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DOCUMENTS

OF THE

SCHOOL COMMITTEE

OF THE

CITY OF BOSTON

FOR THE YEAR 1918



CITY OF BOSTON  
PRINTING DEPARTMENT  
1919

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# INDEX TO SCHOOL DOCUMENTS

## 1918

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Doc.

1. ANNUAL REPORT OF BUSINESS AGENT.
2. A PLAN FOR THE PROMOTION OF TEACHERS FROM MERIT LISTS.
3. REAPPOINTMENTS OF TEACHERS AND MEMBERS OF THE SUPERVISING STAFF.
4. LIST OF CANDIDATES ELIGIBLE FOR APPOINTMENT AS TEACHERS.
5. ARITHMETIC — DETERMINING THE ACHIEVEMENT OF PUPILS IN COMMON FRACTIONS.
6. ENGLISH — DETERMINING THE ACHIEVEMENT OF PUPILS IN LETTER WRITING.
7. COURSE OF STUDY IN CLERICAL PRACTICE (COMMERCIAL SUBJECTS) FOR INTERMEDIATE SCHOOLS AND CLASSES.
8. SPECIAL SYLLABUS — DRAWING, GRADES I, II, III.
9. SPECIAL SYLLABUS — DRAWING AND MANUAL TRAINING, GRADES IV, V, VI VII, VIII.
10. A SCHEDULE OF COMPENSATION FOR JANITOR SERVICE OF SCHOOL BUILDINGS.
11. LIST OF AUTHORIZED TEXT AND SUPPLEMENTARY BOOKS.
12. ANNUAL STATISTICS OF THE BOSTON PUBLIC SCHOOLS.
13. ORGANIZATION AND ADMINISTRATION OF INTERMEDIATE SCHOOLS IN BOSTON.





SCHOOL DOCUMENT NO. 1—1918

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SCHOOL COMMITTEE OF THE  
CITY OF BOSTON

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ANNUAL REPORT  
OF THE  
BUSINESS AGENT  
FOR THE  
YEAR ENDING JANUARY 31, 1918

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APRIL, 1918



CITY OF BOSTON  
PRINTING DEPARTMENT  
1918

BOSTON, MASS., April, 1918.

*To the School Committee:*

In compliance with section 77 of the Rules of the School Committee, I submit herewith the annual report of the Business Agent for the financial year February 1, 1917, to January 31, 1918, both included.

WILLIAM T. KEOUGH,  
*Business Agent.*

## ANNUAL REPORT OF THE BUSINESS AGENT.

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### MONEY AVAILABLE FROM THE TAX LEVY.

In view of the recent action of the Legislature in increasing the sums available from the tax levy for the support of the public schools, the following summary of the limitations on school appropriations may be of some interest.

Prior to 1898 appropriations for the support of the public schools were made by the City Council. Chapter 400 of the Acts of 1898 provided that the School Committee by a vote of two thirds of all its members might make appropriations for the support of the public schools to an amount not exceeding in the aggregate upon each \$1,000 of the average valuation of the city, on which appropriations by the City Council are based, the following sums for the periods specified: For the financial year ending on the thirty-first day of January in the year 1899, \$2.80; for the financial year ending on the thirty-first day of January in the year 1900, \$2.85; and for the financial year ending on the thirty-first day of January in the year 1901, and for each financial year thereafter, \$2.90. Of the total amount authorized as above, not less than twenty-five cents on each \$1,000 of the above average valuation had to be appropriated only for repairs and alterations upon school buildings.

Chapter 448 of the Acts of 1901 authorized the School Committee to appropriate \$3.40 upon each \$1,000 of the average valuation of the city, on which appropriations by the City Council are based, but of this amount not less than forty cents upon each \$1,000 were required to be appropriated solely for new school buildings, lands, yards and furnishings, and not less than twenty-five cents upon each \$1,000 were required to be appropriated solely for repairs and alterations to school

buildings. This left a sum not greater than \$2.75 upon each \$1,000 to be appropriated for general school purposes.

Chapter 295 of the Acts of 1907 authorized the School Committee to appropriate a sum equal to two cents upon each \$1,000 of the average valuation of the city, on which appropriations by the City Council are based, solely for physical education for the financial year 1907-08, and four cents upon each \$1,000 of such valuation for that purpose for each financial year thereafter.

Chapter 357 of the Acts of 1907 authorized the School Committee to appropriate a sum not exceeding \$10,000 for nurses in the public schools during the financial year 1907-08, and a sum equal to two cents upon each \$1,000 of the average valuation of the city, on which appropriations by the City Council are based, for that purpose for each financial year thereafter.

Chapter 589 of the Acts of 1908 authorized the School Committee to appropriate the sum of five cents upon each \$1,000 of the valuation of the city, on which appropriations by the City Council are based, for the payment of pensions to teachers, and further authorized it to transfer any balance of such appropriation not needed directly for the purpose to a permanent pension fund.

Prior to the legislation of 1909, therefore, the total amount of money that could be appropriated by the School Committee was as follows:

For general school purposes . . . . .	\$2 75
For new buildings, lands, yards and furnishings . . . . .	40
For repairs and alterations to school buildings . . . . .	25
For physical education . . . . .	04
For nurses . . . . .	02
For pensions . . . . .	05
	<hr/>
Total . . . . .	<u>\$3 51</u>

Chapter 388 of the Acts of 1909 increased the sums which the School Committee was authorized to appropriate by the following amounts:

In the financial year 1909-10 . . . . .	10 cents *
In the financial year 1910-11 . . . . .	20 cents *
In the financial year 1911-12 . . . . .	30 cents *

Under this act, therefore, the sums of money available out of the tax levy per \$1,000 of average valuation of the city for the three years 1909-10, 1910-11 and 1911-12 were as follows:

	1909-10.	1910-11.	1911-12.
General school purposes.....	\$2 85	\$2 95	\$3 05
New buildings, lands, yards and furnishings..	40	40	40
Repairs and alterations to school buildings...	25	25	25
Physical education.....	04	04	04
Nurses.....	02	02	02
Pensions.....	05	05	05
Totals.....	\$3 61	\$3 71	\$3 81

Chapter 708 of the Acts of 1911 authorized the School Committee to increase its appropriations by the following amounts:

In the financial year 1912-13 . . . . .	10 cents *
In the financial year 1913-14 . . . . .	20 cents *
In the financial year 1914-15 . . . . .	25 cents *

The Legislature provided, however, that such sums should “wholly be appropriated by said School Committee for the purpose of increasing the present salaries of the teachers in the public schools of the city.”

Chapter 195 of the Acts of 1912 authorized the School Committee to appropriate a sum not exceeding two cents upon each \$1,000 of the valuation, on which the appropriations by the City Council are based, for the purpose of extending the use of the public schools.

\* Upon each \$1,000 of the valuation of the city, on which appropriations by the City Council are based.

Chapter 615 of the Acts of 1913 amended the provisions of the statutes controlling the amounts available for new buildings, lands, yards and furnishings, and for repairs and alterations of school buildings. The new statute provided that not more than thirty cents might be appropriated for new school buildings, lands, yards and furnishings and not more than thirty-five cents for repairs and alterations to school buildings. It also provided for an increase in the money available for general school purposes by an increase in the amount available of ten cents in 1913-14 and of twenty cents in 1914-15, and each financial year thereafter.

The sums of money available out of the tax levy upon each \$1,000 of the valuation of the city for the three years 1912-13, 1913-14 and 1914-15 were therefore as follows:

	1912-13.	1913-14.	1914-15.
General school purposes.....	\$3 05	\$3 10	\$3 15
Increasing salaries of teachers.....	10	20	25
New buildings, lands, yards and furnishings...	* 40	† 30	† 30
Repairs and alterations to school buildings....	* 25	† 35	† 35
Physical education.....	04	04	04
Nurses.....	02	02	02
Pensions.....	05	05	05
Extended use of the public schools.....	02	02	02
Totals.....	\$3 93	\$4 08	\$4 18

\* Not less than.

† Not more than.

Chapter 304 of the Special Acts of 1915 increased the amount available for pensions from five cents to seven cents.

The sums available out of the tax levy on each \$1,000 of the valuation of the city for the year 1915-16 were therefore as follows:

General school purposes . . . . .	\$3 15
Increasing salaries of teachers . . . . .	25
New buildings, lands, yards and furnishings . . . . .	* 30
Repairs and alterations to school buildings . . . . .	* 35
Physical education . . . . .	04
Nurses . . . . .	02
Pensions . . . . .	07
Extended use of the public schools . . . . .	02
Total . . . . .	<u>\$4 20</u>

Chapter 267 of the Special Acts of 1916 increased the total amount which the School Committee might appropriate by thirty cents upon each \$1,000 of the valuation of the city, on which the appropriations by the City Council are based, for the purpose of increasing the amount available out of the tax levy for new school buildings, lands, yards and furnishings and also repealed the statutes authorizing the School Committee to borrow money for the erection of school buildings. (Chapter 450 of the Acts of 1907 and Section 4 of Chapter 331 of the Acts of 1914.)

The sums available for the year 1916-17 were therefore as follows:

General school purposes . . . . .	\$3 15
Increasing salaries of teachers . . . . .	25
New buildings, lands, yards and furnishings . . . . .	* 60
Repairs and alterations to school buildings . . . . .	* 35
Physical education . . . . .	04
Nurses . . . . .	02
Pensions . . . . .	07
Extended use of the public schools . . . . .	02
Total . . . . .	<u>\$4 50</u>

The sums available for the year 1917-18 were not changed by the Legislature.

