of age 20 as in the case of the inexperienced teachers. Current salaries for the experienced teachers are not shown in Table IV, but they are on the average slightly lower than for inexperienced teachers. It is significant that current salaries for these returned teachers are approximately 100% greater than their prior service salaries, which average \$687.00.

The prior service model age and prior service salary of this group of returned teachers with experience is about the same as for last year, but there are 44 more of them; not a significant increase.

For lack of space, we omit from this report Table J, giving termination rates, since there is no change. For this information, see Sixth Annual Report, page 8. For the same reason we omit Table V which is a Test Table comparing assumed terminations. There is no significant change for 1946-47. Please be referred to the Sixth Annual Report, pages 9 and 10. It might be well to note that for 1945-46 assumed terminations for withdrawals, deaths, disability, and retirement were 942.92, while actual terminations from these causes were 1,677, an increase favorable to the System of 77.8%. This is above normal due to the great turnover of teachers in Kentucky. There is no significant change for the year 1946-47.

In the space saved by omitting the two tables is the 1937 Standard Annuity Mortality Table in use by the System. It is the table referred to in Sec. 161.620 KRS.

1937 Standard Annuity Mortality Table

Age	$l_x$	$d_x$	$q_x$	$a_x^{3\%}$	Discount Factors Equal to $\frac{70}{a_x^{3\%}}$
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	8180	.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	.012568	14.62080	.72178
60	833874	11302	.013554	14.25107	.74050
61	822572	12021	.014614	13.88023	.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	.022953	11.65224	.90566
68	721618	17859	.024749	11.28381	.93523
69	703759	18773	.026675	10.91726	.96663
70	684986	19694	.028751	10.55296	1.00000

The  $1 \times$  column shows the number living out of a total number of 1,000,000. This amount can be adjusted to show the number living per 100,000 or per 1,000 by inserting a decimal point. The  $d \times$  column shows the deaths.

Column  $a \frac{3\%}{x}$  shows the number of dollars necessary to pay an annuity of \$1.00 a year, assuming that the balance in the reserve will be credited with 3% compounded annually on July 1 of each year. It is a little different from life expectancy in that the factor of interest is considered.

Column  $a \frac{7\%}{3\%}$  shows the factor or per cent to multiply the annuity by in case the teacher retires under the age of seventy. The teacher retiring at age seventy has a factor of 1 and, therefore, may be said to receive the full amount of the calculated annuity. The factors for other ages are for the purpose of paying the teacher who retires earlier than seventy the same total amount which she would receive if she retired at age seventy. The annuity is calculated as though the teacher had reached the age of seventy and then the proper age factor is applied.

Theoretically the same amount will be required during life expectancy regardless of age at retirement. In other words, a teacher with thirty years of prior service credit, six years of subsequent service credit, and an average salary of \$2000 would draw the same amount during her life expectancy regardless of age at retirement if the service and salary remain constant. In practice there is an increase for interest in case of the early retirement of the member.

No factor below .74050 is used. This is for the purpose of equalizing for life expectancy of disability cases; it being assumed that those retired for disability have a shorter life expectancy than those retired for superannuation.

This factor column was set up on the new law in response to the request of the teachers.

During 1946-47 we lost by death before retirement 18 men and 19 women, total 37 members. They are distributed by ages in Table VI, Members Deceased Before Retirement 1940-47. The total number reported is 298. Each deceased member's account has been paid to beneficiary if service Form A-1 or A-2 has been filed; if not, settlement has been paid to administrator of the estate. Since the form can be completed in ten minutes, we wonder why members neglect to file it. The Court cost of letters of administration is approximately \$10.00 and in some cases is very inconvenient for the heirs.

Each new member coming into the profession should be required by local school officers to immediately attend to this simple matter.



**Table VI. Members Deceased Before Retirement 1940-47**

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	1	921.21	460.60
22	1	1	2	4	2	1,001.35	500.67
23	0	4	4	9	2.3	2,458.05	614.51
24	2	2	4	9.5	2.4	3,149.34	787.34
25	4	2	6	15	2.5	5,202.50	867.08
26	1	2	3	12.5	4.2	2,557.80	852.60
27	5	2	7	24	3.4	3,975.21	567.89
28	1	1	2	15	7.5	1,495.20	747.60
29	9	3	12	45.1	3.8	8,238.08	686.51
30	7	3	10	44	4.4	7,036.04	703.60
31	3	3	6	48.5	8.1	4,348.17	808.03
32	1	4	5	38.7	7.7	3,282.57	656.51
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	1	3	4	42	10.5	3,954.00	988.50
36	2	3	5	53.8	10.8	5,631.94	1,126.39
37	2	4	6	62.1	10.4	6,424.37	1,070.73
38	5	7	12	136.9	11.5	11,754.78	979.57
39	1	3	4	23	5.8	4,846.13	1,211.53
40	1	8	9	129.1	14.3	7,895.35	877.26
41	1	2	3	38.9	13	2,270.70	756.90
42	1	4	5	79.5	15.9	5,026.90	1,005.38
43	2	6	8	117.3	14.7	7,351.82	918.98
44	2	6	8	119.3	14.9	7,063.12	882.89
45	2	3	5	78.4	15.7	6,427.63	1,285.53
46	3	1	4	82	20.5	2,283.74	570.94
47	3	1	4	66.5	16.6	5,425.30	1,356.33
48	0	3	3	43.7	14.6	1,946.02	648.67
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	3,302.80	950.70
52	1	6	7	157	22.4	7,932.79	1,133.26
53	0	3	3	74	24.6	3,096.52	1,032.17
54	1	4	5	106.7	21.3	3,070.00	1,614.00
55	2	3	5	111	22.2	6,607.40	1,321.48
56	2	5	7	117.2	16.7	6,585.00	940.71
57	1	2	3	65	21.6	4,832.05	1,610.68
58	1	7	8	226.6	28.3	10,159.05	1,269.88
59	1	6	7	201	28.7	6,835.30	976.47
60	1	7	8	195.2	24.4	8,133.87	1,016.73
61	5	7	12	324.1	27	16,930.90	1,410.91
62	1	7	8	207.6	26	9,298.45	1,162.31
63-64	4	3	7	196.3	28.1	8,918.25	1,274.04
65	2	0	2	35	17.5	2,589.00	1,294.50
66	0	3	3	88	29.3	3,435.60	1,145.20
67	7	2	9	211.4	23.5	10,299.45	1,144.38
68	4	7	11	242	22	11,701.40	1,063.76
69	2	4	6	175.1	29.2	7,081.93	7,081.93
70-78	1	4	5	90	18	5,958.60	1,191.72
Totals and Averages	120	178	298	4716.2	15.8	\$297,613.14	\$ 998.70

\* To correct error. In Table VI for 1940-46 one record was not included. Total death claims paid as of July 1, 1947, is 298.

Table VII. Members Who Have Withdrawn Before Retirement 1940-47

Entrance Age	Number With-out P.S.	Number With P.S.	Prior Service		Salaries	
			Total	Average	Total	Average
20 and under	400	225	224.5	1	\$ 135,488.00	\$ 602.17
21	257	234	443.0	1.5	164,548.85	703.20
22	198	271	616.8	2.3	208,299.26	768.63
23	130	286	912.0	3.2	225,449.73	788.29
24	118	332	1,328.9	4.0	261,537.63	787.76
25	105	314	1,460.1	4.7	266,211.29	847.81
26	71	348	1,902.56	5.5	285,798.45	821.26
27	72	295	1,801.0	6.1	257,490.84	872.85
28	55	282	1,990.4	7.1	244,505.65	867.04
29	65	256	1,979.0	7.7	215,474.69	841.70
30	85	295	2,459.5	8.3	267,088.78	905.39
31	68	249	2,163.5	8.7	232,625.37	934.24
32	58	232	2,179.9	9.4	219,699.16	946.98
33	58	193	1,809.09	9.4	188,198.43	975.12
34	41	159	1,664.5	10.5	161,835.88	1,017.84
35	29	173	768.8	4.4	168,052.76	971.40
36	41	128	1,352.5	10.6	137,285.07	1,072.54
37	39	114	1,325.7	11.6	120,114.45	1,053.64
38	32	95	1,003.8	10.6	98,584.53	1,037.73
39	30	66	786.9	11.9	61,365.03	929.77
40	32	70	763.7	10.9	64,203.07	917.19
41	22	61	679.0	11.1	60,418.93	990.46
42	26	52	655.1	12.6	54,855.23	1,054.91
43	21	34	426.2	12.5	29,221.34	850.45
44	13	27	279.41	10.4	24,312.40	900.46
45	9	30	342.3	11.4	30,175.19	1,005.84
46	18	36	345.0	9.6	32,513.94	903.17
47	14	15	304.2	13.6	14,904.35	933.62
48	7	17	148.8	8.8	16,876.78	992.75
49	11	25	340.7	13.6	23,625.61	945.02
50	11	18	277.5	15.4	12,847.00	713.72
51	13	15	158.9	10.6	13,248.16	883.21
52	12	18	223.0	12.4	18,636.11	1,035.34
53	3	10	83.1	8.3	9,191.60	919.16
54	11	13	167.8	12.9	9,184.86	706.53
55	7	11	132.8	12.1	8,683.50	739.41
56	7	7	77.0	11	4,320.00	617.14
57	7	8	101.3	12.7	7,470.80	933.85
58	5	9	75.6	8.4	6,553.18	723.13
59	5	5	52.6	10.5	4,291.00	858.20
60	5	4	60.0	15	3,780.00	945.00
61	3	4	69.1	17.8	2,627.78	656.95
62	3	3	19.3	6.4	3,592.50	1,197.50
63	0	2	23.0	11.5	2,547.00	1,273.50
64	3	3	39.0	13	1,441.00	480.33
65	2	3	35.01	11.7	2,213.00	737.67
66-69	3	0	0.	0.	0.00	0.00
Totals and Averages	2,225	5,047	33,956.87	6.7	\$4,381,387.33	\$ 863.11

The average prior service of deceased members is 15.8 years. The modal age is in the thirties.

Cause of death is always filed by the physician, surgeon, or coroner before a deceased member's account is refunded. Cause of death should

be a matter of concern to the profession, and for details reference is made to reports filed in the Retirement Office.

Of the 298 deaths before retirement, heart ailments caused 63, of which 23 were men. Cancer ranked second greatest with 39 reported—5 men and 34 women. Cerebral hemorrhage 19, of which 17 were women. Accidental death rated fourth, and tuberculosis fifth.

Of deaths from all causes the percentages of the most prevalent are: heart diseases 21%; cancer 13%; cerebral hemorrhage and accidental death each 6%; and tuberculosis 5%.

We lost in the service 27 men and 1 woman.

The comparatively large number of deaths at age 61 are probably of members who should have retired at age 60 and who probably would have done so if the retirement allowance had been larger and their services less urgently needed.

There were 3 members age 74 and 2 members 78 who died before July 1, 1942, the first date on which members could retire.

The 2,161 members who withdrew their accounts upon permanently leaving the profession are distributed by ages in Table VII, distributing all withdrawals from 1940 to 1947. The total number is 7,272. It does not include 3,716 members who have paid no contributions during the last four or more scholastic years, and 2,103 who have paid no contribution during the last three scholastic years, but whose accounts are still in the Teachers' Savings Fund.

There are also 6,878 additional members whose accounts are still active (receiving interest, but not contributions), but who did not teach in Kentucky in 1946-47.

As previously stated, 19,414 has been accepted as the working estimate of members paying contributions during 1946-47.

Of the 7,272 who have withdrawn, 104, an insignificant number, have returned to teaching and reinstated their accounts.

From the foregoing, 40,392 persons have served as teachers in covered positions since July 1, 1940.

About 9,000, approximately 50%, of the covered positions have retained their teachers; the remaining 50% of covered positions have been served by approximately 30,000.

It is doubtful if any state in the Union has suffered a worse experience.

Interest on the member's account stops after three years of absence from teaching and the proceeds of said accounts are invested for the System and the interest return covered into the Guarantee Fund. At July 1 the amount so invested was \$155,612.66.

Table VIII is a distribution by one-year intervals of age of all members having prior service credit. This is one of the tables used by the actuary in his study and report of December 31, 1946. It is inserted here without revision to July 1, 1947. The results of the actuarial study are found in this the Seventh Annual Report, page 20, and to which the reader is referred.