Chapter 132 of the Special Acts of 1918 authorized the School Committee to increase its appropriations by the sum of seventeen cents on each \$1,000 of the valuation "for the maintenance and extension of the public schools and for such other school purposes as said School Committee deems necessary. . . ." In addition to this

increase it authorized a further increase of ten cents for the financial year 1918-19, forty cents for the financial year 1919-20, and fifty cents for the financial year 1920-21 and each financial year thereafter, and provided that such sums "may be used by the School Committee to increase the salaries of teachers, members of the supervising staff, janitors, attendance officers and other persons employed by the School Committee. . . ."

The sums available for the years 1918-19, 1919-20 and 1920-21 are therefore as follows:

	1918-19.	1919-20.	1920-21.
General school purposes.....	\$3 42	\$3 72	\$3 82
Increasing salaries of teachers.....	25	25	25
New buildings, lands, yards and furnishings,	* 60	* 60	* 60
Repairs and alterations to school buildings..	* 35	* 35	* 35
Physical education.....	04	04	04
Nurses.....	02	02	02
Pensions.....	07	07	07
Extended use of the public schools.....	02	02	02
Totals.....	\$4 77	\$5 07	\$5 17

\* Not more than.

### BOSTON TRADE SCHOOL.

With the beginning of the school year 1917-18 the Boston Trade School has been moved from its quarters in the Old Brimmer Building to the new Boston Trade School.

As it is about to enter a new chapter of its existence it may be profitable to take a glance at the figures showing the cost of the school from its beginning up to the date of its removal from the Brimmer School for the purpose of checking up the cost of this new type of education.



On page 10 will be found a statement showing the costs of this school for each year since the principal was appointed up to and including August 31, 1917.

In the year 1911-12 the school had not yet been opened for instruction and the costs show the salary of the master and the expenses of getting the building and the equipment ready for the pupils.

For the year 1917-18 the figures show the costs for that year only up to and including August 31, 1917.

The cost for the whole period is shown in the following:

## SUMMARY.

Total Cost, 1911-12 to August 31, 1917-18 . . . . .	\$223,355 85
Total Number of Pupil Hours, 1911-12 to August 31, 1917-18 . . . . .	1,017,669
Average Cost per Pupil Hour, Total . . . . .	\$0 219
Total Income Received * . . . . .	81,328 44
Net Cost . . . . .	\$142,027 41
Average Net Cost per Pupil Hour . . . . .	\$0 139
Above Net Cost brought down . . . . .	\$142,027 41
Add depreciation in valuation of building . . . . .	1,300 00
	\$143,327 41
Deduct valuation of equipment moved to new building for use therein . . . . .	20,000 00
	\$123,327 41
Average Net Cost per Pupil Hour with depreciation in valuation of building added and valuation of equipment deducted . . . . .	\$0 121

By comparing these figures with the costs of other types of school in the city, a fair idea of the relative cost of this type of education up to date can be secured.

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\* Including aid from the Commonwealth for industrial education.

## COST OF BOSTON TRADE SCHOOL, DAY CLASSES, DURING ITS LOCATION IN BRIMMER BUILDING.

	1911-12.*	1912-13.†	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.‡
Expenses of Instruction.....	\$2,371 79	\$19,326 57	\$23,399 23	\$26,185 62	\$30,749 58	\$32,576 20	\$22,090 30
Expenses, Operation of Plant,	722 91	2,184 59	2,928 49	3,446 67	3,980 50	3,511 56	2,539 85
Expenses, Maintenance of Plant.....		376 35	1,794 41	1,150 13	1,408 34	520 66	369 89
Promotion of Health.....					32 50	147 51	5 40
Transportation of Pupils.....							
Miscellaneous Expenses.....					50 00	50 00	50 00
Outlays.....	11,786 54	19,899 84	2,584 81				
Supervision and Overhead Charges.....	152 18	789 07	1,410 39	1,463 33	1,248 23	1,232 41	\$20 00
Total Cost.....	\$15,033 42	\$42,576 42	\$32,117 33	\$32,245 75	\$37,469 15	\$38,038 34	\$25,875 44
Number of Pupil Hours.....		108,277	179,733	204,720	222,101	191,028	111,810
Cost per Pupil Hour, Total,		\$0 393	\$0 178	\$0 157	\$0 168	\$0 199	\$0 231
Income received.....			2,534 67	26,121 51	17,849 53	15,432 52	19,390 21
Net Cost.....	\$15,033 42	42,576 42	29,582 66	6,124 24	19,619 62	22,605 82	6,485 23
Net Cost per Pupil Hour.....		0 393	0 164	0 029	0 088	0 118	0 058

\* No instruction given during 1911-12.

† Opened for instruction to pupils on March 18, 1912.

‡ Cost to August 31, 1917.

Valuation of building, 1911-12, \$40,000; 1917-18, \$38,700.

Valuation of equipment, 1911-12, \$4,620; 1917-18, \$20,000.

## FINANCIAL STATEMENT.

On March 8, 1917, the School Committee made the following appropriations:

Salaries of instructors . . . . .	\$4,460,350 70
Salaries of officers . . . . .	151,245 56
Salaries of janitors . . . . .	353,000 00
Fuel and light . . . . .	308,750 00
Supplies and incidentals . . . . .	346,426 05
Physical education . . . . .	62,731 61
Physical education, special appropriation . . . . .	29,523 63
Salaries and expenses of nurses . . . . .	37,541 56
Medical inspection . . . . .	28,459 00
Pensions to teachers . . . . .	109,780 32
Pensions to attendance officers and janitors . . . . .	10,724 44
Extended use of the public schools . . . . .	35,537 02
Repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new lighting fixtures . . . . .	457,930 11
Rents of hired school accommodations . . . . .	30,000 00
Total amount appropriated . . . . .	\$6,422,000 00

During the financial year the School Committee made the following transfers:

On December 6, 1917, from "Salaries of Instructors" to "Repairs, Alterations, Etc." . . . . .	\$1,463 00
On December 6, 1917, from "Salaries of Instructors" to "Rents of Hired School Accommodations" . . . . .	159 00
On December 27, 1917, from "Salaries of Instructors" to "Repairs, Alterations, Etc." . . . . .	1,500 00
On January 10, 1918, from "Salaries of Instructors" to "Supplies and Incidentals" . . . . .	13,000 00

With the above additions and transfers, the final total credits for the several items for the year were as follows:

Salaries of instructors . . . . .	\$4,444,228 70
Salaries of officers . . . . .	151,245 56
<i>Carried forward</i> . . . . .	\$4,595,474 26

<i>Brought forward</i>	\$4,595,474 26
Salaries of janitors	353,000 00
Fuel and light	308,750 00
Supplies and incidentals	359,426 05
Physical education	62,731 61
Physical education, special appropriation	29,523 63
Salaries and expenses of nurses	37,541 56
Medical inspection	28,459 00
Pensions to teachers	109,780 32
Pensions to attendance officers and janitors	10,724 44
Extended use of the public schools	35,537 02
Repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new lighting fixtures	460,893 11
Rents of hired school accommodations	30,159 00
	<hr/>
Total credits	\$6,422,000 00

The expenditures were as follows:

Salaries of instructors	\$4,418,639 17
Salaries of officers	150,527 11
Salaries of janitors	351,941 29
Fuel	242,985 61
Light	51,593 41
Power	8,801 52
Supplies and incidentals	358,523 82
Physical education	62,731 61
Physical education, special	29,454 57
Salaries and expenses of nurses	35,490 34
Medical inspection	28,339 92
Pensions to teachers	104,347 95
Payments to permanent pension fund	5,432 37
Extended use of the public schools	32,888 99
Pensions to attendance officers and janitors	8,001 02
Repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new lighting fixtures	438,970 57
Rents of hired school accommodations	32,352 26
	<hr/>
Total expenditures	\$6,361,021 53
	<hr/>
Total credits brought down	\$6,422,000 00
Total expenditures brought down	6,361,021 53
	<hr/>
Balance	\$60,978 47
Less difference between estimated income and amount collected	3,424 71
	<hr/>
Net total	\$57,553 76

The balance at the end of the year was made up as follows:

Salaries of instructors . . . . .	\$25,589 53
Salaries of officers . . . . .	718 45
Salaries of janitors . . . . .	1,058 71
Fuel } . . . . .	5,369 46
Light } . . . . .	
Power } . . . . .	
Supplies and incidentals . . . . .	902 23
Physical education . . . . .	—
Physical education, special . . . . .	69 06
Salaries and expenses of nurses . . . . .	2,051 22
Medical inspection . . . . .	119 08
Pensions to teachers . . . . .	—
Extended use of the public schools . . . . .	2,648 03
Pensions to attendance officers and janitors . . . . .	2,723 42
Repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new lighting fixtures . . . . .	19,729 28
Rents of hired school accommodations . . . . .	—
Balance . . . . .	\$60,978 47
Less difference between estimated income and amount collected . . . . .	3,424 71
Net total . . . . .	<u>\$57,553 76</u>

#### NEW SCHOOL BUILDINGS, LANDS, YARDS, ETC.

On March 8, 1917, the School Committee passed the following order:

*Ordered,* That in accordance with the provisions of chapter 267 of the Special Acts of 1916, the sum of nine hundred forty thousand, nine hundred seventy-four dollars (\$940,974) is hereby appropriated for the purpose of constructing and furnishing new school buildings, including the taking of land therefor, and for school yards and the preparing of school yards for use.

This sum thus appropriated for new buildings, lands, yards, etc., forms a part of the tax levy for the year.

This money is expended under the direction of the Schoolhouse Commission and is accounted for by them in detail in their report. It has not been considered wise to introduce such matter into this report, not only for the reason that it would be a duplication of infor-

mation in the report of the commission, but because for purposes of comparison with expenditures of other years or of other cities it appears better to separate statements of maintenance or operating expenses from the construction accounts.