According to the Retirement Law no member could retire with an allowance before July 1, 1942. On that date 232 members retired. Table IX gives the number retiring each year and the benefits paid to them

**Table VIII. Distribution of Members of the Kentucky Teachers' Retirement System Who Have Prior Service Credit With Attained Age as of July 1, 1946—One-Year Intervals**

Attained Age	Number of Teachers	Prior Service Years		Prior Service Salary	
		Total	Average	Total	Average
20	1	1.6	1.6	\$ 1,005.54	\$1,005.54
21	80	115.	1.4	79,662.80	995.79
22	158	254.6	1.6	132,252.70	837.04
23	228	433.20	1.5	131,231.41	794.87
24	314	745	2.4	245,793.21	782.78
25	403	994.7	2.5	306,752.65	761.17
26	486	1,413.3	2.9	370,433.13	762.21
27	516	1,818.9	3.53	377,643.37	731.87
28	568	2,422.40	4.26	427,096.09	751.93
29	613	2,520.4	4.1	462,336.81	754.22
30	642	3,127.	4.9	494,235.71	769.84
31	672	3,641.40	5.42	530,885.12	790.01
32	694	4,358.2	6.28	561,121.86	808.53
33	711	5,019.1	7.1	588,574.83	827.81
34	697	5,437.4	7.8	596,616.99	855.98
35	678	6,410.6	9.3	606,049.27	893.88
36	663	6,713.6	10.1	611,701.74	922.62
37	632	6,981.8	11.0	601,325.16	951.46
38	605	6,830.4	11.3	590,616.96	976.23
39	563	6,828.2	12.1	564,133.16	1,002.01
40	522	6,647.4	12.7	536,969.27	1,009.52
41	465	6,169.3	13.3	478,189.16	1,028.36
42	411	5,849.60	14.23	428,685.09	1,043.03
43	375	5,544.2	14.8	412,840.41	1,100.91
44	340	5,183.4	15.2	377,409.62	1,110.03
45	302	4,948.2	16.4	340,045.09	1,125.98
46	278	4,747.9	17.1	315,367.30	1,134.41
47	262	4,678.6	17.9	302,641.28	1,155.12
48	243	4,543.	18.7	282,153.40	1,161.13
49	235	4,469.1	19.0	258,205.22	1,098.75
50	261	4,394.70	16.8	291,426.08	1,116.57
51	261	4,761.40	16.24	268,638.09	1,029.26
52	257	4,729.70	18.4	232,811.15	1,100.43
53	230	4,522.20	19.66	260,543.35	1,132.80
54	236	4,553.10	19.79	258,523.16	1,124.01
55	172	3,421.50	19.89	195,504.32	1,136.65
56	188	3,894.80	20.7	203,416.96	1,082.00
57	152	3,334.80	21.9	167,616.52	1,102.74
58	146	3,144.20	21.5	147,938.09	1,013.27
59	153	3,401.80	22.2	163,088.44	1,098.61
60	109	2,568.80	23.6	125,824.65	1,154.35
61	112	2,646.80	23.6	120,540.38	1,076.25
62	112	2,743.30	24.5	111,601.64	996.44
63	96	2,343.70	24.4	118,272.56	1,232.01
64	112	2,691.90	24.0	120,025.87	1,071.65
65	60	1,570.70	26.2	67,728.11	1,128.80
66	79	2,032.93	25.7	82,809.04	1,048.22
67	61	1,521.00	24.9	64,563.42	1,053.42
68	61	1,533.40	25.1	70,457.60	1,155.04
69	50	1,268.10	25.4	58,905.63	1,178.11
Totals and Averages	16,259	179,925.53	11.06	\$15,237,209.41	\$ 937.16

in aggregate. Including 117 members retired July 1, 1947, there have been 828 members retired. Of these 719 are living. The number of living retired members is expected to increase at the rate of approximately 100 per year until the total reaches about 2000. Economic conditions and the supply of teachers will affect these estimates.

**Table IX. Number of Teachers Retired and Benefits Paid  
July 1, 1942, to June 30, 1947**

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	\$ 62,430.36	13	\$ 1,426.56	246	\$ 63,856.92	67	179
1943-44	93	80,688.98	9	2,260.49	102	82,949.47	21	81
1944-45	71	101,452.30	6	2,802.12	77	104,314.42	10	67
1945-46	110	129,761.78	11	3,703.69	121	133,465.47	7	114
1946-47	142	200,903.68	23	13,430.52	165	214,334.20	4	161
Total	649	\$575,246.10	62	\$23,683.38	711	\$598,929.48	109	602

Table Xa gives the attained age and cost for life expectancy of all retirants on the annuity roll including the 117 retired July 1, 1947. The fourth column of Table Xa may be expressed in dollars; the point divides dollars and cents.

The modal age for living retired teachers is 72, and the greatest age is 88. The purpose of this table is to show actual conditions as to life expectancy. For many apparently life begins at 70. Eighty of our retired teachers are 70 years old, 367 are 71 or older, and 272 are less than age 70.

The 719 living retired teachers are well distributed over the state, representing 106 county school districts, all colleges and departments, excepting Mayo State Vocational School, and representing 72 independent school districts.

Knott County schools have retired 18, Magoffin County is second with 14; 30 county districts each have 5 or more retired teachers on the annuity roll. Of the independent districts, Louisville leads with 73; Lexington is second with 20, and among the colleges the School for the Deaf is highest with 12. A few systems now have 10% of their faculties retired.

The average age for the 117 teachers retiring July 1, 1947, is 65.8 years. The average prior service is 25.7 years, average subsequent service 5.1 years; the average prior service salary \$992.90, and the average subsequent service salary \$1,215.30. This average does not include salary in excess of \$2400.00.

The average accumulated contributions of these 117 teachers is \$313.73. The average retirement allowance \$387.40, and the reserve needed to pay them during their aggregate life expectancy \$536,837.00, an individual average of \$4,588.35. Roughly, the teacher's accumulated contribution will pay 6.8% of her retirement allowance if she lives a

**Table Xa. Living Retired Teachers by One-Year Intervals  
Attained Age at July 1, 1947**

Attained Age	Number Living	Aggregate Annuity	Needed to Pay Annuity of \$1.00	Cost for Life Expectancy
50	1	\$ 316.84	\$17.84964	\$ 5,655.48
51	7	2,100.56	17.59283	36,765.74
52	4	1,131.96	17.15249	19,415.93
53	5	1,414.52	16.79884	23,762.30
54	4	1,154.00	16.44204	18,974.11
55	10	2,845.83	16.08243	45,768.67
56	1	300.00	15.72020	4,716.06
57	4	1,156.36	15.35566	17,756.67
58	10	2,773.00	14.98909	41,564.75
59	7	2,282.96	14.62089	33,378.70
60	14	4,023.80	14.25107	57,343.46
61	14	4,379.92	13.88028	60,794.52
62	13	3,754.00	13.50872	50,711.73
63	24	7,374.03	13.13677	96,871.69
64	12	3,694.80	12.76477	47,163.27
65	23	7,126.84	12.39309	88,323.57
66	28	9,555.52	12.02211	114,877.61
67	38	12,447.48	11.65224	145,041.02
68	25	8,564.44	11.28381	96,639.51
69	28	9,649.24	10.91726	105,343.26
70	80	32,573.00	10.55296	343,741.57
71	69	28,274.68	10.19131	288,156.03
72	81	30,384.60	9.83271	298,762.96
73	45	18,647.44	9.47754	176,731.86
74	45	16,767.44	9.12620	153,023.01
75	37	14,282.03	8.77904	125,332.95
76	17	6,091.36	8.43646	51,339.51
77	18	7,057.32	8.09883	57,156.03
78	16	5,856.80	7.76647	45,486.66
79	12	4,080.12	7.43975	30,355.07
80	3	1,250.72	7.11896	8,903.63
81	10	3,534.76	6.80441	24,051.26
82	4	1,424.76	6.49642	9,255.84
83	1	300.00	6.19521	1,858.56
84	3	973.96	5.90105	5,747.39
85	1	300.00	5.61416	1,634.25
86	1	630.00	5.33473	3,360.88
87	3	900.00	5.06292	4,556.63
88	1	300.00	4.79883	1,439.66
	719	\$259,630.24		\$2,741,912.50

normal length of life. This leaves 86.4% of her retirement allowance based upon prior service and indicates the great need for the State to appropriate funds for the prior service obligation.

The above 117 retired teachers include 13 retired for disability, making a total of 64 disability retirants living. Approximately half of those

retiring for superannuation had reached the age of 70. Eight retired at the minimum age of 60.

In this group of 117, 2 received the minimum of \$100.00 for 6 years of service; 42 received \$300.00, the minimum for 30 years of service; and 7 the present maximum of \$787.20. Approximately 18% of the total including those retired for disability will receive \$600.00 or more as a retirement allowance. When thinking of the average retirement allowances, we should note that it is pulled down by those who have not entirely made teaching their life work. Of the 117 retiring July 1, 1947, 35 taught less than 30 years; 5 less than 20 years; and 2 less than 10 years.

Each year of membership service will increase the amount payable to the retiring teacher and next year the maximum will be \$826.80 based upon 30 years of prior service, 7 years of subsequent service, age 70, and maximum salary. Increases in salary are reflected in the retirement allowance, which for those retiring July 1, 1942, was \$288.57 (Increased by the amendment 7-1-46).

Our great need at this time is not to increase the retirement allowance, but to prevail upon the General Assembly to include in its appropriation at least \$450,250.00 each year for prior service so that there will be available funds out of which to pay retirement allowances already granted.

It will require \$2,741,912.50 to pay the retirement allowances of teachers already retired as shown by Table Xa.

As soon as the System is again on a sound actuarial basis, further improvement in the law may be expected. The amendments passed in 1946 increased the obligation for prior service from \$5,040,883.14 to \$7,840,588.67, an increase of roughly \$2,800,000.00. It is good business to accumulate at least some reserve in the Allowance Reserve Fund before further increasing the obligation of the state for prior service; however the amendments were greatly needed.

All members of the Retirement System are greatly indebted to the members of the General Assembly and to the Governor of the Commonwealth for this basic improvement. Many have shown their appreciation by remaining in or returning to the profession.

## ACTUARIAL

The ordinary and from day to day actuarial work of the Retirement System is included in the duties of the Secretary. The more intricate actuarial calculations and the evaluations are the responsibility of the Actuary of the Retirement System employed under Section 161.400, KRS. The Board of Trustees employed L. C. Cortright, formerly of Louisville, but now of Springfield, Illinois, June 25, 1941. In addition to his service as consulting actuary to life insurance companies and retirement systems, he is Executive Secretary and Actuary for the State Employees Retirement System of Illinois, and for the Judges Retirement System of the State of Illinois. Mr. Cortright wrote the Illinois Employees Retirement Law and set up their retirement system. He assisted in writing the amendments to the Kentucky Retirement Law and calculated the costs of the same; and prepared the Factor Table appearing in this Report.

Mr. Cortright's work has received much favorable editorial comment in the press of the country.

It is the opinion of the Secretary and Board of Trustees that all members and friends of the Kentucky Retirement System should act upon the advice of the Actuary; that if his advice is disregarded, the Retirement System will have serious financial troubles, litigation experiences, and will not be able to serve as anticipated by the law. His report and recommendations will follow this introduction.

The Retirement System of the State of Kentucky is comprised of five funds. Receipts are credited to these funds respectively in accordance with the purposes for which they are held as set forth in the Law.

A joint-contributory retirement system has more than one fund for the protection of the equity of all the participants, including, of course, the employer which in this case is the state. All actuarially sound Teacher Retirement Systems of the United States have their assets segregated into three or more funds. In a one-fund system it would be impossible to locate and point out the weak places and determine the cause and cure.

The five funds of the Retirement System may be described as follows:

- (1) The Expense Fund represents the money set aside under 161.330 and 161.420, KRS., for the purpose of defraying the expense of administration.
- (2) The Teachers' Savings Fund represents the accumulated amount contributed by members. It is a trust fund and each member's individual account is safeguarded by 161.420, KRS. The Fund is actuarially sound.
- (3) The State Accumulation Fund represents money contributed to the System by appropriation. It has two accounts, a "permanent" account which matches the members' aggregate accumulated contributions and which is actuarially sound; and a "temporary" account representing the appropriation for prior service and which is not actuarially sound. Section 161.550 and 161.420, KRS.

This fund must be so maintained by appropriations, sufficiently large, that upon the retirement of members, transfer from this fund to the Allowance Reserve Fund will be such that, together with the accumulated contributions of the retiring members transferred from the Teachers' Savings Fund to the Allowance Reserve Fund, the total will provide the reserve necessary to pay the retirement allowances for life. Such transfers to date have been adequate for the current year only.

- (4) The Allowance Reserve Fund is the fund from which retirement allowances are paid. It is not actuarially sound. This fund should be maintained at an amount representative of the accrued obligation of the System for retirement allowances. Its invested assets should be sufficient to pay the retirement allowances of all retired members on any given date; 161.420 and 161.550, KRS. The balance in this fund at the close of business July 1, 1947, should have been \$2,600,974.00; the bal-



ance was \$161,367.36. This is because the State has never appropriated a sufficient amount for prior service as authorized by 161.550, KRS.

- (5) The Guarantee Fund is a contingent and interest fund. It receives interest earned by investments, and all amounts, the disposition of which is not otherwise provided for. The matching amounts of withdrawing and deceased members are transferred from the State Accumulation Fund to the Guarantee Fund. From this fund interest is credited at the rate of 3% per annum on the average balance to the Teachers' Savings Fund, State Accumulation Fund, and Allowance Reserve Fund. This fund is actuarially sound.

**Actuarial Report as of December 31, 1946**

**L. C. CORTRIGHT**

Actuary

509 South Sixth Street  
Springfield, Ill.

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

Gentlemen:

In accordance with your instructions, I submit herewith a report of the actuarial investigation of the affairs of the Teachers' Retirement System of Kentucky as of December 31, 1946. The statistics for the purposes of the Valuation Balance Sheet were compiled as of July 1, 1946 and were used in combination with the current financial statement of the System as of December 31, 1946. I trust that the report of the actuarial investigation will fully meet your needs.

I wish to take this occasion to express my appreciation for the courteous and considerate cooperation extended to me by N. O. Kimbler, Secretary, and his able staff who had the responsibility of collecting, compiling and checking the vital statistics required in the preparation of this report.

Very truly yours,  
**L. C. CORTRIGHT**  
Actuary

LCC:S  
Encl.

**ACTUARIAL REPORT**

of the

**TEACHERS' RETIREMENT SYSTEM OF THE STATE OF KENTUCKY**  
as of December 31, 1946

KRS 161.400 of the law governing the Teachers' Retirement System of the State of Kentucky reads, in part, as follows:

"Actuary; Employment; Duties. . . . At least once in each five-year period after the first year of operation of the system the actuary shall make an actuarial investigation into the mor-

talities, earnable interest, and service and compensation of the members and beneficiaries of the retirement system, make a valuation of the assets and liabilities of the funds of the system, and recommend to the board of trustees such changes as may be deemed necessary to keep the retirement system on a sound financial basis. On the basis of the results of such investigations the board of trustees shall make necessary changes in the retirement system within the provisions of law, and shall recommend the contributions payable by the state within the limits specified in KRS 161.550."

### **Basis of Valuation**

The Valuation Balance Sheet, which is made a part of this report, was made as of December 31, 1946, and shows the result of the valuation of the assets and liabilities of the Teachers' Retirement System of the State of Kentucky and indicates the financial condition of the System 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. The law, as amended, brought about certain equitable changes in the basic provisions of the Act affecting both benefits and contributions. The definitions of "annual salary" and "annual compensation" were modified to increase the maximum salary measure applicable to subsequent service credits (membership service credits) from \$2,000 to \$2,400; certain limited "out-of-state service" credits were made available subject to certain specified conditions; the age at which a member's contribution was fixed was changed from age at entrance of the member to the age attained in any scholastic year; the measure of the retirement allowances for retirement under age 70 was modified to bring about a smoother and more equitable graduation between the ages of 60 and 69, the disability allowance measure was made to conform to this graduation; and the minimum retirement allowance definition was liberalized.

### **Statistical Compilation**

Statistics reflecting age, service (both prior service and subsequent service) and salary characteristics of the active members of the System, and the data pertaining to beneficiaries of the System, were compiled by the office staff under the direction of N. O. Kimbler, Secretary, and made available to me in the form required to reflect the changes in the law as amended July 1, 1946. The number of contributing members involved in the valuation was 19,414, which compares with a membership of 18,771 at the time of the last previous valuation. The aggregate annual salaries of the members has increased materially since the last previous valuation, from \$23,788,530.00 to \$29,763,581.00. The statistics reflecting age indicated a normal distribution for a group of this size and the service data involved in this valuation compares logically with that used in previous valuations.

### **Valuation Balance Sheet**

The Valuation Balance Sheet is set up in two sections: The first section displays the Present Assets and Present Liabilities of the System. The second section portrays the Deferred Assets and Deferred Liabilities

of the System. The section displaying Present Assets and Present Liabilities is a direct transfer from the Financial Balance Sheet of the System as of December 31, 1946, with but slight alteration for the purpose of amplification. The second section portraying the Deferred Assets and Deferred Liabilities of the System is further segregated into two parts, reflecting first the influence of Subsequent Service (membership service) on the Valuation, and portraying secondly the effect of the Accrued Prior Service obligations on the Valuation.

### **Results of Valuation**

#### **Present Assets and Present Liabilities**

The Present Assets of the System, aggregating \$7,535,810.09, are made up almost entirely from the Cash Account and the Investment Portfolio of the System. The Present Liabilities are represented by the various fund accounts as provided in the law governing the System. The Present Liabilities likewise aggregate \$7,535,810.09.

For the purpose of later discussion in this report the various fund accounts of the System are briefly described: (1) The Expense Fund represents the money set aside for the purpose of defraying the expenses of administration of the System. The amount appropriated to this fund is limited by the provisions of the law governing the System. (2) The Teachers' Savings Fund represents the amount contributed by members of the System. It is a trust fund and each member's individual interest therein is recorded on a separate member's account card. The moneys in this fund are retained exclusively for the benefits of the members whose contributions make up the fund. (3) The State Accumulation Fund represents moneys contributed to the System by State appropriations. Money contributed by the State to match the teachers' contributions finds its way into this fund together with any additional state contribution made in connection with the State's prior service obligation. This fund must be maintained at sufficient size so that as members retire by reason of superannuation or disability, transfer from the State Accumulation Fund to the Allowance Reserve Fund can be made, which, together with transfers from the Teachers' Savings Fund representing members' contributions, will be sufficient to provide the allowances and benefits granted under the provisions of the law. (4) The Allowance Reserve Fund is the fund from which all allowances and benefits are paid and the fund is composed of moneys transferred from the Teachers' Savings Fund, the State Accumulation Fund and the Guarantee Fund. This fund should be maintained at an amount representative of the accrued obligations of the System for allowances and benefits. (5) The Guarantee Fund is a fund in the nature of a contingent fund into which all income from investments, income from gifts or bequests, if any, and any other moneys whose disposition is not otherwise provided for, are deposited. Likewise, money in the State Accumulation Fund, contributed by the State to match teachers' contributions where the teachers terminate their membership by withdrawal of their contributions, is transferred to the Guarantee Fund. Out of this fund regular interest is credited to the other funds in accordance with their

requirements and the fund is presumed to be sufficient to cover any special requirement of any of the other funds.

It is significant that three of the five funds; namely, the Teachers' Savings Fund, the State Accumulation Fund, and the Allowance Reserve Fund require annual credits of interest at three per cent per annum in order to maintain themselves in accordance with the law. The two funds not requiring interest are the Expense Fund and the Guarantee Fund. The Actuarial Investigation resulting in this report disclosed that the interest return on the invested assets of the System was very nearly adequate to provide the required interest at three per cent on the three System fund accounts above mentioned. This in spite of the fact that the interest earned on invested assets amounted to slightly less than two and one-half per cent. The slight difference (approximately  $\frac{2}{10}$  of 1 per cent) between interest earned on invested assets and the interest required to maintain the three System fund accounts is being adequately subsidized by funds released from the State Accumulation Fund by withdrawing members who take with them only the amount of their own contribution into the Teachers' Savings Fund. This margin of safety should be ample to provide this subsidy for an indefinite period. It follows then, from all present indications, that the three per cent interest assumption specified in the Kentucky Teachers' Retirement Law can safely be maintained for the present and for the immediate foreseeable future. This statement is made in spite of the present economic trend indicating a continuance of low interest return on invested assets.

A further discussion of the various fund accounts of the System is indicated in order that their condition as of December 31, 1946, may be better understood.

The Expense Fund of the System requires no special comment.

The Teachers' Savings Fund, in the amount of \$3,492,622.30, properly represents the System's liabilities for members' contributions with interest. Individual members' accounts are being properly maintained.

The State Accumulation Fund, in the amount of \$3,544,881.38, likewise properly represents the liability of the System for the contributions by the State, together with interest, required by reason of Subsequent Service of the members (State matching fund for teachers' contributions). However, this fund does not contain any amount representative of the liability of the System to its members on account of their prior service credits, the entire amount available for that purpose having been previously transferred to the Allowance Reserve Fund. Unless this fund is further supplemented by regular State appropriations to cover the existing prior service obligation, it will be impossible to properly transfer amounts from this fund to the Allowance Reserve Fund to discharge that part of the retirement allowances that are represented by the members' prior service credits. Note: This problem will be further treated later in this report in the discussion of Deferred Assets-Current Asset Deficiency.

The Allowance Reserve Fund is the one that is in a more precarious condition than any of the other funds. It represents the present liability of the System to retired teachers and is composed of three items:

(1) Retired teachers S. S. contributions with accumulated interest in the amount of \$12,143.52, which was previously transferred from the Teachers' Savings Fund; (2) State S. S. contributions for retired teachers with accumulated interest, in the amount of \$42,723.67, which was previously transferred from the State Accumulation Fund; (3) State P. S. contributions for retired teachers, with accumulated interest, in the amount of \$76,762.40, which was previously transferred from the State Accumulation Fund—total, \$131,629.59. Items Nos. 1 and 2 properly represent the present liability of the System to retired teachers by reason of their S. S. contributions and the State's S. S. contributions respectively, but item No. 3, State P. S. contributions, retired teachers, represents only an alarmingly small fraction of the present liability. Note: This problem will likewise be treated later in this report in the discussion of Deferred Assets-Current Asset Deficiency.

The Guarantee Fund, being a contingent fund out of which special requirements of any of the other funds may be covered, amounting to \$356,061.92, represents but a slight margin of safety in connection with the present liabilities of the System to its members after the requirements for annual interest transfers are taken into consideration. The fund is ample for the purposes intended but cannot be expected to cover appropriation deficiencies.

### Results of Valuation Deferred Assets and Deferred Liabilities Subsequent Service

KRS 161.550 of the law governing the Teachers' Retirement System of the State of Kentucky reads as follows:

"State's Contribution to System.—Beginning with July 1, 1942, the state shall annually contribute to the retirement system a permanent amount equal to that contributed by all members and shall annually contribute a temporary amount equal to two percent of the salaries of all present teachers, in order to cover the obligation assumed by the state for prior-service credit." (Emphasis supplied.)

KRS 161.550, with particular reference to the underlined portion, has a direct bearing on the following discussions of the Deferred Assets and Deferred Liabilities mandatory by reason of Subsequent Service.

It will be noted from the Valuation Balance Sheet that both the Deferred Assets and the Deferred Liabilities mandatory by reason of Subsequent Service amount to \$25,954,759.87. As in previous valuations, three items are required on the Assets side of the statement to balance with the two items appearing on the Liabilities side. The Deferred Liabilities represent the calculated present value of benefits mandatory by reason of Subsequent Service for active members, as specified in the law, amounting to \$25,830,449.48, and the calculated present value of benefits mandatory by reason of Subsequent Service for members eligible to retire, as provided in the law, amounting to \$124,310.39. The Deferred Assets represent the calculated present value of teachers' contributions mandatory by reason of Subsequent Service, as provided in the law, amounting to \$11,306,383.85; the calculated present value of the

State's contributions mandatory by reason of Subsequent Service (State's matching contributions), in the amount of \$11,306,383.85; and the indicated deficiency from members' future contributions and State's future contributions, in the amount of \$3,341,992.17.

The indicated deficiency from members' and State's future contributions is significant, at this time, only in so far 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 future contributions, this trend may be lessened in future valuations. If, however, the trend continues to manifest itself to an increasing degree 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.

During the years since the date of establishment of the System, the State has satisfactorily met its obligation for "permanent" contributions equal to those contributed by all members. Except for the indicated deficiency, therefore, the Deferred Assets mandatory by reason of Subsequent Service can be considered as sound assets.

### Results of Valuation

#### Deferred Assets and Deferred Liabilities

#### Prior Service

KRS 161.550 of the law governing the Teachers' Retirement System of the State of Kentucky reads as follows:

"State's Contribution to System.—Beginning with July 1, 1942, the state shall annually contribute to the retirement system a permanent amount equal to that contributed by all members and shall annually contribute a temporary amount equal to two percent of the salaries of all present teachers, in order to cover the obligation assumed by the state for prior-service credit." (Emphasis supplied.)

KRS 161.550, with particular reference to the underlined portion, has a direct bearing on the following discussion of the Deferred Assets and Deferred Liabilities mandatory by reason of Prior Service.

It will be noted from the Valuation Balance Sheet that both the Deferred Assets and the Deferred Liabilities, mandatory by reason of Prior Service, amount to \$7,840,588.67. As in previous valuations, the Deferred Liabilities represent the calculated present value of benefits mandatory by reason of Prior Service, retired teachers, as specified in the law, amounting to \$2,150,305.26, and the calculated present value of benefits mandatory by reason of Prior Service, active members and members eligible to retire, as provided in the law, amounting to \$5,690,283.41. The Deferred Assets in this section of the Valuation Balance Sheet represent the calculated present value of the accrued Prior Service obligation due retired teachers (labeled for the sake of emphasis—"Current Asset Deficiency"), as provided in the law, amounting to \$2,150,305.26, and the calculated present value of the State's deferred obligations mandatory by reason of Prior Service for both active mem-

bers and members eligible to retire, as provided in the law, in the amount of \$5,690,283.41. Both the Current Asset Deficiency and the Deferred Obligation of the Commonwealth of Kentucky for Prior Service come under the general heading—"Actuarial Reserve Deficiency."