#### PHYSICAL EDUCATION.

The total amount of money available for physical education under chapter 295 of the Acts of 1907 was \$62,731.61. The plans laid out for playground activities for the year, however, required a much larger sum and, in consequence, in addition to the above amount, a special appropriation of \$29,523.63 was allowed in the annual appropriation order. The total amount available for this purpose was, therefore, as follows:

Appropriation for 1917-18 . . . . .	\$62,731 61
Diverted from general appropriation . . . . .	29,523 63
	\$92,255 24

The expenditures were as follows:

Salaries of teachers, regular * . . . . .	\$46,078 43	
Supplies and incidentals, regular . . . . .	9,171 22	\$55,249 65
	\$21,804 85	
Salaries of teachers, playgrounds † . . . . .	\$21,804 85	
Salaries of janitors, playgrounds . . . . .	4,805 73	
Supplies and equipment, playgrounds . . . . .	10,325 95	
	36,936 53	
Total expenditures . . . . .	\$92,186 18	
Balance . . . . .	\$69 06	

#### TRIAL BALANCE — PHYSICAL EDUCATION APPROPRIATIONS.

*Dr.*

Appropriation, physical education . . . . .	\$62,731 61
Special appropriation, physical education . . . . .	29,523 63
Stock inventory, December 4, 1916 . . . . .	1,575 60
	\$93,830 84

\* Includes the salary of the Assistant Director of Athletics and the teachers of the several ranks who serve at the Normal, Latin and high schools.

† This cost of playgrounds is exclusive of the salaries of any part of the supervising staff who were in any way connected with the playgrounds. The complete cost of playgrounds is shown later on in this report under "Costs of Playgrounds."

<i>Cr.</i>	
Salaries, schools . . . . .	\$42,027 15
Salaries, playgrounds . . . . .	21,804 85
Salaries, playground janitors . . . . .	4,805 73
Salaries, department . . . . .	4,051 28
Supplies, schools, etc. . . . .	7,736 52
Supplies, playgrounds . . . . .	9,489 99
Supplies, department . . . . .	2,017 01
Supplies undercharged to schools . . . . .	18 76
Stock inventory, December 4, 1917 . . . . .	1,810 49
Balance unexpended . . . . .	69 06
	<u>\$93,830 84</u>

Drafts were made on the regular physical education appropriation until it was exhausted, when drafts were begun on the special appropriation.

#### NURSES.

During the last year it has been found impossible, as it has for the seven preceding years, to keep the expenditures for nurses within the appropriation authorized by chapter 357 of the Acts of 1907, viz., two cents on each one thousand dollars of the valuation of the city, amounting to \$31,365.81.

In addition to the sum available under the above statute, the sum of \$6,175.75 was allowed in the general appropriation order, making a total appropriation of \$37,541.56.

At the end of the year there remained an unexpended balance of \$2,051.22.

The total amount available was, therefore, as follows:

Appropriation (chapter 357, Acts of 1907) . . . . .	\$31,365 81
Diverted from general appropriation . . . . .	6,175 75
Total amount available . . . . .	<u>\$37,541 56</u>

The expenditures were as follows:

Salaries of nurses . . . . .	\$34,409 12
Supplies for nurses . . . . .	1,081 22
Total expenditures . . . . .	<u>\$35,490 34</u>

Total appropriation brought down . . . . .	\$37,541 56
Total expenditures brought down . . . . .	35,490 34
	<hr/>
Balance . . . . .	<u>\$2,051 22</u>

## TRIAL BALANCE — NURSES' APPROPRIATION.

*Dr.*

Appropriation for nurses . . . . .	\$31,365 81
Diverted from regular appropriation . . . . .	6,175 75
Stock inventory, December 4, 1916 . . . . .	660 72
	<hr/>
	<u>\$38,202 28</u>

*Cr.*

Salary, supervising nurse . . . . .	\$1,499 80
Salaries, assistant nurses . . . . .	32,909 32
Supplies, schools, etc. . . . .	300 91
Supplies, department . . . . .	552 51
Supplies undercharged to schools . . . . .	18 15
Stock inventory, December 4, 1917 . . . . .	870 37
Balance unexpended . . . . .	2,051 22
	<hr/>
	<u>\$38,202 28</u>

## EXPENDITURES BY SCHOOLHOUSE COMMISSION.

The appropriations made for "Repairs and Alterations, protection against fire and fire hazards, and new furniture and furnishings for old buildings, including new lighting fixtures" (\$460,893.11), and "Rents of hired school accommodations" (\$30,159) were expended under the direction of the Schoolhouse Commission as follows:

## REPAIRS AND ALTERATIONS.

Carpentry:	
Repairs . . . . .	\$37,591 38
Alterations . . . . .	12,033 00
New floors . . . . .	1,449 05
Hardware . . . . .	69 60
Furniture and Equipment:	
New furniture . . . . .	27,771 92
Repairs to furniture . . . . .	18,671 11
New curtains . . . . .	2,466 10
Curtain repairs . . . . .	1,926 71
New clocks . . . . .	143 50
Clock repairs . . . . .	1,735 85
Electric clock maintenance . . . . .	1,213 48
	<hr/>
<i>Carried forward</i> . . . . .	\$105,071 70



<i>Brought forward</i> . . . . .	\$105,071 70
Electric clock installation . . . . .	1,019 26
Industrial apparatus installation . . . . .	1,711 89
Industrial apparatus maintenance . . . . .	504 80
Manual training and prevocational installation . . . . .	273 50
Manual training and prevocational maintenance . . . . .	460 11
Reflectoscope maintenance . . . . .	199 64
Reflectoscope installation . . . . .	200 50
Vacuum cleaning maintenance . . . . .	105 45
Vacuum cleaning installation . . . . .	445 50
Rubber treads and matting . . . . .	981 54
Blackboards:	
New . . . . .	226 80
Repairs . . . . .	3,824 63
Plumbing . . . . .	26,242 87
Roofing . . . . .	11,455 78
Painting . . . . .	23,791 79
Glazing . . . . .	8,123 33
Heating:	
Repairs . . . . .	72,073 52
Ventilation . . . . .	245 59
Care of grounds:	
Gypsy moths . . . . .	758 40
Planting . . . . .	1,007 50
Masonry:	
Repairs . . . . .	21,001 52
Plastering . . . . .	1,086 57
Paving . . . . .	3,807 73
Catch-basins . . . . .	3,659 91
Asphalt and concrete . . . . .	1,713 80
Waterproofing . . . . .	1,000 05
Grading . . . . .	55 00
Locks and Bells:	
Bells and telephone installation . . . . .	284 66
Bells and telephone maintenance . . . . .	1,881 56
Locksmithing . . . . .	3,047 96
Electric and Gas Work:	
Electric light installation . . . . .	12,625 87
Electric light maintenance . . . . .	2,625 38
Gas appliance installation . . . . .	446 76
Gas appliance maintenance . . . . .	864 63
Fire protection:	
Fire alarm installation . . . . .	25,343 55
Fire alarm maintenance . . . . .	4,089 23
<i>Carried forward</i> . . . . .	\$342,258 28

<i>Brought forward</i> . . . . .	\$342,258 28	
Fire escapes, new . . . . .	20,368 55	
Fire escapes, repairs . . . . .	2,086 36	
Fire extinguishers . . . . .	517 01	
Fire protection . . . . .	1,795 03	
Miscellaneous:		
Flagstaffs . . . . .	844 05	
Iron and wire work . . . . .	3,027 18	
Janitors' supplies . . . . .	275 31	
Care and cleaning . . . . .	841 80	
Teaming . . . . .	1,732 25	
Motors and engines . . . . .	2,031 96	
		<u>\$375,777 78</u>

## ADMINISTRATION EXPENSES.

Salaries, commissioners and clerks . . . . .	\$12,428 23	
Salaries, inspectors . . . . .	28,984 75	
Electric lighting of offices . . . . .	16 48	
Postage . . . . .	224 00	
Printing . . . . .	1,188 13	
Stationery . . . . .	459 20	
Advertising . . . . .	104 80	
Telephone . . . . .	53 10	
Automobile expenses . . . . .	10,187 82	
Furniture . . . . .	924 82	
Car fares, traveling expenses . . . . .	1,776 51	
Boiler insurance . . . . .	6,770 05	
Sundries . . . . .	50 40	
Subscription . . . . .	24 50	
Expert services . . . . .	—	
		<u>63,192 79</u>
Total repairs and administration expenses . . . . .		<u>\$438,970 57</u>

## RENTS AND TAXES.

Barham Memorial Church . . . . .	\$600 00
Boylston street, 48 . . . . .	1,472 84
Columbus avenue, 627 . . . . .	420 00
Eliot street, Jamaica Plain (Trustees Building), . . . . .	800 00
Everett Square Theater . . . . .	18 00
Glenway and Harvard streets . . . . .	150 00
Harvard street, 111 . . . . .	260 00
Harvard street, 143 and 145 . . . . .	63 33
Tremont Temple . . . . .	150 00
Franklin Union . . . . .	1,780 00
German Lutheran Church . . . . .	112 79
Glenway street, Dorchester . . . . .	300 00
Hanson street, 1 . . . . .	744 00
Hull street, 24 . . . . .	420 00
Hyde Park Gymnasium . . . . .	670 00
<i>Carried forward</i> . . . . .	<u>\$7,960 96</u>