The Current Asset Deficiency, in the amount of \$2,150,305.26, is, in amount, the same as the deficit in the Allowance Reserve Fund discussed in an earlier section of this report. It is brought about by the failure of the State to fully comply with the provisions of the Kentucky Teachers' Retirement law providing for State Contributions to System. While the law provides that the State shall make a "temporary" contribution annually of an amount equal to two per cent of the salaries of all present teachers in order to cover its obligation for prior service credit, only relatively small token contributions have been made during the years since the date of establishment of the System. The extent to which the State has made "temporary" appropriations for Prior Service and the amounts remaining unappropriated are displayed in the following table:

**Temporary Appropriations for Prior Service—  
State Accumulation Fund**

Year	Aggregate Prior Service Salaries	Legal Appropriation of 2%	Amount Appropriated	Remaining Unappropriated
1940-41	\$17,118,613.38	\$ 342,372.37	\$ _____	\$ 342,372.37
1941-42	16,899,681.77	337,993.64	_____	337,993.64
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
	Totals	\$1,973,113.17	\$407,350.28	\$1,565,762.89

It is at once apparent that, had the unappropriated amounts been made available during the years since 1940, the amounts, together with interest, would have made up the present Current Asset Deficiency for all practical purposes.

The first ten or fifteen years after the date of establishment of a retirement system are usually its most crucial years. The retirement allowances for those who retire on account of superannuation during these early years are provided almost entirely from the prior service credits of the retiring members for which the employer (the State) undertakes the entire financial obligation. It usually requires from fifteen to twenty-five years for those members with prior service credits to run out their span of life, and even though the plan underlying a retirement system is designed to be mutually contributory, the employer's obligation is heavier during the early years of the operation of the system, due almost entirely to the assumption by the employer of the obligation for Prior Service. If a dependable financing plan is not established and rigidly followed by all parties concerned the retire-

ment system encounters early difficulties that all too often result in serious disappointment and financial embarrassment to its members. If full compliance with the financial plan of operation is too long delayed, the obligation of rehabilitating a financially unsound system becomes unduly oppressive on the employer and the system has to be liquidated, which is a tragedy of untold proportions.

That the Current Asset Deficiency of the Teachers' Retirement System of Kentucky points to the need of financial relief is apparent. It is imperative that an alternate plan of financing be strongly advocated, if the present provisions of the law, providing for the State's "temporary" contributions to cover Prior Service, is to be longer neglected. The following suggestion, therefore, is recommended for your consideration.

### **Amortization Plan Prior Service Obligation**

Since the Actuarial Reserve Deficiency, aggregating \$7,840,588.67, is composed of the Current Asset Deficiency, i. e., the present value of accrued prior service obligations due retired teachers, in the amount of \$2,150,305.26, and the Deferred Obligation of the Commonwealth of Kentucky, i. e., the present value of Accrued Obligation mandatory by reason of Prior Service for both active members and members eligible to retire, in the amount of \$5,690,283.41, your actuary volunteers the suggestion that the aggregate Actuarial Reserve Deficiency be amortized over a period of twenty-five years. The annual State Contribution, that would liquidate the Actuarial Deficiency Reserve of \$7,840,589.00 over a period of twenty-five years (assuming three per cent interest), would amount to \$450,250.00. This plan would, in effect, liquidate the Current Asset Deficiency and the Deferred Obligation for Prior Service by equal annual installments over a twenty-five year period, and would supply sufficient funds annually to discharge the cash requirements for retiring members with but minor adjustments between funds to satisfactorily take care of certain anticipated peak load years. It should be pointed out, and borne in mind, that future entrants coming into the System with prior service credits can tend to increase slightly the indicated installment under this amortization plan.

Such a proposal for amortization of the Actuarial Reserve Deficiency would be in lieu of the present provision of the law requiring the State to make a "temporary" annual contribution equal to two per cent of the salaries of all present teachers, and would undoubtedly require an amendment to the law. However, the present provisions of the law providing for "temporary" contributions has not been followed and a serious Current Asset Deficiency has developed. The alternate amortization plan suggested provides a means of adequately financing both the Current Asset Deficiency and the Deferred Obligations arising from prior service credits. The danger in deferring the adoption of a financial plan for the discharge of the State's prior service obligation is apparent. Twenty-five years would be about the longest feasible period over which to spread this obligation. Delay in establishing a definite plan of liquidating the prior service obligation of the State only tends to increase



the burden. Each year's delay increases substantially the cost that eventually must be met by the State, if the System is to continue unimpaired.

If the amortization plan is adopted, the annual contribution by the State would then consist of two parts; namely, a "permanent" contribution equal to that contributed by all members (State's matching contribution) and the amortization installment representing the accrued Prior Service liability contribution.

### **Conclusion**

In the foregoing report of the Actuarial Investigation into the affairs of the Teachers' Retirement System of Kentucky your actuary has outlined factually the condition of the System as of December 31, 1946, and views with alarm the financial difficulties that are confronting the Board of Trustees of the System. It is hoped that the report will merit the serious consideration of the Board of Trustees to the end that proper corrective measures will be undertaken without undue delay.

Respectfully submitted,

L. C. CORTRIGHT  
Actuary

L. C. CORTRIGHT, ACTUARY

Kentucky Teachers' Retirement

Law as amended July 1, 1946

**VALUATION BALANCE SHEET—DECEMBER 31, 1946**

(Page 1)

(On basis of assumed retirement at age 65)

**ASSETS**

**Present Assets**

Cash .....	\$ 281,604.19	
Accounts Receivable .....	11.94	
Bond Investments .....	7,225,000.00	
Unamortized Premiums .....	29,193.96	
Accrued Interest on Bonds Purchased .....		
Furniture and Fixtures .....		
		\$ 7,535,810.09
Less—Items Outstanding } (see liabilities)\$ .....		
Encumbrances } .....		
Due Districts } .....		

**Present Assets** ..... \$ 7,535,810.09

**Deferred Assets: (Present Value on 3% interest assumption, etc.)**

Present Value Teachers' Contributions mandatory by reason of Subsequent Service, 7-1-46—(A') .....	\$11,306,383.85
Present Value State's contributions mandatory by reason of Subsequent Service, 7-1-46—(A'') .....	11,306,383.85
Indicated deficiency from members' and State's future contributions (no covering provision in Act) .....	3,341,992.17

**Deferred Assets mandatory by reason of Subsequent Service** ..... \$25,954,759.87

**Actuarial Reserve Deficiency:**

**Current Assets Deficiency:** Present Value of Accrued Prior Service obligation due retired teachers, 7-1-46 ..... \$2,227,067.66  
**Less:** State's Prior Service Contribution ..... 76,762.40

**Net Allowance Reserve Fund deficit** ..... 2,150,305.26

**Deferred Obligation of the Commonwealth of Kentucky—Present Value Accrued Obligation mandatory by reason of Prior Service, 7-1-46:**

Active Members .....	\$4,527,590.28	
Members eligible to retire .....	1,162,693.13	5,690,283.41

**Deferred Assets mandatory by reason of Prior Service** ..... \$ 7,840,588.67

**TOTAL ASSETS** ..... \$41,331,158.63

**LIABILITIES****Present Liabilities**

Outstanding Items .....	\$	877.44
Expense Fund: .....		9,737.46
Teachers' Savings Fund: Accumulated contributions by reason of Subsequent Service, 12-31-46 .....		3,492,622.30
State Accumulation Fund: Accumulated contributions (State) by reason of Subsequent Service, 12-31-46 .....		3,544,881.38
Allowance Reserve Fund:		
Retired Teachers' S. S. contributions with accumulated interest, 12-31-46.....\$	12,143.52	
State S. S. contribution, Retired Teachers' with accumulated interest, 12-31-46 .....	42,723.67	
Required State P. S. contribution, Retired Teachers, 12-31-46 .....	\$2,227,067.66	
Deficit, State P. S. contribution, Retired Teachers, 12-31-46 .....	2,150,305.26	
Balance, State P. S. contributions, retired teachers, 12-31-46 .....	76,762.40	131,629.59

Guarantee Fund, 12-31-46 .....		356,061.92
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<b>Present Liabilities</b> .....		<b>\$ 7,535,810.09</b>
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**Deferred Liabilities: (Present Value on 3% interest assumption, etc.)**

Present Value Benefits mandatory by reason of Subsequent Service, active members, 7-1-46 (B') .....		\$25,830,449.48
Present Value of Benefits mandatory by reason of S. S., members eligible to retire, 7-1-46 (B'') .....		124,310.39

<b>Deferred Liabilities mandatory by reason of S. S. (B' plus B'') .....</b>		<b>\$25,954,759.87</b>
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Present Value Benefits mandatory by reason of Prior Service—Retired Teachers (B''') .....	\$2,227,067.66	
Less: State Prior Service Contributions..	76,762.40	2,150,305.26

Present Value Benefits mandatory by reason of Prior Service, 7-1-46:		
Active Members (B) .....	\$4,527,590.28	
Members eligible to retire (B'') .....	1,162,693.13	5,690,283.41

<b>Deferred Liabilities mandatory by reason of Prior Service .....</b>		<b>\$ 7,840,588.67</b>
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<b>TOTAL LIABILITIES</b> .....		<b>\$41,331,158.63</b>
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## ESTIMATES: BIENNIAL BUDGET 1948-50

In November, 1947, the estimate for the biennium 1948-50 must be submitted to the Commissioner of Finance. If there is a retroactive appropriation for teachers' salaries for 1947-48, this further complicates the calculations.

With reference to the retroactive appropriation which will increase the amount members in public schools and colleges will contribute, the following recommendation is made:

(1) An appropriation of \$43,021.88 for prior service to enable the issuance of checks to retired teachers for the fourth quarter of 1947-48. The balance in the Allowance Reserve Fund will be exhausted by the end of the third quarter 1947-48.

(2) An appropriation of \$168,000.48 to match members' contributions on the year 1947-48, based upon salaries payable for 1947-48 before any retroactive appropriation is made.

These two appropriations are necessary by reason of the very material reduction of the request for appropriations made for the biennium 1946-48. The request for appropriation was \$1,170,000.00 per year, but the amount appropriated on this request was \$850,000.00 per year. The difference was to go as a reserve into the Allowance Reserve Fund where it is badly needed.

(3) In addition to \$43,021.88 in No. 1 and \$168,000.48 in No. 2, there is required an appropriation of 3.094% of any amount appropriated for teachers' salaries in both the public schools and colleges, all covered positions.

If the foregoing is not made as a deficiency or retroactive appropriation, the regular biennial appropriation should be increased by the amounts indicated.

Many state agencies can make a request for appropriation which conceivably can be scaled down by curtailing the activities of the agency. The Teachers' Retirement System cannot reduce its obligations to its participants, because they are fixed in the Law. The amount the teacher is required to contribute to the Retirement System is not optional, it is a fixed legal requirement. The amount of the retirement allowance for the retired teacher is likewise not at the option or discretion of the Board of Trustees, but is fixed in the law governing such retirants.

Therefore, in making a biennial budget for the Retirement System the legal amount based upon the best estimates obtainable and in accordance with the Retirement Law, must be definitely established and requested. It is a matter of calculation and not a matter of bartering. Any amount requested and not appropriated in any biennium must be later appropriated by the State if the Retirement System is to be financially sound and able to meet its obligations.

Indeed, all financial estimates or calculations are present worth amounts and 3% compound interest should be added if the appropriation is deferred. For example, if the state could appropriate in January, 1948, \$7,840,588.67 for prior service, no further appropriation for prior service would ever be needed under the present Retirement Law. Any

unappropriated amount will have to be increased by 3% compound interest until the whole is appropriated. It follows that any amounts in the State Accumulation Fund and Allowance Reserve Fund are 3% investments made by the State for the benefit of the members in the Retirement System. After prior service is liquidated, the interest accumulation on the assets of any retirement system should provide approximately 50% of its needs. It will not do so, however, unless the members and the state meet their obligations by contributing the proper amounts at the proper time, indicated in the Law governing the System.

The action of the General Assembly in support of the public school system and for salaries of all members in covered positions cannot of course be foreseen. For this reason Table XV is presented giving estimates based upon four probable conditions. It is assumed that any action of the General Assembly would approximate one of these conditions.

Any increase or decrease in the amount of money available for teachers' (members') salaries makes a change in the requirements of the Retirement System. The part of the member's salary in excess of \$2,400.00, if any, must be excluded.

For the year 1946-47, on aggregate salaries of \$28,542,550.00, exclusive of amount in excess of \$2400.00 on individual salaries, it would have required a sum equal to 6.42% of the per capita and equalization to meet the legal requirements of Section 161.550, KRS., and the actuarial requirements of the System. In Table XV the amount for prior service is increased to \$450,250.00 so as to make it comparable and on this basis the percentage is 7.20.

If our budget request for that year had been granted, it would have been short \$105,665.21 due to salary increases after budgets and salary schedules were approved for the year 1946-47, plus the cost of 1946 amendments over and above the amount of the special appropriation.

For the ensuing year 1947-48 it is estimated that the requirements of the Retirement System will be a sum equal to 7.04% of the per capita and equalization appropriation. The appropriations made equal 4.9%. The resulting deficits have been referred to previously; the remaining amount should have gone into the Allowance Reserve Fund.

Anticipating the needs for each year of the biennium 1948-50, Table XV, last column shows the percentage needed if the request of the Kentucky Education Association for an increase in aggregate salaries of \$10,500,000.00 is granted by the state. The percentage is 5.57.

Following columns in Table XV show the need under four additional conditions of salary support from state and local school districts.

In each condition \$450,250.00 is indicated for prior service upon the recommendation of the System's Actuary.

Reference is made to supporting schedules for Table XV designated as Schedule XVa and Schedule XVb.

These figures are presented for the purpose of providing a factor expressed in percentage points, which when applied to the per capita state aid for teachers' salaries will indicate the amount which should be

appropriated for the Retirement System in order to keep it actuarially sound.

After a study and analysis to evaluate the assets and obligations of the Teachers' Retirement System of the State of Kentucky, the Actuary of the system has concluded that the amount of \$450,250.00 should be appropriated annually to liquidate the deficiency of approximately 2½ million dollars which is the State's obligation for prior service. This is the minimum amount which should be appropriated each year until the prior service deficiency is made up.

Any increase or decrease in the amount of money going into teachers' salaries makes a change in the requirements of the retirement system. Any salary above \$2,400.00 per year is considered as \$2,400. The appropriation for the system should cover the prior service requirement plus funds to match the contribution which members are entitled to make from their current salaries.

These estimates are based on the following:

- (1) In connection with a study to determine the additional cost to the system by reason of the 1946 amendments to the retirement law detailed examinations were made of (a) salary schedules for 1946-47 submitted to the Bureau of Finance; (b) Close-Working-Budget forms submitted by each school district; (c) monthly pay roll report forms #F-40; (d) teachers' individual ledger account cards. In this we arrived at the figure of 19,414 members contributing to the retirement system during 1946-47, and the conclusions were reached after a tabulation of approximately 14,000 individual accounts.
- (2) Tables I and IV, Part 1 of a bulletin to be issued by the Department of Finance entitled "Financial Support, Financial Ability, and Financial Inequalities Among the Various School Districts in Kentucky."
- (3) For the specific purpose of this estimate tabulations were made of salary range distributions of superintendents, attendance officers, and employees of teachers' colleges, institutions and the Department of Education.

For the purpose of verification and checking the accuracy of these estimates of the requirements of the retirement system, these things were done:

- (1) Communications were mailed in June, 1947, to each school district to request reports as to the amount of local tax to be allocated to salaries of retirement members during the fiscal year 1947-48.
- (2) The final monthly financial reports for the year 1946-47 were studied to determine the amount actually spent for superintendents, attendance officers, elementary and high school principals and supervisors and elementary and high school teachers.

- (3) Examinations of General Budget forms which were due to be submitted to Bureau of Finance on March 20, 1947. These were reported before the exact amount available as per capita aid had been determined for the year 1947-48.

Submitted in support of the table which sets forth our estimate of the needs to keep the retirement system actuarially sound are three pages of "work sheets" for the purpose of showing basis for our assumptions and arriving at the final figures.

#### Amount of Members' Contributions During 1946-47

Regular Appropriation for 1946-47.....	\$850,000.00	
Less Expense Fund .....	36,769.00	
Net Amount Available For Matching Teachers' Contributions .....	\$813,231.00	
Special Appropriation .....	\$106,000.00	
Transferred to Allowance Reserve Fund to offset Prior Service Deficiency .....	52,000.00	54,000.00
Net amount from 1946-47 Appropriation available for use as "matching fund" .....		\$867,231.00
Add: amount of teachers' contributions received in June but carried over to year following because "matching" funds not available—deposited July 2, 1947 .....		28,327.22
Sub Total .....		\$895,558.22
Subtract: amount deposited July 3, 1946 —this amount was received in the last few days of June, 1946, but was not deposited because the 1945-46 books were "closed" early .....		12,520.58
For the development of the "Factor", this considered as the amount which members were entitled to contribute. Based on 1946-47 earnings (item 7, page 1) .....		\$883,037.64

Table XV. Estimate of Need of Retirement System Under Conditions of Increased Salary Payments to Retirement System Members

	Salary Paid Fiscal Year 1946-47	Probable Salary Payments Year 1947-48	Estimates Based on Probable Conditions Additional Per Capita Appropriation Above \$19,500,000 Designated for Year 1947-48			
			\$5,000,000	\$7,000,000	\$9,500,000	\$10,500,000
Per capita aid and equalization	\$18,500,000	\$19,500,000	\$24,250,000	\$26,500,000	\$29,000,000	\$30,000,000
Revenue from local taxes	10,575,000	11,000,000	11,500,000	11,500,000	11,500,000	12,000,000
Teachers' Colleges, Institutions and Department of Education	1,500,000	1,750,000	2,000,000	2,000,000	2,000,000	2,000,000
Total available for salaries to members of retirement system	\$30,575,000	\$32,250,000	\$38,000,000	\$40,000,000	\$42,500,000	\$44,000,000
Amount in excess of \$2,400 per teacher	2,032,450	2,414,260	3,138,692	3,527,562	4,102,832	4,515,390
Amount on which retirement contributions may be Paid	\$28,542,550	\$28,835,740	\$34,861,308	\$36,472,438	\$38,397,168	\$39,484,610
Amount members entitled to contribute (salary above \$2,400 excluded)	\$ 882,050	\$ 922,118	\$ 1,078,609	\$ 1,128,457	\$ 1,188,008	\$ 1,221,654
Need for prior service obligation, as recommended by actuary	450,250	450,250	450,250	450,250	450,250	450,250
Amount for retirement system to meet actuarial requirements	\$ 1,332,300	\$ 1,372,368	\$ 1,528,859	\$ 1,578,707	\$ 1,638,258	\$ 1,671,904
Need of the system expressed as a percentage of the per capita	7.20%	7.04%	6.24%	6.24%	5.65%	5.57%
Average salary per teacher						
Aggregate payroll (exclude any above \$2,400) ÷ number of members contributing 1946-47	\$1,470.20	\$1,556.48	\$1,852.66	\$1,955.67	\$2,084.45	\$2,161.71
Increment per year above 1946-47		86.28	382.46	485.47	614.25	691.51
Number of members earning salary of \$2,400 or above	2,433	2,602	3,622	4,062	4,876	5,593



# **XVa. Schedule to Show Salary Distribution School Year 1946-47**

Annual Salary by \$100.00 Intervals	Frequency Distribution of Full-Time Ele- mentary and High School Teachers			Frequency Distribution Tabulated from 1946-47 Pay Rolls		Frequency Distribution All Members, by Salary Intervals	Adjusted to Bring Total Contributing 1946-47 to 19,414 Members	Mid-Point of Salary Interval (See Col. 1)	Aggregate Salary All Members Col. (8) X (9)
	County (2)	Ind'p'ndt. (3)	Total (4)	Supts. and Att.-Off. (5)	Institution Employees (6)				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Below \$ 700	157	9	166	57	2	225	227	\$ 650	\$ 147,550
\$ 700- 799	508	2	510	5	---	515	521	750	390,750
800- 899	1,272	5	1,277	2	4	1,283	1,297	850	1,102,450
900- 999	1,341	36	1,377	7	1	1,385	1,400	950	1,330,000
1000- 1099	1,739	124	1,863	5	2	1,870	1,891	1050	1,985,550
1100- 1199	1,582	254	1,836	4	9	1,849	1,870	1150	2,150,500
1200- 1299	1,298	420	1,718	13	9	1,740	1,759	1250	2,198,750
1300- 1399	982	458	1,440	5	6	1,451	1,467	1350	1,980,450
1400- 1499	799	460	1,259	7	2	1,268	1,282	1450	1,858,900
1500- 1599	650	420	1,070	17	15	1,102	1,114	1550	1,726,700
1600- 1699	419	522	941	10	31	982	993	1650	1,638,450
1700- 1799	298	397	695	9	5	709	717	1750	1,254,750
1800- 1899	317	423	740	33	32	805	814	1850	1,505,900
1900- 1999	210	197	407	16	12	435	440	1950	358,000
2000- 2099	107	237	344	14	29	387	391	2050	801,550
2100- 2199	100	246	346	24	19	389	393	2150	844,950
2200- 2299	80	129	209	6	18	233	236	2250	531,000
2300- 2399	25	119	144	5	18	167	169	2350	397,150
\$2400 and over	365	1,457	1,822	250	334	2,406	2,433	2400	5,839,200
<b>Total</b>	<b>12,249</b>	<b>5,915</b>	<b>18,164</b>	<b>489</b>	<b>548</b>	<b>19,201</b>	<b>19,414</b>		<b>\$28,542,550</b>

# **Schedule XVb. Method of Determining Amount in Excess of \$2400 Per Teacher**

Number of Teachers 1946-47 (1)	1946-47 Salary by Intervals of \$100.00 (2)	1946-47 Aggregate Salary (3)	Assume Total for Salaries is* \$32,250.00. Aggregate Salary ÷ Number Contributing = \$1,556.48. (Increment \$86.28 per teacher.) Add to Mid-Point of Each Salary Interval. Column (1) × Column (4) = Column (5)			Assume Total for Salaries is \$44,000,000. Aggregate Salary ÷ Number Contributing = \$2,161.71. (Increment \$691.51 per teacher.) Add \$691.51 to Mid-Point of Each Salary Interval. Column (1) × Column (6) = Column (7)		
				(4)	(5)		(6)	(7)
227	Below \$ 700	\$ 147,550	\$650 + \$86.28	\$ 736.28	\$ 167,136	\$650 + \$691.51	\$1,341.51	\$ 304,523
521	\$ 700- 799	390,750	750 + \$6.28	836.28	435,702	750 + 691.51	1,441.51	751,027
1,297	800- 899	1,102,450	850 + \$6.28	936.28	1,214,355	850 + 691.51	1,541.51	1,999,338
1,400	900- 999	1,330,000		1,036.28	1,450,792		1,641.51	2,298,114
1,891	1000- 1099	1,985,550		1,136.28	2,148,705		1,741.51	3,293,195
1,870	1100- 1199	2,150,500		1,236.28	2,311,844		1,841.51	3,443,624
1,759	1200- 1299	2,198,750		1,336.28	2,350,517		1,941.51	3,415,116
1,467	1300- 1399	1,980,450		1,436.28	2,107,023		2,041.51	2,994,896
1,282	1400- 1499	1,858,900		1,536.28	1,969,511		2,141.51	2,745,416
1,114	1500- 1599	1,726,700		1,636.28	1,822,816		2,241.51	2,497,042
993	1600- 1699	1,638,450		1,736.28	1,724,126		2,341.51	2,325,119
717	1700- 1799	1,254,750		1,836.28	1,316,613	5,593 ×	2,400.00	13,417,200
814	1800- 1899	1,505,900		1,936.28	1,576,132			
440	1900- 1999	858,000		2,036.28	895,963			
391	2000- 2099	501,550		2,136.28	835,285			
393	2100- 2199	544,950		2,236.28	878,858			
236	2200- 2299	531,000		2,336.28	551,362			
169	2300- 2399	397,510	2,602 ×	2,400.00	6,079,000			
2,433	2400 & over	5,839,200						
19,414	Total on which mem- bers may pay	\$28,542,550			\$29,835,740			\$39,484,610

Total Retirement Contribution for 1946-47 (\$833,050) ÷ Aggregate Salary on which Contributions Payable (\$28,542,550)

= Contribution rate 3.094%

Retirement Contributions Which Members May Make on Salaries to \$2400

\$29,835,740 × 3.094%  
= \$923,118

\$39,484,610 × 3.094%  
= \$1,221,654

## FINANCIAL

Since a retirement system is a long-term arrangement, it depends heavily upon interest accumulations. Interest accumulations depend upon reserves or trust accounts which are invested in long-term securities. For safety, Section 161.430, KRS, controls the investment; the type of security bought by the Board of Trustees.

Since obligations of the United States Government are considered a safe investment and at the same time yield a comparatively high rate of interest, the Board of Trustees, with the advice of the Secretary and Advisory Committee, have purchased them exclusively.

Classification, value, and net yield of investments held June 30, 1947, are shown in Schedule 2, below: The aggregate is \$8,325,000.00 par value and the net yield on the whole is 2.465%. They are all 2½% bonds, and all, except the Series "G" bonds, are long term. Approximately one-half of the portfolio is registered. The average market price at this time is approximately 103½. It is not the policy of the System to trade in bonds; however a sale and reinvestment is made when conditions warrant.

Premium, if any, is amortized to the call date and interest is considered earned when received; not as accrued. Interest received during the fiscal year 1946-47 was \$180,529.08.