<i>Brought forward</i> . . . . .	\$7,960 96	
La Grange street, 25 and 31 . . . . .	6,256 30	
Moon street . . . . .	7,965 00	
National Theater . . . . .	150 00	
North Bennet street, 39 . . . . .	2,810 00	
Reed street, 89 . . . . .	130 00	
Parmenter street, 20 . . . . .	20 00	
Saratoga street, 66 . . . . .	600 00	
Tileston street, 52 . . . . .	600 00	
Tremont street, 218 . . . . .	3,570 00	
Walnut avenue and Walnut park . . . . .	790 00	
Willowood street, 3 . . . . .	1,500 00	
	<hr/>	
Total rents and taxes . . . . .		<u>\$32,352 26</u>

## SUMMARY.

*Appropriations:*

Repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new lighting fixtures . . . . .	\$460,893 11	
Rents of hired school accommodations . . . . .	30,159 00	
	<hr/>	\$491,052 11

*Expenditures:*

Repairs and equipment . . . . .	\$375,777 78	
Administration expenses . . . . .	63,192 79	
Rents and taxes . . . . .	32,352 26	
	<hr/>	471,322 83
Balance . . . . .		<u>\$19,729 28</u>

## INCOME.

The income for the financial year was as follows:

## Tuition of non-resident pupils:

Normal School . . . . .	\$1,250 00
Latin and high schools . . . . .	3,501 52
Elementary schools . . . . .	767 91
Boston Clerical School . . . . .	42 50
Trade School for Girls . . . . .	5,067 73
Girls' Evening Trade School . . . . .	212 00
Boston Trade School . . . . .	483 94
Boston Trade School, evening classes . . . . .	367 99
Continuation School, voluntary . . . . .	78 00
Evening high schools . . . . .	19 08
Speech improvement classes . . . . .	—
Evening elementary schools . . . . .	112 84
Evening elementary schools, practical arts courses . . . . .	7 02
	<hr/>
<i>Carried forward</i> . . . . .	\$11,910 53

<i>Brought forward</i> . . . . .	\$11,910 53	
Summer Review High School . . . . .	23 00	
State wards (from the Commonwealth) . . . . .	991 50	
Tuition of deaf mutes (from the Commonwealth) . . . . .	20,726 25	
	<hr/>	\$33,651 28
Salaries of instructors overpaid refunded . . . . .		965 91
Smith Fund . . . . .		324 00
Stoughton Fund . . . . .		212 00
Aid from the Commonwealth for industrial education:		
Trade School for Girls:		
One half the net cost of maintenance for the period September 1, 1915, to August 31, 1916 . . . . .	\$24,639 68	
Boston Trade School:		
One half the net cost of maintenance for the period September 1, 1915, to August 31, 1916 . . . . .	16,407 09	
Boston Trade School, Evening Classes:		
One half the net cost of maintenance for the period September 1, 1915, to August 31, 1916 . . . . .	3,997 96	
Continuation School (Household Arts Class):		
One half the net cost of maintenance for the period September 1, 1915, to August 31, 1916 . . . . .	658 72	
Continuation School, Compulsory:		
One half the net cost of maintenance for the period September 1, 1915, to August 31, 1916 . . . . .	24,842 23	
Evening Practical Arts Courses:		
One half the net cost of maintenance for the period September 1, 1915, to August 31, 1916 . . . . .	4,153 74	
	<hr/>	74,699 42
One half tuition charges paid for Boston pupils attending state-aided schools in other cities and towns (from the Commonwealth) . . . . .		119 59
Traveling expenses of deaf mutes (from the Commonwealth),		3,049 95
Light at polling places (from Election Department) . . . . .		394 29
Sale of badges to licensed minors . . . . .		349 75
Sale of books and supplies (new) . . . . .		2,405 70
Sale of books and supplies (old) . . . . .		2,504 42
Damage to property . . . . .		5 05
Mechanic Arts High, work done for Schoolhouse Commission,		687 40
Mechanic Arts High, sale of materials, etc. . . . .		410 76
Sale of manual arts materials (elementary schools) . . . . .		1,306 98
Manual arts, work done for Schoolhouse Commission . . . . .		278 14
Incidentals . . . . .		20 64
		<hr/>
<i>Carried forward</i> . . . . .		\$121,385 28

<i>Brought forward</i> . . . . .		\$121,385 28	
Trade School for Girls:			
Sale of products . . . . .	\$11,719 00		
Interest on deposit . . . . .	23 62		
Telephone charges . . . . .	17 02		
			11,759 64
Boston Trade School:			
Sale of products . . . . .	\$379 06		
Work done for Schoolhouse Commission . . . . .	909 65		
Telephone charges . . . . .	83		
			1,289 54
Continuation School, Compulsory:			
Sale of products . . . . .	\$642 45		
Work done for Schoolhouse Commission . . . . .	10 25		
Telephone charges . . . . .	84		
			653 54
Telephone charges, schools . . . . .			251 57
Telephone charges, administrative offices . . . . .			7 54
Forfeiture test on disinfectant . . . . .			100 00
Rents of school buildings . . . . .			565 90
Forfeited advance payments:			
Evening high schools . . . . .	\$2,853 00		
Evening elementary schools . . . . .	1,546 00		
Boston Trade School, evening classes . . . . .	511 00		
Evening Trade School, girls . . . . .	55 00		
Interest . . . . .	204 48		
			5,169 48
Sale of second-hand furniture, etc. (Schoolhouse Commission),			340 85
Dog licenses . . . . .	\$22,480 00		
Less damages by dogs . . . . .	3,625 73		
			18,854 27
			<u>18,854 27</u>
Total income . . . . .			<u>\$160,377 61</u>

## INCOME FROM TRUST FUNDS.

Bowdoin Dorchester School Fund . . . . .	\$180 00		
Eastburn School Fund . . . . .	435 00		
Franklin Medal Fund . . . . .	35 00		
Gibson School Fund . . . . .	3,132 35		
Horace Mann School Fund . . . . .	304 00		
Teachers' Waterston Fund . . . . .	144 00		
			<u>\$4,230 35</u>

The above total of \$4,230.35 from the income of the above funds is available for and limited to expenditures under the provisions of these funds.

## AID FROM THE COMMONWEALTH FOR INDUSTRIAL EDUCATION.

Under the provisions of chapter 471 of the Acts of 1911, chapter 106 of the Acts of 1912, chapter 805 of

the Acts of 1913, and chapter 174 of the Acts of 1914, the Commonwealth has paid over into the city treasury during the past financial year the sum of \$56,322.20.

This sum is one half the net cost of maintenance of schools and classes established with the approval of the State Board of Education, as follows:

Trade School for Girls:	
From September 1, 1915, to August 31, 1916 . . . . .	\$24,639 68
Boston Trade School:	
From September 1, 1915, to August 31, 1916 . . . . .	16,407 09
Continuation School (Household Arts Class):	
From September 1, 1915, to August 31, 1916 . . . . .	658 72
Continuation School, Compulsory:	
From September 1, 1915, to August 31, 1916 . . . . .	24,842 23
Boston Trade School, evening classes:	
From September 1, 1915, to August 31, 1916 . . . . .	3,997 96
Evening Practical Arts Courses (Evening Elementary Schools):	
From September 1, 1915, to August 31, 1916 . . . . .	4,153 74
Total . . . . .	<u>\$74,699 42</u>

The Commonwealth does not bear any part of the cost of the buildings or their original equipment. At the present time there are seven activities established with the approval of the State Board of Education which come under the provisions of the above legislation, viz., Trade School for Girls, Evening Trade School (Girls), Boston Trade School, Boston Trade School Evening Classes, Continuation School (Household Arts Class), Compulsory Continuation School, and Class for Training of Continuation School Teachers.

#### NET EXPENDITURES.

Total expenditures . . . . .	\$6,361,021 53
Total income . . . . .	160,377 61
Net expenditures * . . . . .	\$6,200,643 92
Expenditures for new schoolhouses, additions, etc. (by the Schoolhouse Commission) † . . . . .	1,040,930 29
Total net expenditures ‡ . . . . .	<u>\$7,241,574 21</u>

\* That part of the total expenditures coming from the School Committee share of the tax levy.

† Partly from loans and partly from the tax levy. For details see the report of the Schoolhouse Commission.

‡ Exclusive of interest and sinking fund.

## COMPARISON OF EXPENDITURES.

The following statement shows the expenditures for the financial years 1916-17 and 1917-18, exclusive of lands and buildings, with the increases and decreases in the several items:

	1917-18.	1916-17.	Increases, 1917-18.
Salaries of instructors.....	\$4,418,639 17	\$4,334,492 97	\$84,146 20
Salaries of officers.....	150,527 11	149,845 16	681 95
Salaries of janitors.....	351,941 29	346,485 35	5,455 94
Fuel and light.....	303,380 54	204,919 26	98,461 28
Supplies and incidentals.....	358,523 82	276,426 79	82,097 03
Physical education, including special appropriation.	92,186 18	83,413 54	8,772 64
Nurses.....	35,490 34	34,782 97	707 37
Medical inspection.....	28,339 92	26,254 19	2,085 73
Pensions to retired teachers.....	104,347 95	96,029 97	8,317 98
Payments to permanent pension fund.....	5,432 37	11,631 48	* 6,199 11
Extended use of the public schools.....	32,888 99	30,084 91	2,804 08
Pensions to attendance officers and janitors,	8,001 02	8,203 13	* 202 11
Repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new lighting fixtures (by Schoolhouse Commission).	438,970 57	410,257 68	28,712 89
Rents of hired school accommodations (by Schoolhouse Commission).	32,352 26	33,299 23	* 946 97
Totals.....	\$6,361,021 53	\$6,046,126 63	\$314,894 90

\* Decrease.