### Schedule 2 INVESTMENTS HELD Teachers' Retirement System June 30, 1947

Name and Description	Par Value	Net Yield
U. S. Defense Bonds, Series "G" .....	\$ 650,000.00	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	2.499 %
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 .....	3,000,000.00	2.403 %
<b>TOTAL</b> .....	<b>\$8,325,000.00</b>	
<b>AVERAGE NET YIELD</b> .....		<b>2.465 %</b>

In order to remain a 3% system, the Guarantee Fund must be able to credit 3% interest each year to average fund balance in the Teachers' Savings Fund, the State Accumulation Fund, and the Allowance Reserve Fund. Table XI is an analysis showing that the System is safely a 3% annuity system. Interest is not credited to the Guarantee Fund; however the assets of this fund are invested. There is also invested \$155,614.46, assets of members' accounts now not receiving interest from the System. Receipts of the Guarantee Fund are further increased by the "matching" amount transferred from the State Accumulation Fund as and when members withdraw their accounts from the Teachers' Savings Fund. For 1946-47 this amounted to \$142,667.93 including interest.

Table XI. Relation of Earnings of Guarantee Fund to Interest Payments to Interest-Receiving Funds

Year	Balances at Dec. 31, Funds Receiving 3% Interest from Guarantee Fund	Guarantee Fund Earnings on Investments Held	% of Interest Receiving Fund Balances	Guarantee Fund Earnings on Tchr. Withdrawals	% of Interest Receiving Fund Balances	Total Net Earnings of Guarantee Fund	% of Interest Receiving Fund Balances	3% Interest Paid to TSF, SAF and ARF	Surplus Remaining 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%	\$ 10,463.59	\$ 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	5,861.69
1942-43	2,367,790.86	62,976.31	2.66%	41,739.55	1.76%	104,715.86	4.42%	73,394.94	31,320.92
1943-44	3,435,897.23	79,202.93	2.31%	50,183.11	1.46%	129,886.04	3.77%	101,071.17	28,314.87
1944-45	4,546,764.68	115,572.02	2.54%	53,149.57	1.17%	168,721.59	3.71%	133,666.16	35,055.43
1945-46	5,823,642.49	163,671.56	2.81%	109,377.27	1.88%	273,048.83	4.69%	169,241.51	103,807.32
1946-47	7,169,133.27	180,529.08	2.52%	137,256.74	1.91%	317,785.82	4.43%	206,191.87	111,593.95
Totals						\$1,046,715.97		\$733,903.71	\$312,812.26

\* Deficit.

The purpose of Table XI is to clarify the discussion pertaining to the fact that the Kentucky Retirement System is a 3% system. This question is raised by reason of the present interest rate on investments of 2.465%. The Teachers' Savings Fund, the State Accumulation Fund, and the Allowance Reserve Fund are each credited with three per cent compound interest according to the law. The Expense Fund and the Guarantee Fund are not credited with interest. The Retirement Law is very specific in regard to this point. Therefore, it is practical to invest the balance in the Guarantee Fund and use the earnings of the investment to augment interest out of which three per cent may be credited to the funds requiring interest.

Inactive accounts remaining in the Teachers' Savings Fund receive no interest after the third year. The aggregate amount of these accounts was \$151,849.17 at September 1, 1947. This is a further help in guaranteeing 3% interest for the system because no interest is credited to such accounts while they earn approximately 2½%.

From the analysis in Table XI, the Retirement System can safely operate as a 3% system even though average return on investments is 2.465%. A different arrangement in the foreseeable future would afford no advantages to the State or to the members.

A more detailed discussion is in the Sixth Annual Report, pages 20-21.

Table A—Distribution of Appropriations 1940-47 covers the period since the establishment of the Retirement System. The appropriation for 1947-48 is not included, but it is identical with 1946-47, and will in like manner be distributed.

Column headed Subsequent Service shows that \$4,239,371.39 or 87% of the aggregate appropriations have been required to match members' contributions.

Credit has been given on the state's obligation for prior service in the amount of \$459,358.46.

**TABLE A—DISTRIBUTION OF APPROPRIATIONS**

**July 1, 1940–June 30, 1947**

Fiscal Year	Amount Appropriated	Operating Expenses Paid	State Accumulation Fund	
			Subsequent Service	Prior Service
1940-41 .....	\$ 500,000.00	\$ 22,669.88	\$ 476,089.49	\$ .....
1941-42 .....	500,000.00	13,232.93	481,713.03	.....
1942-43 .....	650,000.00	22,317.03	559,672.98	68,007.63
1943-44 .....	650,000.00	24,633.20	546,161.42	79,138.58
1944-45 .....	799,000.00	25,908.68	646,559.88	126,307.42
1945-46 .....	823,000.00	31,390.43	658,004.24	133,637.08
1946-47 Reg. Approp.	850,000.00	25,637.07*	813,222.32	267.75
Spec. Approp.	106,000.00	.....	54,000.00	52,000.00
Total .....	\$4,878,000.00	\$181,739.22	\$4,235,423.36	\$459,358.46

\* At 6/30/47 there was \$1,131.93 balance remaining from the expense fund budget, less than half of which was encumbered. Approximately \$650.00 will be credited 9/30/47 to offset the prior service deficiency.

Special refunds are made necessary when one or more contributions for the members' account reaches the office after account has been refunded; or in case a member pays too much by error. These have been held to a minimum by holding the application a sufficient time to enable the school district to send in the last pay roll on which the name of the withdrawing member appears.

During 1946-47, 2,170 former members withdrew their accounts aggregating \$135,277.90, an average of \$62.34. In the seven-year period 7,735 refunds of all classes have been made by a disbursement of \$428,072.92. There remain 5,819 accounts of teachers who have not taught for three or more years, 6,878 accounts of teachers who have taught within the last three years, but who were not teaching in 1946-47. Many of these 12,697 former teachers will withdraw their accounts, unless there is greater inducement to return to active service.

**Schedule 6**  
**REFUNDS**  
**Teachers' Retirement System**  
**June 30, 1947**

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
Totals	7,392	\$394,523.68	299	\$32,942.69	44	\$606.55	7,735	\$428,072.92

As of July 1, 1947, a class of 117 members were retired upon request from each and the retirement allowance provided by the Retirement Law authorized by the Board of Trustees. The average age of this group, including 13 retiring for disability, is 65.8 years. They had credit for 3,607.9 years of service, an average of 30.8 years. Their total accumulated contributions amount to \$36,707.08. The average retirement allowance is \$387.40, which has for the normal life expectancy an actuarial value of \$4,588.35. It will require \$536,837.00 to pay their allowances for life. This figure compared with their accumulated contributions indicates the ratio of state support at this time.

# List of Applicants Approved for Retirement and Annuity

Effective First Quarter 1947-48

July 1, 1947

District or Institution	Cert. No.	Age	P. S.	S. S.	P. S. Sal.	S. S. Sal.	Annuity	¼ Pay	Reserve
County									
Allen County	193	60	30	4.8	\$ 569.10	\$ 595.00	\$ 300.00	\$ 75.00	\$ 4,275.00
Ballard County	21,540	70	22.1	1.7	1,880.00	1,698.35	453.79	114.69	4,842.00
Barren County	22,302	65	30	2	526.40	550.00	300.00	75.00	3,718.00
Bell County	537	70	10.8	4.4	1,065.48	1,358.98	204.76	51.19	2,161.00
Bell County	549	70	30	6	513.10	548.00	300.00	75.00	3,166.00
Bourbon County	20,843	60	30	5	320.34	1,353.60	300.00	75.00	4,275.00
Breathitt County	1,072	69	30	5.9	463.80	654.60	300.00	75.00	3,275.00
Bullitt County	11,505	70	30	5.9	1,113.00	1,554.50	472.23	118.07	4,984.00
Caldwell County	1,377	62	30	5.7	453.85	694.63	300.00	75.00	4,053.00
Caldwell County	1,389	63	30	6	390.53	578.75	300.00	75.00	3,941.00
Caldwell County	1,405	70	30	6	433.62	652.75	300.00	75.00	3,166.00
Caldwell County	1,416	70	30	3	420.65	673.67	300.00	75.00	3,166.00
Carter County	20,711	70	23	5	672.00	795.90	300.00	75.00	3,166.00
Christian County	1,854	51	22	5	701.68	796.00	270.00	67.50	4,726.00
Christian County	23,085	70	30	2	339.00	854.00	300.00	75.00	3,166.00
Clark County	19,581	63	17	6	785.46	1,134.95	230.00	57.50	3,021.00
Clay County	21,123	65	26	4	802.00	1,213.25	300.00	75.00	3,718.00
Clay County	2,168	60	30	5.8	457.55	773.80	300.00	75.00	4,275.00
Cumberland County	22,146	68	23.1	5.4	354.42	645.40	300.00	75.00	3,385.00
Floyd County	2,168	70	30	5.4	644.60	1,116.65	300.00	75.00	3,166.00
Grayson County	22,735	62	20.5	5	463.75	659.90	255.00	63.75	3,445.00
Grayson County	20,327	70	16	5	454.35	672.75	210.00	52.50	2,216.00
Greenup County	21,803	68	27	5	456.60	660.75	300.00	75.00	3,335.00
Hancock County	1,163	70	27.2	3.6	582.42	796.25	300.00	75.00	3,166.00
Hardin County	18,766	51	24.8	6	2,000.00	2,000.00	500.56	125.14	8,761.00
Harlan County	21,662	70	15	3	324.00	940.33	180.00	45.00	1,900.00
Harlan County	4,551	52	15	6	698.74	1,045.45	210.00	52.50	3,602.00
Hopkins County	5,131	67	30	6	401.80	630.60	300.00	75.00	3,496.00

# **List of Applicants Approved for Retirement and Annuity—Continued**

**Effective First Quarter 1947-48**

**July 1, 1947**

District or Institution	Cert. No.	Age	P. S.	S. S.	P. S. Sal.	S. S. Sal.	Annuity	¼ Pay	Reserve
<b>County—Cont.</b>									
Hopkins County .....	23,082	70	5	1	\$ 1,500.00	\$ 1,165.00	\$ 100.00	\$ 25.00	\$ 1,055.00
Jefferson County .....	5,491	65	30	5	1,179.00	1,489.25	396.23	39.07	4,911.00
Kenton County .....	22,977	70	20	1	1,140.00	1,152.00	245.23	61.32	2,533.00
Lee County .....	6,733	66	25.1	6	532.35	789.55	300.00	75.00	3,607.00
Lee County .....	22,699	66	30	1.8	734.09	964.02	300.00	75.00	3,607.00
Leslie County .....	6,831	64	30	6	340.00	614.70	300.00	75.00	3,329.00
Leslie County .....	22,964	62	30	1	309.00	723.00	300.00	75.00	4,164.00
Leslie County .....	22,725	59	29.9	2.4	470.40	664.53	300.00	75.00	4,336.00
Leslie County .....	22,742	51	25	5	332.60	643.65	300.00	75.00	5,251.00
Lincoln County .....	20,548	67	25	5	646.00	740.00	300.00	75.00	3,496.00
Lincoln County .....	22,958	57	30	2	473.76	543.00	300.00	75.00	4,607.00
Madison County .....	20,814	70	13	4	627.13	786.25	220.00	55.00	2,322.00
Madison County .....	22,743	62	21.9	5	726.20	913.35	269.00	67.25	3,634.00
Magoffin County .....	23,086	70	16	5	272.40	615.10	210.00	52.50	2,216.00
Magoffin County .....	23,052	70	5	1.8	225.00	700.23	100.00	25.00	1,055.00
Magoffin County .....	7,901	58	29.5	6	394.80	613.30	300.00	75.00	4,497.00
Magoffin County .....	23,097	69	22	5	235.20	605.53	270.00	67.50	2,943.00
Magoffin County .....	7,897	70	30	6	400.40	633.30	300.00	75.00	3,166.00
Marshall County .....	8,144	55	21.9	6	423.40	727.00	279.00	69.75	4,437.00
Marshall County .....	8,223	67	23	6	431.20	712.40	300.00	75.00	3,496.00
Martin County .....	8,246	62	30	6	433.00	663.60	300.00	75.00	4,053.00
Martin County .....	8,324	70	30	6	1,789.35	1,443.15	667.12	166.78	7,040.00
McCracken County .....	22,407	64	29	1.3	501.67	792.69	300.00	75.00	3,329.00
McCracken County .....	8,479	52	14	6	2,000.00	2,080.00	345.96	86.49	5,934.00
Mercer County .....	926	70	30	5.5	1,512.00	1,799.85	602.08	150.52	6,354.00
Monroe County .....	9,050	70	30	6	412.86	732.80	300.00	75.00	3,166.00
Muhlenberg County .....	20,963	62	26	5	438.25	723.90	300.00	75.00	4,053.00
Ohio County .....	1,279	68	23.6	5.7	505.42	872.33	233.00	73.25	3,306.00



Ohio County	9,720	69	30	6	1,506.00	2,080.00	617.68	154.42	6,743.00
Perry County	21,847	70	21	4.7	451.00	561.28	257.00	64.25	2,712.00
Perry County	20,442	70	26	3.2	630.00	890.94	292.00	73.00	3,081.00
Pike County	22,916	68	28	4	564.10	926.00	300.00	75.00	3,385.00
Pike County	10,640	66	17	6	2,000.00	2,058.00	461.04	115.26	5,542.00
Pulaski County	10,919	60	30	4	450.35	647.25	300.00	75.00	4,275.00
Pulaski County	10,960	68	30	4	469.00	759.56	300.00	75.00	3,385.00
Rowan County	11,232	65	23.8	6	413.56	632.70	293.00	73.25	3,631.00
Scott County	11,383	70	27	6	862.17	1,090.00	330.92	82.73	3,492.00
Wayne County	22,551	54	23.8	5	666.88	1,115.00	288.00	72.00	4,735.00
Webster County	20,836	62	18	5	691.40	689.80	230.00	57.50	3,107.00
Independent									
Artemus	20,954	64	22.2	5	1,960.00	724.00	420.80	105.20	5,371.00
Ashland	12,810	70	30	6	1,870.97	2,044.15	745.28	186.32	7,865.00
Bowling Green	13,595	65	17	6	1,200.00	1,576.40	294.52	73.63	3,650.00
Burkesville	13,622	70	30	6	525.28	876.85	300.00	75.00	3,166.00
Cave City	13,759	59	25.2	6	716.40	883.80	300.00	75.00	4,386.00
Covington	13,066	70	30	6	1,682.40	1,987.55	688.60	170.90	7,214.00
Covington	13,097	70	30	6	1,695.10	2,020.00	690.36	172.59	7,285.00
Covington	13,062	67	27	6	2,000.00	2,080.00	658.60	164.65	7,674.00
Covington	13,157	70	9	6	644.00	880.15	150.00	37.50	1,583.00
Covington	13,185	70	30	6	1,700.00	1,990.20	689.12	172.28	7,272.00
Cynthiana	13,923	67	30	6	932.00	1,145.60	346.60	86.60	4,039.00
Danville	13,946	60	30	6	690.05	792.00	300.00	75.00	4,275.00
Danville	13,964	70	24	6	663.60	1,062.00	300.00	75.00	3,166.00
Elizabethtown	14,103	63	22.9	6	706.44	1,116.40	289.00	72.25	3,797.00
Fairview	14,181	60	30	6	790.09	1,244.90	300.00	75.00	4,275.00
Greensburg	20,416	70	16.5	5	1,022.20	1,143.50	254.42	63.61	2,685.00
Hazard	14,659	70	30	6	1,017.00	1,359.60	427.48	106.87	4,511.00
Henderson	14,730	69	30	6	1,115.50	1,281.20	434.96	108.74	4,749.00
Henderson	14,806	68	14.4	6	816.80	1,023.80	204.00	51.00	2,302.00
Hopkinsville	14,962	69	30	6	1,538.40	1,746.00	598.00	149.50	6,529.00
Jenkins	1,282	61	23.5	5	537.09	972.00	300.00	75.00	4,164.00
Leitchfield	19,646	68	23.3	1.7	886.40	886.18	300.00	75.00	3,385.00
Lexington	15,318	70	30	6	2,000.00	2,080.00	787.20	196.80	8,307.00
Lexington	15,352	70	30	6	1,495.00	1,901.85	619.68	154.92	6,539.00
Lexington	15,377	70	18	6	1,540.00	1,858.85	444.52	111.13	4,691.00
Louisville	16,598	70	30	6	2,000.00	2,080.00	787.20	196.80	8,307.00
Louisville	15,636	70	30	6	2,000.00	2,080.00	787.20	196.80	8,307.00

# List of Applicants Approved for Retirement and Annuity—Continued

Effective First Quarter 1947-48

July 1, 1947

District or Institution	Cert. No.	Age	P. S.	S. S.	P. S. Sal.	S. S. Sal.	Annuity	¼ Pay	Reserve
<b>Independent—Cont.</b>									
Louisville .....	16,416	70	30	6	\$ 2,000.00	\$ 2,080.00	\$ 787.20	\$ 196.80	\$ 8,307.00
Louisville .....	16,362	70	30	6	1,700.00	2,070.00	696.28	174.07	7,348.00
Louisville .....	16,420	70	30	6	2,000.00	2,080.00	787.20	196.80	8,307.00
Louisville .....	15,788	70	30	6	1,895.00	2,080.00	755.72	188.93	7,975.00
Louisville .....	16,701	70	16.5	6	1,600.00	1,996.00	442.64	110.91	4,682.00
Louisville .....	16,790	70	15.9	6	1,775.00	2,080.00	469.44	117.36	4,954.00
Louisville .....	15,901	67	30	6	1,935.00	2,080.00	695.28	173.82	8,102.00
Louisville .....	16,972	59	30	6	1,550.00	2,080.00	482.96	120.74	7,061.00
Louisville .....	16,730	68	30	6	1,600.00	1,992.00	616.56	154.14	6,957.00
Madisonville .....	17,171	70	22	6	774.90	932.65	280.00	70.00	2,955.00
Newport .....	17,610	70	30	6	1,764.00	1,888.00	699.12	174.78	7,379.00
Owensboro .....	17,776	70	30	6	2,000.00	2,080.00	787.20	196.80	8,307.00
Owenton .....	17,882	70	30	6	990.00	1,590.00	440.12	110.03	4,645.00
Paducah .....	17,922	70	25.4	6	1,287.00	1,555.20	466.88	116.72	4,927.00
Paris .....	18,105	60	30	6	1,350.00	1,574.15	404.80	101.20	5,769.00
Paris .....	18,106	61	20	6	1,200.00	1,428.80	280.24	70.06	3,890.00
Pineville .....	18,240	65	30	6	1,069.00	1,247.70	368.68	92.17	4,569.00
Shelbyville .....	18,581	80	27.5	5.5	1,229.04	1,328.15	334.00	83.50	4,760.00
Ky. School for the Deaf .....	18,963	70	30	6	1,312.80	1,575.00	535.60	133.90	5,652.00
Kentucky State College .....	19,262	63	25.1	5.7	1,460.20	1,713.96	412.83	103.20	5,423.00
Murray State Teachers College .....	19,234	70	30	6	2,000.00	2,080.00	787.20	196.80	8,307.00
West Ky. Vocational Training School .....	19,312	50	20.6	5.5	1,480.00	1,482.00	316.84	79.21	5,655.00
Western Ky. State Teachers College .....	19,354	63	30	6	1,603.00	1,659.50	506.28	126.57	6,651.00
Totals .....	117		3,005.5	602.4	\$116,168.89	\$142,190.58	\$45,325.35	\$11,331.33	\$536,837.00
Averages .....		65.8	25.7	5.1	\$ 992.90	\$ 1,215.30	\$ 387.40	\$ 96.85	\$ 4,588.35

**BALANCE SHEET**  
**Teachers' Retirement System**

June 30, 1947

**ASSETS**

**Current Assets:**

Cash—Unencumbered—All Funds .....	\$ 155,618.22	
Cash—Encumbered .....	526.63	
Total Cash .....		\$ 156,144.85
Due from Districts — Underpayments .....		12.60

**Fixed Assets:**

Investments:		
U. S. Treasury 2½ % Bonds .....	\$7,675,000.00	
U. S. Defense Bonds, Series G .....	650,000.00	
Total Invested (see schedule 2) .....		8,325,000.00

**Deferred Charges:**

Unamortized Premium on Bonds Held .....	\$ 60,003.31	
Accrued Interest on Bonds Purchased .....	54.65	60,057.96

<b>TOTAL ASSETS</b> .....		<u><u>\$8,541,215.41</u></u>
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**LIABILITIES**

**Current Liabilities:**

Encumbrances Outstanding ....	\$ 526.63	
Due to Districts—Overpayments .....	6.53	
Total Current Liabilities..		\$ 533.16

**Fund Balances:**

Expense Fund .....	\$ 605.30	
Teachers' Savings Fund .....	4,069,658.78	
State Accumulation Fund .....	4,069,652.71	
Allowance Reserve Fund:		
Teachers' Contributions .....	\$ 2,173.84	
State Contribution—Perm. ...	29,830.82	
Obligation for P. S. ....	\$2,032,132.34	
Deficiency—State's P. S. Obligation ....	1,976,183.80	55,948.54
		87,953.20

Guarantee Fund		312,812.26
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Total Fund Balances .....		<u><u>\$8,540,682.25</u></u>
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<b>TOTAL LIABILITIES</b> .....		<u><u>\$8,541,215.41</u></u>
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# STATEMENT OF RECEIPTS AND DISBURSEMENTS

## Teachers' Retirement System

For the Fiscal Year 1946-47

### Cash Balance, July 1, 1946:

Cash—Unencumbered .....	\$ 289,381.04
Cash—Reserved for Encumbrances .....	2,526.47
Cash on deposit at U. S. Postoffice .....	82.78
	<u>\$ 291,990.29</u>

### Receipts:

Teachers' Savings .....	\$ 867,521.73
Reinstatements .....	2,868.82

Total .....\$ 870,390.55

Net Amt. Overpayments 7/1/46 .....\$97.68

Net Amt. Underpayments 6/30/47 ..... 6.07      103.75

Net Contributed by Teachers .....\$ 870,286.80

State Contribution—Spec. Approp. ....\$ 106,000.00

State Contribution—Permanent ..... 813,222.82

State Contribution—Temporary ..... 8.18

State Contribution for Expenses ..... 36,769.00

Total received from State ..... 956,000.00

Interest Earned on Investments ..... 180,529.08

Total Receipts ..... 2,006,815.88

TOTAL CASH AVAILABLE ..... \$2,298,806.17

### Disbursements:

Administrative Expenses:	
Actuarial Fee .....	\$ 575.00
Board of Trustees—Election .....	491.00
Board of Trustees—Meetings .....	248.90
Fidelity Bond Premium .....	50.00
Medical Service Fees .....	68.00
Miscellaneous .....	12.00
Office Equipment Purchased .....	1,592.43
Office Supplies .....	673.82
Postage Expense .....	812.93
Printing and Stationery .....	1,763.28
Repairs and Maintenance	
Office Equip. ....	539.43
Salaries—Regular .....	27,584.39
Salaries—Extra .....	235.18
Telephone and Telegraph Expense .....	161.90
Travel Expense .....	828.81

# Disbursements (continued)

Total Current Year Expenses .....	\$ 35,637.07	
Prior Year Expenses Paid....	2,794.23	\$ 38,431.30
Refund Claims Paid (See schedule 5)		
Refunds—Regular .....	\$ 140,125.56	
Refunds—Special .....	195.16	
Refunds of Annuitants		
Deceased .....	1,055.97	
Interest paid on Refunds ....	1,291.24	142,667.93
Retirement Allowances Paid:		
Superannuation .....	\$ 200,903.68	
Disability .....	13,430.52	214,334.20
Purchase of U. S. Treasury Bonds .....	1,747,227.89	
Total Disbursements .....		2,142,661.32
CASH ON HAND, June 30, 1947 (see Balance Sheet) .....		\$ 156,144.85

## COST OF ADMINISTRATION

### Teachers' Retirement System July 1, 1940, to June 30, 1947

Year	Receipts of State Accumu- lation 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%

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

\*\* Expense may be larger if 1946-47 encumbrance \$157.70, outstanding 6/30/47, is liquidated for more than estimated amount.

Cost of administration is controlled by Section 161.420 (1), KRS. While cost of all office work has increased since the close of the war, the office has operated within the legal bounds.

Schedule 5, Teachers' Savings and State's Contributions shows a further breakdown including members' contributions.

## Schedule 5

## TEACHERS' SAVINGS AND STATE CONTRIBUTIONS

## Teachers' Retirement System

June 30, 1947

Year	Teachers' Savings Regular	Reinstatements	State Contribution				Total
			Subsequent Service	Prior Service	Expense Fund	Total From State	
1940-41	\$ 476,136.77	\$ .....	\$ 476,089.49	\$ .....	\$ 23,669.88	\$ 499,759.37	\$ 975,896.14
1941-42	481,690.66	41.55	481,713.03	.....	18,232.93	499,945.96	981,678.17
1942-43	559,783.87	141.00	559,672.98	68,007.63	22,317.03	649,997.64	1,209,922.51
1943-44	546,787.56	530.70	546,161.42	79,138.58	24,632.20	649,933.20	1,197,251.46
1944-45	646,738.13	1,532.32	646,559.38	126,307.42	25,908.63	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
	\$4,236,615.88	\$6,824.65	\$4,235,423.36	\$459,358.46	\$181,789.22	\$4,876,571.04	\$9,120,011.57

**Schedule 7 (A)**

**RETIREMENT ALLOWANCES PAID**

Year	Retired for Superannuation	Retired for Disability	Total Allowances Paid
1942-43 .....	\$ 62,439.36	\$ 1,426.56	\$ 63,865.92
1943-44 .....	80,688.98	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
Totals .....	\$575,246.10	\$23,683.38	\$598,929.48

Schedule 7 (B) makes the annual comparison since July 1, 1942, the earliest retirements.