## PENSIONS.

In 1908 and each year thereafter up to and including 1914, the School Committee, under the authority of section 4 of chapter 589 of the Acts of 1908, appropriated for the purpose of paying pensions and making payments to the Permanent Pension Fund, the sum of five cents on each \$1,000 of the valuation of the city, upon which appropriations by the City Council are based.

During the year 1913-14 the sum so appropriated was found insufficient to pay pensions for the year, and the additional sum of \$880.43 was transferred from the accrued interest of the Permanent Pension Fund.

In 1914-15 a transfer of \$7,628.60 from the same fund was found to be necessary for the same reason.

Chapter 304 of the Acts of 1915 has made available from the tax levy seven cents on each \$1,000 of the valuation of the city, which, during the past year, amounted to \$109,780.32.

Chapter 289 of the Special Acts of 1916 provided that "The sums payable by the Commonwealth to the City of Boston under the provisions of section 13 of chapter 832 of the Acts of the year 1913, being an act to establish a retirement system for public school teachers, as reimbursement for certain pensions paid by the city to retired school teachers, shall be put into the current pension fund held by the School Committee of the City of Boston and used in accordance with the provisions of chapter 589 of the Acts of the year 1908." Under this act the sum of \$24,321.96 paid over by the Commonwealth to the city became available during the current financial year and was entered to the credit of the Permanent Pension Fund.

Since the enactment of chapter 589 of the Acts of 1908, payments as pensions and to the Permanent Pension Fund have been distributed as shown in the following table.

FINANCIAL YEAR.	Pensions to Retired Teachers from the Tax Levy.	Payments to the Permanent Pension Fund from the Tax Levy.	Payments to the Permanent Pension Fund by the Commonwealth.*
1908-09.....	\$1,678 50	—	
1909-10.....	8,075 12	\$119,181 08	
1910-11.....	26,247 88	39,946 77	
1911-12.....	55,350 31	12,420 53	
1912-13.....	64,510 76	5,681 66	
1913-14.....	† 72,893 19	—	
1914-15.....	‡ 81,482 96	—	
1915-16.....	90,011 87	15,741 25	
1916-17.....	96,029 97	11,631 48	
1917-18.....	104,347 95	5,432 37	\$24,321 96
Totals.....	\$600,628 51	\$210,035 14	\$24,321 96
Grand total, ten years,	.....	.....	\$834,985 61

\* Under chapter 289, Special Acts of 1916.

† Including \$880.43 transferred from the accrued interest of the Permanent Pension Fund.

‡ Including \$7,628.60 transferred from the accrued interest of the Permanent Pension Fund.



## INCREASES IN TEACHERS' SALARIES.

Under the authority of chapter 708 of the Acts of 1911, during the past financial year the School Committee appropriated a sum equal to 25 cents on each \$1,000 of the average valuation of the city, upon which the appropriations by the City Council are based, for the purpose of maintaining increases in the salaries of teachers over and above those provided in the schedules for the year ending August 31, 1911. This sum amounted to \$392,072.59.

Under a resolution of the School Committee, adopted on January 1, 1913, 20 cents upon each \$1,000, amounting to \$313,658.08, was set aside for increasing the salaries of teachers of those ranks of the elementary day schools for which the maximum salary for the year ending August 31, 1911, was \$1,000 or less. The actual cost of the increases in the salaries of such teachers during the past financial year was \$312,831.85.

The cost of increasing the salaries of other classes of teachers in the elementary and other schools of those ranks for which the maximum salary for the year ending August 31, 1911, was more than \$1,000 was \$102,447.62.

The actual cost of the salaries of teachers in all ranks during the past financial year was therefore greater than it would have been under the schedules for the year ending August 31, 1911, by \$415,279.47. Such cost was in excess of the 25 cents made available by the above law by the amount of \$23,206.88.

## DISTRIBUTION OF EXPENDITURES.

The distribution of the total expenditures, exclusive of lands and buildings, pensions, repairs, alterations and rents, in percentage of the whole sum, is shown on page 26.

Salaries of instructors . . . . .	\$4,418,639 17	76.5
Salaries of officers . . . . .	150,527 11	2.6
Salaries of janitors . . . . .	351,941 29	6.1
Fuel and light . . . . .	303,380 54	5.3
Supplies and incidentals . . . . .	358,523 82	6.2
Physical education . . . . .	92,186 18	1.6
Nurses . . . . .	35,490 34	0.6
Medical inspection . . . . .	28,339 92	0.5
Extended use of the public schools . . . . .	32,888 99	0.6
<i>Total</i> . . . . .	\$5,771,917 36	100.0

#### SUPPLIES AND INCIDENTALS.

The expenditures for the year under the appropriation for Supplies and Incidentals were as follows:

Text-books . . . . .	\$49,244 92
Supplementary books . . . . .	13,663 15
Reference books . . . . .	3,398 19
Music sheets . . . . .	701 88
Globes . . . . .	115 94
Maps . . . . .	2,851 31
Charts . . . . .	262 38
Musical instruments (new) . . . . .	863 52
Musical instruments (repaired) . . . . .	—
Piano covers, etc. . . . .	40 00
Piano tuning . . . . .	1,633 75
Moving pianos . . . . .	142 00
Manual training supplies (high and elementary schools) . . . . .	32,608 32
Drawing supplies (high and elementary schools) . . . . .	21,135 34
Science apparatus and supplies . . . . .	4,888 23
Laboratory assistance, perishable supplies and incidentals . . . . .	1,007 62
Supplies and equipment, commercial classes . . . . .	5,089 64
Typewriters for high schools . . . . .	1,970 00
Kindergarten supplies . . . . .	6,811 27
Sewing supplies and equipment . . . . .	1,436 79
Cooking supplies and equipment . . . . .	11,808 09
Supplies for Busy Work . . . . .	3,037 06
Penmanship supplies, high schools . . . . .	175 00
Penmanship supplies, elementary schools . . . . .	2,618 39
<i>Carried forward</i> . . . . .	\$165,502 79

<i>Brought forward</i> . . . . .	\$165,502 79
Supplies and equipment for Compulsory Continuation School . . . . .	3,623 31
Trade School for Girls, supplies and equipment . . . . .	8,110 87
Boston Trade School, supplies and equipment . . . . .	8,269 08
Evening Practical Arts Courses . . . . .	211 41
Supplies for general educational purposes . . . . .	13,019 76
Printing and printing stock . . . . .	19,343 96
Advertising . . . . .	255 74
Records, proceedings, etc. . . . .	1,872 47
Account books . . . . .	326 82
Stationery . . . . .	68,192 16
Postage (offices and departments) . . . . .	3,558 21
Postage (schools) . . . . .	1,412 70
Office equipment . . . . .	777 10
Office supplies . . . . .	1,071 88
Janitors' supplies . . . . .	14,843 58
Expressage . . . . .	802 63
Railroad and other fares for Horace Mann School pupils (except street car tickets) . . . . .	974 95
Car tickets as authorized by Board . . . . .	5,768 20
Tuition, wards of the city . . . . .	11,224 95
Tuition, others . . . . .	10,721 15
Diplomas . . . . .	2,778 08
Removing ashes . . . . .	1,722 00
Surety bonds . . . . .	50 00
School Committee Contingent Fund . . . . .	233 50
Board of Superintendents' Contingent Fund . . . . .	463 29
Assistance at teachers' examinations . . . . .	1,091 00
Promotional examinations, lectures, etc. . . . .	220 68
School exhibits . . . . .	5 40
Telephone and telegraph . . . . .	3,391 80
Telephone (schools) . . . . .	934 60
Bath expenses . . . . .	1,253 05
Badges for licensed minors . . . . .	151 75
Supplies, Advisory Committee on Music . . . . .	225 32
Professional and Cultural Courses for Teachers . . . . .	1,147 70
Supplies and equipment for automobiles . . . . .	1,244 62
Services of accountants, auditing accounts . . . . .	1,000 00
Expert services to Business Agent . . . . .	860 48
Traveling expenses of Business Agent . . . . .	79 91
Supplies for Department of Promotion and Educational Measurement . . . . .	573 53
Supplies for connecting the work of kindergarten and the primary grades . . . . .	12 63
Sundries . . . . .	1,200 76
Total . . . . .	<u>\$358,523 82</u>

## FUEL AND LIGHT.

Bituminous Coal. Number of Tons.	Anthracite Coal. Number of Tons.		
22,067 <sup>625</sup> / <sub>2000</sub>	8,503 <sup>390</sup> / <sub>2000</sub>	. . . . .	\$241,804 86
		Total . . . . .	\$241,804 86
Expenses sampling, testing and expert advice on coal . . . . .			943 72
Expenses moving coal and wood . . . . .			52 62
351 <sup>3</sup> / <sub>4</sub> cords of wood . . . . .			4,204 60
			<u>\$247,005 80</u>
Add premiums allowed contractors on account of quality of coal exceeding contract requirements . . . . .			159 24
			<u>\$247,165 04</u>
Deduct penalties exacted from contractors on account of quality of coal falling below contract requirements . . . . .			807 66
			<u>\$246,357 38</u>
Deduct amount charged to appropriation, Extended Use of the Public Schools, for cost of fuel used in school centers and other activities . . . . .			3,371 77
Net total, fuel . . . . .			<u>\$242,985 61</u>
LIGHT AND POWER.			
Electric current for light . . . . .		\$46,965 84	
Electric current for power . . . . .		8,801 52	
Gas . . . . .		6,999 92	
Mazda lamps . . . . .		121 60	
			<u>\$62,888 88</u>
Deduct amount charged to appropriation, Extended Use of the Public Schools, for cost of light used in school centers and other activities . . . . .		2,493 95	
Net total, light and power . . . . .			<u>60,394 93</u>
Total net expenditures, fuel and light . . . . .			<u><u>\$303,380 54</u></u>

From the first of the financial year up to and including the fifteenth of June all coal was secured from the City Fuel Company under contract with that organization covering the period June 16, 1915, to June 15, 1917, inclusive, at the prices shown in the following table.