**Schedule 7 (B)**

**FUNDS FROM WHICH RETIREMENT ALLOWANCES  
HAVE BEEN PAID**

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
Totals .....	\$102,731.10	\$496,198.38	\$598,929.48

**REPORT ON EXAMINATION FOR THE YEAR  
ENDED JUNE 30, 1947**

C. I. ROSS, Auditor of Public Accounts, Commonwealth of Kentucky

Frankfort, Kentucky  
October 3, 1947

Honorable Simeon Willis  
Governor of Kentucky  
Frankfort, Kentucky

Dear Governor Willis:

We submit herewith report of our audit of the Teachers' Retirement System of the State of Kentucky, for the year ended June 30, 1947.

This examination was made by W. M. Van Hoose, under my supervision.

Respectfully yours,  
(Signed) C. I. ROSS  
Auditor of Public Accounts

**Scope of Examination**

We have completed the regular annual audit of the books and records of the Teachers' Retirement System for the fiscal year ended June 30, 1947. All accounts have been reconciled with those of the Finance Department and the State Treasurer. Investment Securities in the custody of the State Treasurer have been checked and verified.

A complete detail audit was not deemed necessary but the scope of the examination made is in our opinion sufficient to indicate records properly kept and funds duly accounted for. Comparative balance sheet and pertinent financial statements are attached.

**Comments**

We note accuracy in the accounts and records. Improvements suggested in our previous audit have been made, together with other commendable improvements in accounting.

The equipment inventory is still maintained but is no longer carried as an asset of the fund. Refunds to deceased (beneficiaries or estates) and withdrawing members are made directly from the Teachers' Savings Fund. Much work is saved by these and other changes, also, the records indicate a better conformity to the technical requirements of law.

The contributions of teachers are reported by the treasurers of participating units (colleges, etc.) and by School District Superintendents. The posting of the Teachers' Ledger is current. Approximately 30,000 individual account cards are filed in fire resisting containers.

The actuarial tables for the use of the Retirement System have been developed from the 1937 Standard Mortality Table. Based on these tables, the accounts, records, and statistical analyses of the office indi-



cate that the 1947-1948 appropriation is inadequate to fully meet the requirements. The resulting deficit for the Allowance Reserve Fund is calculated to be \$95,000.00 for the year 1947-1948. Also, a deficit of \$85,000.00 is estimated in the State Accumulation Fund (matching fund). One of the factors in the matching fund deficiency is the holding of June, 1947, contributions amounting to \$28,327.22 which were not deposited until July, 1947, because the 1946-1947 appropriation was exhausted before June 30, 1947. The above deficit calculations are applicable to the fiscal year 1947-1948 alone.

Based on pensions being paid and the life expectancy of teachers retired, on an actuarial basis, the present worth deficiency in the Allowance Reserve Fund (Pension Fund) was \$1,976,183.80 on June 30, 1947. The amount of this deficiency is the obligation of the State for prior service of teachers that had retired up to June 30, 1947.

In respect to this incurred obligation the State may exercise an alternative procedure: either appropriating the full amount or by amortizing it throughout the future years. Should this amortization appropriation be fixed at \$450,000.00 per annum it would meet the annual obligation for pensions based on prior service and gradually liquidate the entire deficiency.

The above data reflects a need for increased financial support.

The following estimates by the office are based upon arbitrary figures but may serve as a basis for planning: If the per capita and equalization appropriation should be increased to thirty million dollars, and local school tax applied to teachers' salaries to ten and one-half million dollars, and salaries in teachers' colleges and other covered positions to one and one-half million, making a total of forty-two million dollars, an appropriation of \$1,178,000.00 per annum would be required for current matching. This estimate does not include the amortization amount referred to above.

### Conclusion

The State will save approximately 2½% compound interest on all funds placed in reserves, since all figures evaluating the deficiencies are calculated on a present worth basis.

The System is solvent as of June 30, 1947, but if there is not adequate financial support and the prior service deficiency is not amortized, the trend, on an actuarial basis, is towards financial unsoundness in the long term view of the Teachers' Retirement System of the State of Kentucky.

# COMPARATIVE BALANCE SHEET

Assets	June 30, 1947	June 30, 1946
Cash—Unencumbered .....	\$ 155,618.22	\$ 289,381.04
Cash—Encumbered .....	526.63	2,526.47
Cash—On Deposit U. S. Post Office .....		82.78
Total Cash .....	\$ 156,144.85	\$ 291,990.29
Underpayments—Due from Districts .....	12.60	2.47
Investments—U. S. Treasury 2½ % Bonds .....	\$7,675,000.00	\$6,075,000.00
—U. S. Defense Bonds, Series "G" .....	650,000.00	550,000.00
Total Bonds (Schedule "A") .....	8,325,000.00	6,625,000.00
Deferred Premiums and Accrued Interest:		
Unamortized Premiums on Bonds .....	\$ 60,003.31	\$ 12,679.80
Accrued Interest Purchased .....	54.65	150.27
Total Deferred Charges (Schedule "A") .....	60,057.96	12,830.07
TOTAL ASSETS .....	<u>\$8,541,215.41</u>	<u>\$6,929,822.83</u>
Liabilities		
Encumbrances Outstanding .....	\$ 526.63	\$ 2,526.47
Overpayments—Due Districts .....	6.53	100.15
TOTAL LIABILITIES .....	\$ 533.16	\$ 2,626.62
Net Fund Balance .....	8,540,682.25	6,927,196.21
TOTAL LIABILITIES AND NET FUND BALANCE .....	<u>\$8,541,215.41</u>	<u>\$6,929,822.83</u>

## COMPARATIVE BALANCE SHEET—Continued

	June 30, 1947	June 30, 1946
<b>Distribution of Fund Balances</b>		
Expense Fund .....	\$ 605.30	\$ 527.33
Teachers' Savings Fund .....	4,069,658.78	3,279,555.80
State Accumulation Fund .....	4,069,652.71	3,279,653.48
Allowance Reserve Fund .....	87,953.20	166,241.29
Guarantee Fund .....	312,812.26	201,218.31
	<u>\$8,540,682.25</u>	<u>\$6,927,196.21</u>
<b>Reconciliation of Fund Balance with Finance Department:</b>		
Balance per Finance Department .....	\$8,540,630.85	
Add: Adjustment by Finance Dept. J. V. 84 .....	45.33	
Net Difference in Irregular Payments .....	6.07	
	<u>\$8,540,682.25</u>	
Balance per Teachers' Retirement Books .....		

**Schedule "A"**  
**INVESTMENTS**

**Balance of Investments Beginning of Year:**

U. S. Defense Bonds, Series "G" .....	\$ 550,000.00
U. S. Treasury Bonds, 2½ % .....	6,075,000.00

Total .....	\$6,625,000.00
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**Bonds Purchased During Year:**

U. S. Defense Bonds, Series "G" .....	\$ 100,000.00
U. S. Treasury Bonds, 2½ % .....	1,600,000.00

Total Purchases .....	1,700,000.00
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\$8,325,000.00

**Balance Close of Year**

U. S. Defense Bonds, Series "G" .....	(\$ 650,000.00)
U. S. Treasury Bonds, 2½ % .....	(7,675,000.00)

**Changes in Unamortized Premiums**

Balance Beginning of Year .....	\$ 12,679.80
Premiums Purchased .....	48,843.80

Total .....	\$ 61,523.60
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Collections .....	1,520.29
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Balance, June 30, 1947 .....	\$ 60,003.31
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**Changes in Accrued Interest**

Beginning Balance .....	\$ 150.27
Purchases .....	9,730.01

Total .....	\$ 9,880.28
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Collections .....	9,825.63
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Balance, June 30, 1947 .....	\$ 54.65
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**INVESTMENTS HELD**  
**Teachers' Retirement System**  
**June 30, 1947**

Name and Description	Par Value	Net Yield
U. S. Defense Bonds, Series "G" .....	\$ 650,000.00	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	2.499 %
U. S. Treasury 2½ %, 12/15/64-69 .....	300,000.00	2.50 %
U. S. Treasury 2½ %, 3/15/63-70 .....	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 .....	3,000,000.00	2.403 %
<b>Total .....</b>	<b>\$8,325,000.00</b>	
<b>Average Net Yield .....</b>		<b>2.465 %</b>

## SOURCE AND APPLICATION OF FUNDS

Fiscal Year Ended June 30, 1947

### Source of Funds—Additions

Teachers' Contributions (Schedule "B").....		\$ 870,390.55
Interest Earned on Investments (Schedule "B") .....		180,529.08
Transfers from General Fund:		
State Contribution—Expense .....	\$ 36,769.00	
State Contribution—Matching .....	813,222.82	
State Contribution—Special Appropriation for Matching .....	54,000.00	
State Contribution—Special Appropriation for Prior Service .....	52,000.00	
State Contribution—Temporary Contribu- tion for Prior Service .....	8.18	956,000.00
Total Additions .....		<u>\$2,006,919.63</u>

### Application of Funds—Deductions

Disbursements—Expense Fund .....	\$ 36,431.46	
Disbursements—Allowance Reserve Fund .....	215,390.17	
Disbursements—Teachers' Savings Fund .....	141,611.96	
Total Deductions .....		<u>393,433.59</u>
Net Fund Increase .....		<u>\$1,613,486.04</u>
Add: Beginning Balance .....		<u>6,927,196.21</u>
Closing Fund Balance .....		<u>\$8,540,682.25</u>

### Application of Fund-Increase

Increase in Bond Investments .....		\$1,700,000.00
Increase in Premiums and Accrued Interest on Bonds Purchased .....	47,227.89	
Increase in Accounts Receivable .....	10.13	
Decrease in Liabilities .....	2,093.46	
		<u>\$1,749,331.48</u>
Less Decrease in Cash Balance .....		<u>135,845.44</u>
Net Total .....		<u>\$1,613,486.04</u>

**Schedule "B"**  
**RECEIPTS PER FINANCE DEPARTMENT**

Acct. No.	Name	Amount	Accounting
9301	Teachers' Contributions .....	\$ 870,263.46	Cr. Revenue
9305	Interest on Investments .....	180,529.08	Cr. Revenue
9306	Premium Amortization .....	1,520.29	Cr. Prem. Amortization
9307	Accrued Interest Purchased .....	9,825.63	Cr. Acc. Interest
9321	Refund of Prior Year Disbursements .....	159.35	Cr. T. S. Fund
9322	Refund of Current Year Disbursements .....	23.34	Cr. Disbursements
9335	Allowance Payments Refunded .....	1,321.06	Cr. Disbursements
9345	State Contribution—Expense .....	36,769.00	Cr. Inter-Fund Credits
9346	State Contribution—State Accumulation Fund .....	829,765.91	Cr. Inter-Fund Credits
9347	State Contribution—Temporary Fund .....	8.18	Cr. Inter-Fund Credits
Total—Per Finance Department .....		\$1,930,685.30	
<b>Reconciliation of Teachers' Contributions with Summary Statement of Operations</b>			
9301	Teachers' Contribution .....	\$870,263.46	
9321	Refunds of Prior Year .....	23.34	\$870,286.80
Add: Amount Realized from Irregular Payments from Districts .....			103.75
Net Total .....			\$870,390.55
<b>Reconciliation of State Contribution</b>			
9346	State Accumulation Fund .....	\$829,765.91	
9347	Temporary Fund .....	8.18	
Add: Adjustment J. V. 1159 .....		89,456.91	
Total per Books .....		\$919,231.00	

### SUMMARY STATEMENT OF OPERATIONS BY FUNDS

Fund	Beginning Balance	Additions		Deductions		Closing Balance
		Receipts	Transfers in	Charges	Transfers Out	
Teachers' Savings Fund .....	\$3,279,555.80	\$ 870,390.55	\$ 101,272.51	\$ 141,611.96	\$ 39,948.12	\$4,069,658.78
State Accumulation Fund .....	3,279,653.48	919,231.00	103,109.66	.....	232,341.43	4,069,652.71
Allowance Reserve Fund .....	166,241.29	.....	137,102.08	215,390.17	.....	87,953.20
Guaranty Fund .....	201,218.31	180,529.08	140,125.56	.....	209,060.69	312,812.26
Expense Fund .....	527.33	36,769.00	.....	36,431.46	259.57	605.30
Totals .....	\$6,927,196.21	\$2,006,919.63	\$ 481,609.81	\$ 393,433.59	\$ 481,609.81	\$8,540,682.25

Included in the Auditors' Report, but not shown in detail in this Seventh Annual Report of the Retirement System, were the following:

Statement of Receipts and Disbursements per books of Teachers' Retirement

Schedule "C", Expense Fund Encumbrances Outstanding

Personnel, a statement of the duties, classifications and monthly salaries of employees of the system.