From September 1 to the end of the financial year, it having been found impossible to make contracts, coal was purchased wherever possible and at the best prices that could be obtained, those subsequent to October 1 being fixed by the Fuel Administration. The coal was purchased from the following firms: City Fuel Company, Massachusetts Wharf Coal Company, Metropolitan Coal Company, Stetson Coal Company, Wellington-Wild Coal Company, J. McGovern Coal Company, John A. Whittemore's Sons, Brighton Coal Company, D. Doherty & Co., William H. Harlow & Sons, E. S. Morse Company, J. T. Tighe Company, Godfrey Coal Company, American Oil Company, Burton-Furber Company, Castner, Curran and Bullitt, Inc., D. J. Cutter, Roxbury Coal Company, Staples Coal Company.

The prices paid for coal are also shown in the following table.

Table showing range in prices paid for coal during financial year 1917-18:

MONTH.	Bituminous.	Furnace.	Stove.	Egg.	Nut.
January, 1917.....	\$5 15	\$6 40	\$6 90	\$6 90	\$7 15
February, " .....	5 15	6 40	6 90	6 90	7 15
March, " .....	5 15	6 40	6 90	6 90	7 15
April, " .....	5 15	6 40	6 90	6 90	7 15
May, " .....	5 15	6 40	6 90	6 90	7 15
June, " .....	5 15	6 40	6 90	6 90	7 15
July, " .....	—	—	—	—	—
August, " .....	—	—	—	—	—
September, " .....	9 75	10 00	10 00	10 00	10 00
October, " .....	9 75	10 00	10 00	10 00	10 00
November, " .....	9 75	10 00	10 00	10 00	10 00
December, " .....	9 75	10 00	10 00	10 00	10 00
January, 1918.....	9 75 to 11 50	9 65 to 10 00	9 65 to 10 00	10 00 to 10 25	10 00

## COST IN DETAIL.

On the appended sheets will be found the costs of each school in detail, the average membership or the average attendance and the cost per pupil based on average membership or average attendance, the cost per pupil hour of instruction, and the cost per pupil hour for all direct charges.

The costs of the several playgrounds are also given and the cost per pupil per session.

The total cost of each group of schools is also given, and the average cost per pupil is shown.

These figures give only the costs of the several schools or groups of schools, exclusive of costs of administration, supervision and general charges.

To get the whole cost, the costs of administration, supervision and general charges must be apportioned among the several groups of schools.

The method of apportioning the costs of administration, supervision and general charges has been as follows: Any part of these costs which could be charged directly against a school or group of schools has been so charged. The remaining cost of administration, offices of superintendent, assistant superintendents, secretary, business agent and schoolhouse custodian have been apportioned to the several groups of schools in proportion to the number of teachers therein. For the purpose of this apportionment the number of teachers in the evening schools and summer review schools has been reduced to a basis which takes into consideration the amount of service rendered during the year as compared with that rendered by the teachers in the elementary day schools.

The method of apportioning the costs of the educational departments has been as follows: Any part of these costs which could be charged directly against a school or group of schools has been so charged; the balance of the costs of these departments has been apportioned in accordance with the method hereinafter described.

The costs of the departments of manual arts, music, practice and training and educational investigation and measurement have been apportioned to the several groups of schools in proportion to the number of teachers therein coming under the supervision of these several departments.

The cost of the department of evening schools has been divided as follows: Evening high schools, 30 per cent; evening elementary schools, 35 per cent; evening trade schools, 5 per cent; evening school extension (including summer classes), 10 per cent; day school for immigrants, 20 per cent.

The whole of the costs of the offices of director of kindergartens, director of household science and arts and supervisor of special classes has been charged to the elementary schools.

The cost of the office of director of salesmanship has been apportioned two thirds to the high schools and one third to the compulsory continuation school.

The cost of vocational guidance has been apportioned to the high and elementary schools in proportion to the number of teachers therein.

The cost of attendance officers has been apportioned to the certificating office and the schools in proportion to the amount of service given to each.

The cost of the department of school hygiene has been apportioned as follows: The cost of the office of the director of medical inspection has been apportioned to the several groups of schools in proportion to the number of teachers therein. The salary of the assistant director of athletics has been apportioned to the several groups of schools and to the playgrounds in proportion to the time required on each as estimated. The salary of the medical inspector has been charged to the elementary schools, and the cost of the annual parade to high and Latin schools. The cost of the office of supervising nurse has been charged to elementary schools. Supplies have been charged to the schools or playgrounds to which they were sent, and the remaining cost of this

department, including the salaries of the clerks, have been apportioned one fourth to the playgrounds and the other three fourths to the several groups of schools in proportion to the number of teachers in each.

The cost of supervision in connection with extended use of the public schools has been apportioned as follows: School centers, 80 per cent; lectures, 15 per cent; use of school accommodations for municipal concerts, parents' meetings, etc., 5 per cent.

None of the cost of administration or the general account has been charged to playgrounds or the extended use of public schools.

This apportionment is, of course, to a certain extent arbitrary, but as these costs of administration and supervision are given in detail any other apportionment can easily be made.

#### APPORTIONMENT OF INCOME.

Any part of the income which could be directly credited to a school or group of schools has been so credited, and the balance has been apportioned in proportion to the number of teachers in each such school or group of schools.

The result is as follows:

Normal School . . . . .	\$1,387 11
Latin and high schools . . . . .	9,700 08
Elementary schools . . . . .	23,609 01
Speech Improvement classes . . . . .	54 84
Horace Mann School . . . . .	23,885 89
Trade School for Girls, day and evening classes . . . . .	42,154 85
Boston Trade School . . . . .	18,317 67
Continuation School, Voluntary . . . . .	764 14
Continuation School, Compulsory . . . . .	25,824 83
Boston Clerical School . . . . .	97 34
Boston Disciplinary Day School . . . . .	27 42
Day School for Immigrants . . . . .	27 42
Summer Review High School . . . . .	50 42
Summer Review elementary schools . . . . .	164 53
<i>Carried forward</i> . . . . .	<hr/> \$146,065 55



<i>Brought forward</i> . . . . .	\$146,065 55
Boston Trade school, evening classes . . . . .	4,924 37
Evening high schools . . . . .	3,161 61
Evening elementary schools . . . . .	6,198 66
Central Evening Elementary School . . . . .	27 42
Summer Citizenship classes (evening) . . . . .	—
Total income . . . . .	<u>\$160,377 61</u>

No part of the income has been credited to the playgrounds or to the extended use of the public schools.

## COST OF ADMINISTRATION, SUPERVISION AND GENERAL CHARGES.

### ADMINISTRATION.

#### SECRETARY.

Salary of the Secretary . . . . .	\$4,740 00	
Salary of chief clerk . . . . .	1,860 00	
Salaries of clerks and stenographers (five on full time) . . . . .	4,576 00	
Temporary clerical service . . . . .	93 00	
Books . . . . .	—	
Office supplies and equipment . . . . .	434 44	
Typewriter . . . . .	—	
Printing and binding . . . . .	117 04	
Telephone and telegraph . . . . .	\$80 86	
Telephone switchboard charge . . . . .	95 36	
	176 22	
Postage . . . . .	589 98	
Boston Directory . . . . .	6 00	
Car fares and incidentals . . . . .	9 75	
	—	
Total . . . . .		\$12,602 43

#### BUSINESS AGENT.

Salary of the Business Agent . . . . .	\$4,740 00	
Salary of chief accountant . . . . .	2,540 00	
Salaries of clerks and stenographers (twelve on full time, one to August 21, 1917, one from September 4, 1917, and one from December 17, 1917) . . . . .	13,653 67	
Temporary clerical service . . . . .	339 50	
Salaries of supply room assistants (nine) . . . . .	10,018 75	
Salary of chauffeur, automobile truck . . . . .	1,120 00	
Temporary and emergency assistance, supply room . . . . .	1,031 00	
Expert services on preparation of proposed schedule of salaries for janitors . . . . .	263 98	
Account books . . . . .	320 80	
Surety bond . . . . .	50 00	
Books . . . . .	—	
Office supplies and equipment . . . . .	448 66	
Telephone and telegraph (office) . . . . .	\$163 85	
Telephone switchboard charge . . . . .	95 36	
	259 21	
Printing . . . . .	210 53	
Postage . . . . .	461 10	
	—	
<i>Carried forward</i> . . . . .		\$35,457 20

<i>Brought forward</i> . . . . .	\$35,457 20
Binding account books and certifications . . . . .	55 82
Boston Directory . . . . .	6 00
Traveling expenses of Business Agent . . . . .	79 91
Car and railroad fares, assistants . . . . .	4 10
Allowance for petty cash transactions . . . . .	50 00
Incidentals . . . . .	39 51

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\$35,692 54

## Credits:

Allowance for petty cash transactions expended . . . . .	50 00
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\$35,642 54

*Supply Room.*

Equipment and supplies . . . . .	\$455 81
Car fares . . . . .	30 20
Expressage . . . . .	400 25
Telephone and telegraph . . . . .	\$141 67
Telephone switchboard charge . . . . .	63 56

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205 23

Printing . . . . .	—
Postage . . . . .	14 79
Office supplies and equipment . . . . .	25 19
Account books . . . . .	18 58
Binding record books . . . . .	8 10
Lunches for assistants . . . . .	—
Incidentals . . . . .	12 11

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1,170 26

*Automobile Truck.*

Tires and tire repairs (including inner tubes) . . . . .	\$371 11
Gasoline . . . . .	188 19
Lubricants . . . . .	23 27
Repairs and miscellaneous parts . . . . .	422 82
Registration fees . . . . .	2 00
Renewal of chauffeurs' licenses . . . . .	4 50
Incidentals . . . . .	5 25

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1,017 14

Total . . . . .	<u>\$37,829 94</u>
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## SCHOOLHOUSE CUSTODIAN.

Salary of Schoolhouse Custodian . . . . .	\$3,000 00
Salary of stenographer . . . . .	860 00
Salary of temporary janitor, assigned . . . . .	9 89
Temporary clerical service . . . . .	36 00
Office supplies and equipment . . . . .	50 82
Printing . . . . .	20 69
Postage . . . . .	140 00

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*Carried forward* . . . . . \$4,117 40

<i>Brought forward</i> . . . . .		\$4,117 40	
Telephone and telegraph . . . . .	\$47 88		
Telephone switchboard charge . . . . .	31 78		
		<hr/>	79 66
Car tickets . . . . .			14 00
Incidentals . . . . .			20 29
			<hr/>
			\$4,231 35

*Automobile.*

Garage storage . . . . .		\$3 75	
Tires and tire repairs (including inner tubes) . . . . .		137 76	
Electric light . . . . .		17 20	
Gasoline . . . . .		121 57	
Lubricants . . . . .		1 95	
Miscellaneous parts and repairs . . . . .		208 34	
Oxygen . . . . .		62	
Washing and polishing . . . . .		2 50	
Registration fee . . . . .		10 00	
Incidentals . . . . .		2 90	
			<hr/>
			506 59
			<hr/>
Total . . . . .			<u>\$4,737 94</u>

## SUPERINTENDENT.

Salary of Superintendent . . . . .	\$10,000 00		
Salary of secretary to September 30, 1917 . . . . .	2,385 00		
Salaries of clerks and stenographers (nine full time, one to September 6, 1917, one from October 2, 1917, and one from October 18, 1917) . . . . .		7,953 07	
Temporary clerical service . . . . .		1,979 00	
Multigraph . . . . .		270 00	
Typewriter . . . . .		—	
Office supplies and equipment . . . . .		463 83	
Printing . . . . .		127 99	
Telephone and telegraph . . . . .	\$176 62		
Telephone switchboard charge . . . . .	206 59		
		<hr/>	383 21
Postage . . . . .			510 04
Boston Directory . . . . .			6 00
Traveling expenses . . . . .			120 83
Books . . . . .			10 00
Messenger service and telegrams . . . . .			12 22
Incidentals . . . . .			43 50
			<hr/>
			\$24,264 69

*Newsboys' Trial Board.*

Salaries of judges . . . . .	\$62 50		
Salary of clerk . . . . .	26 00		
Printing . . . . .	12 87		
		<hr/>	101 37
			<hr/>
Total . . . . .			<u>\$24,366 06</u>

ASSISTANT SUPERINTENDENTS.

Salaries of Assistant Superintendents (four full time, one to August 31, 1917, and one from September 1, 1917) . . . . .	\$27,480 00	
Salaries of stenographers (two) . . . . .	1,920 00	
Services of janitor, room used in connection with preparation of course of study . . . . .	1 00	
Office supplies and equipment . . . . .	99 77	
Printing . . . . .	52 01	
Telephone and telegraph . . . . .	\$102 14	
Telephone switchboard charge . . . . .	158 92	
		261 06
Postage . . . . .		127 25
Assistance at teachers' examinations . . . . .	1,088 02	
Supplies for examinations . . . . .	17 61	
Traveling expenses . . . . .	87 85	
Books and magazine subscriptions . . . . .	81 58	
Incidentals . . . . .	10 80	
		<u>\$31,226 95</u>
Credit:		
Dictaphone transferred . . . . .		100 00
		<u>\$31,126 95</u>

ADMINISTRATION ACCOUNT.

Mason Street Building:		
Salary of janitor . . . . .	\$1,916 72	
Fuel . . . . .	664 18	
Electric light . . . . .	1,199 68	
Gas . . . . .	56 63	
Janitor's supplies . . . . .	67 64	
Subscriptions to newspapers . . . . .	46 43	
Towels . . . . .	169 99	
Ice . . . . .	20 00	
Supplies (stationery) . . . . .	53 00	
Incidentals . . . . .	9 04	
		<u>\$4,203 31</u>
Dartmouth Street:		
Salary of janitor . . . . .	\$460 72	
Fuel . . . . .	100 00	
Electric light . . . . .	52 75	
Towels . . . . .	39 00	
Janitor's supplies . . . . .	5 54	
Ice . . . . .	15 00	
		<u>673 01</u>
218 Tremont Street:		
Salary of janitor . . . . .	\$437 32	
Electric light . . . . .	169 80	
		<u>\$4,876 32</u>
Carried forward . . . . .	\$607 12	

<i>Brought forward</i> . . . . .	\$607 12	\$4,876 32
Janitor's supplies . . . . .	8 67	
Towels . . . . .	20 90	
Water cooler . . . . .	11 00	
Ice . . . . .	17 50	
Incidentals . . . . .	30	
	<hr/>	665 49
801 City Hall Annex:		
Janitor's supplies . . . . .	\$7 86	
Towels . . . . .	46 80	
	<hr/>	54 66
School Committee:		
Stationery . . . . .	\$43 67	
Postage . . . . .	53 00	
Printing . . . . .	2 00	
Books . . . . .	45	
Telephone and telegraph . . . . .	39 23	
Supplies . . . . .	15 19	
Refreshments . . . . .	233 50	
Incidentals . . . . .	66	
	<hr/>	387 70
General Expense:		
Auditing accounts of Business Agent . . . . .	\$850 00	
Advisory Committee on Music expenses . . . . .	253 82	
Inspecting Course of Study in Psychology, Normal School . . . . .	50 00	
Services of janitor, Normal School . . . . .	98 00	
	<hr/>	1,251 82
Janitors' Trial Board:		
Attendance of janitor member at hearings . . . . .		2 00
Printing:		
Minutes . . . . .	\$1,910 16	
Index to minutes . . . . .	709 43	
Binding minutes . . . . .	65 00	
Binding documents . . . . .	118 20	
Teachers' examinations . . . . .	1,443 87	
Manuals . . . . .	1,047 04	
Pay rolls . . . . .	154 78	
Book labels . . . . .	183 80	
Book receipts . . . . .	120 00	
Bills and statements . . . . .	82 53	
Normal, Latin and high schools . . . . .	964 15	
Elementary schools . . . . .	236 04	
High, elementary and industrial schools . . . . .	709 68	
Summer Review High School . . . . .	54 61	
Summer Review elementary schools . . . . .	79 17	
Summer Review high and elementary schools, . . . . .	5 00	
Business Agent's report . . . . .	1,063 14	
Superintendent's report . . . . .	539 21	
	<hr/>	
<i>Carried forward</i> . . . . .	\$9,485 81	\$7,237 99

<i>Brought forward</i> . . . . .	\$9,485 81	\$7,237 99
Rules and Regulations . . . . .	579 55	
Requisition books . . . . .	261 50	
Course of Study, Normal School . . . . .	46 20	
Course of Study, High School of Commerce, . . . . .	29 02	
Syllabus for Grade II . . . . .	261 84	
Syllabus for Grade V . . . . .	372 66	
Syllabus for Grade VI . . . . .	362 83	
Syllabus, drawing and manual training, Grades I, II and III . . . . .	133 96	
Syllabus, drawing and manual training, Grades IV, V, VI, VII and VIII . . . . .	227 99	
Teachers' daily program . . . . .	51 02	
Outline of work in English for intermediate classes . . . . .	26 97	
Outline of work in Spanish for intermediate classes . . . . .	39 34	
Outlines of work in geography and history for intermediate classes . . . . .	101 74	
Outline of work in French and German for intermediate classes . . . . .	78 19	
Outline of work in mathematics for inter- mediate classes . . . . .	24 85	
Course of Study in General Science for intermediate classes . . . . .	140 07	
List of text and supplementary books for intermediate classes . . . . .	37 99	
Syllabus for kindergartens . . . . .	115 56	
Appraisal Courtis Standard Tests . . . . .	170 33	
Lists, eligible candidates . . . . .	186 06	
Reappointment of teachers and members of the supervising staff . . . . .	132 69	
Circulars of information in regard to the examination, certification, etc., of teachers and members of the supervising staff . . . . .	147 64	
Teaching of spelling . . . . .	77 72	
Standards on Silent Reading . . . . .	87 24	
Curricula for general high schools . . . . .	90 18	
Guide to a choice of a suitable secondary school . . . . .	236 34	
Schedule of teachers' salaries . . . . .	59 29	
Course of study, Latin schools . . . . .	119 19	
Applications for use of school buildings . . . . .	26 50	
Annual statistics . . . . .	483 08	
Stock for printing . . . . .	2,544 92	
Miscellaneous . . . . .	92 31	
	<hr/>	16,830 58
Total . . . . .		<u>\$24,068 57</u>

## SUPERVISION OR PROFESSIONAL CONTROL.

## DEPARTMENT OF PRACTICE AND TRAINING.

Salary of First Assistant Director to December 2, 1917 . . . . .	\$1,998 00	
Salaries of Assistant Directors (three on full time and one from September 17, 1917) . . . . .	6,422 06	
Salary of clerk . . . . .	1,008 00	
Office supplies . . . . .	37 04	
Printing . . . . .	78 42	
Postage . . . . .	66 00	
Telephone . . . . .	\$75 54	
Telephone switchboard charge . . . . .	31 78	
	<hr/>	107 32
Books and subscriptions . . . . .	30 70	
	<hr/>	
Total . . . . .		<u>\$9,747 54</u>

## DEPARTMENT OF EDUCATIONAL INVESTIGATION AND MEASUREMENT.

*Salaries and Office Expenditures.*

Salary of Director of Promotion and Educational Measurement to September 1, 1917 . . . . .	\$2,520 00	
Salary of Submaster, assigned . . . . .	2,336 67	
Salaries of teachers, assigned . . . . .	843 47	
Salaries of clerks (two on full time) . . . . .	1,604 16	
Temporary clerical services . . . . .	—	
Office supplies and equipment . . . . .	133 71	
Postage . . . . .	58 00	
Printing . . . . .	27 50	
Telephone . . . . .	\$12 77	
Telephone switchboard charge . . . . .	31 78	
	<hr/>	44 55
Incidentals . . . . .	—	
	<hr/>	\$7,568 06

*Educational Measurement.*

Printing . . . . .	\$131 92	
Car tickets . . . . .	25 00	
Telephone . . . . .	19 45	
Supplies for tests . . . . .	669 89	
Repairs to clocks . . . . .	25 10	
Incidentals . . . . .	18 60	
	<hr/>	889 96
Total . . . . .		<u>\$8,458 02</u>

## VOCATIONAL GUIDANCE.

Salary of Director . . . . .	\$1,860 00
Salaries of Vocational Assistants (one on full time, two on part time) . . . . .	2,894 80
	<hr/>
Carried forward . . . . .	\$4,754 80



<i>Brought forward</i> . . . . .	\$4,754 80	
Salaries of Temporary Vocational Assistants (two on part time) . . . . .	541 47	
Salary of clerk (part time) . . . . .	268 33	
Temporary clerical service . . . . .	110 00	
Office supplies and equipment . . . . .	64 92	
Printing . . . . .	74 82	
Postage . . . . .	67 00	
Telephone . . . . .	38 04	
Car tickets . . . . .	61 60	
Books and subscriptions . . . . .	39 25	
Incidentals . . . . .	3 86	
		<hr/>
Total . . . . .		<u>\$6,024 09</u>

## DEPARTMENT OF MANUAL ARTS.

Salary of Director of Manual Art . . . . .	\$3,420 00	
Salary of Associate Director of Manual Arts . . . . .	3,300 00	
Salaries of Assistant Directors (two) . . . . .	4,621 57	
Salary of Temporary Assistant Director . . . . .	1,038 74	
Salaries of Assistants in Manual Arts (eight) . . . . .	12,186 06	
Salaries of temporary teachers at Museum of Fine Arts . . . . .	544 50	
Salary of Temporary Assistant . . . . .	660 68	
Salary of manual training teacher, assigned . . . . .	784 00	
Salary of teacher not otherwise charged . . . . .	67 09	
Salaries of clerks (one on full and one on part time) . . . . .	1,326 66	
Temporary clerical service . . . . .	230 00	
Office supplies and equipment . . . . .	238 73	
Printing . . . . .	75 30	
Postage . . . . .	192 00	
Books and subscriptions . . . . .	322 04	
Telephone . . . . .	99 41	
Drawing supplies . . . . .	82 27	
Manual training supplies . . . . .	4 35	
Incidentals . . . . .	28 99	
		<hr/>
		\$29,222 39
Supplies for schools:		
Drawing supplies not otherwise charged . . . . .	\$280 45	
Manual training supplies not otherwise charged . . . . .	228 81	
Printing lists of visits . . . . .	37 16	
Printing illustrations . . . . .	444 61	
Printing illustrations of room interior . . . . .	42 95	
Printing, miscellaneous . . . . .	192 52	
Manual training supplies not severally charged to schools . . . . .	74 09	
		<hr/>
<i>Carried forward</i> . . . . .	\$1,300 59	<u>\$29,222 39</u>

<i>Brought forward</i> . . . . .	\$1,300 59	\$29,222 39
Car tickets for pupils in prevocational centers . . . . .	25 00	
Incidentals . . . . .	1 25	
	<hr/>	1,326 84
Gardening:		
Salaries of Supervisors, Instructors and Assistants . . . . .	\$2,402 00	
Expenses . . . . .	167 23	
	<hr/>	2,569 23
Total . . . . .		<u><u>\$33,118 46</u></u>

## DEPARTMENT OF MUSIC.

Salary of Director of Music . . . . .	\$3,089 67	
Salaries of Assistant Directors (four) . . . . .	10,015 11	
Salaries of Assistants (nine) . . . . .	11,426 08	
Salaries of clerks (two on part time) . . . . .	303 59	
Office supplies . . . . .	6 86	
Printing . . . . .	17 25	
Postage . . . . .	68 78	
Telephone . . . . .	\$23 41	
Telephone switchboard charge . . . . .	31 78	
	<hr/>	55 19
Services in connection with outside study of music by pupils . . . . .	100 00	
Printing, outside study of music . . . . .	36 15	
Books and subscriptions . . . . .	646 29	
Incidentals . . . . .	16 80	
	<hr/>	\$25,781 77
Tuning and care of pianos . . . . .		1,620 00
Total . . . . .		<u><u>\$27,401 77</u></u>

## DIRECTOR OF KINDERGARTENS.

Salary of the Director of Kindergartens . . . . .	\$2,254 45	
Salary of Assistant Director . . . . .	1,500 00	
Salary of clerk (part time) . . . . .	425 32	
Office supplies and equipment . . . . .	43 32	
Books . . . . .	—	
Printing . . . . .	14 48	
Postage . . . . .	61 00	
Telephone . . . . .	\$6 38	
Telephone switchboard charge . . . . .	15 89	
	<hr/>	22 27
Incidentals . . . . .		66
Total . . . . .		<u><u>\$4,321 50</u></u>

DIRECTOR OF HOUSEHOLD SCIENCE AND ARTS.

Salary of the Director of Household Science and Arts . . . . .	\$2,683 25	
Salary of Assistant Director . . . . .	1,496 25	
Salary of clerks (two on part time) . . . . .	425 33	
Books and subscriptions . . . . .	107 21	
Office supplies and equipment . . . . .	40 07	
Printing . . . . .	45 46	
Postage . . . . .	24 00	
Telephone . . . . .	\$9 58	
Telephone switchboard charge . . . . .	15 89	
		25 47
Incidentals . . . . .		13 81
		<hr/>
Total . . . . .		<u>\$4,860 85</u>

SUPERVISOR OF SPECIAL CLASSES.

Salary of the Supervisor of Special Classes . . . . .	\$1,980 00	
Salary of clerk (part time) . . . . .	339 75	
Books and subscriptions . . . . .	10 60	
Office supplies and equipment . . . . .	46 82	
Printing . . . . .	50 22	
Postage . . . . .	61 95	
Telephone . . . . .	\$7 23	
Telephone switchboard charge . . . . .	15 89	
		23 12
Car fares . . . . .		40 75
Incidentals . . . . .		—
		<hr/>
Total . . . . .		<u>\$2,553 21</u>

DIRECTOR OF SALESMANSHIP.

Salary of Director . . . . .	\$1,860 00	
Salary of clerk (part time) . . . . .	339 75	
Office supplies . . . . .	38 57	
Printing . . . . .	9 50	
Printing for classes . . . . .	64 48	
Postage . . . . .	51 00	
Books and subscriptions . . . . .	27 50	
Telephone . . . . .	\$35 11	
Telephone switchboard charge . . . . .	15 89	
		51 00
Supplies for classes . . . . .		48 42
		<hr/>
Total . . . . .		<u>\$2,490 22</u>

DEPARTMENT OF EVENING SCHOOLS.

Salary, Director of Evening Schools . . . . .	\$3,206 67
Salary of Supervisor of Division "C" Classes . . . . .	261 00
	<hr/>
Carried forward . . . . .	\$3,467 67

<i>Brought forward</i> . . . . .	\$3,467 67	
Salaries of clerks (one on full time, three on part time) . . . . .	1,887 33	
Temporary clerical services . . . . .	72 00	
Office supplies and equipment . . . . .	78 00	
Boston Directory . . . . .	3 00	
Printing . . . . .	73 42	
Postage . . . . .	172 09	
Telephone and telegraph . . . . . \$42 56		
Telephone switchboard charge . . . . . 95 35		
	<hr/>	137 91
Incidentals . . . . .		73
		<hr/>
		\$5,892 15
For Evening Schools:		
Temporary clerical services . . . . .	—	
Printing programs and tickets . . . . .	\$196 50	
Printing, evening high schools . . . . .	54 52	
Printing, evening elementary schools . . . . .	75 19	
Printing, evening high and industrial schools, . . . . .	15 55	
Printing, evening school extension . . . . .	13 35	
Printing for all evening schools . . . . .	353 34	
Diplomas . . . . .	228 97	
A provisional course of study for evening high schools . . . . .	266 69	
Supplies . . . . .	12 00	
		<hr/>
		1,216 11
		<hr/>
Total . . . . .		<u>\$7,108 26</u>

DEPARTMENT OF HYGIENE.

	Physical Education Appropriation.	Nurses' Appropriation.	Medical Inspection Appropriation.	Regular Appropriation.
<i>Physical Education.</i>				
Salary of Assistant Director of Athletics . . . . .	\$2,980 00			
Salary of instructor not otherwise charged . . . . .	105 78			
Salary of clerk . . . . .	740 00			
Temporary clerical service . . . . .	225 50			\$12 00
Services of janitor in connection with athletic games . . . . .	20 00			
Office supplies and equipment . . . . .	55 85			45 03
Printing . . . . .	472 49			
Postage . . . . .	92 12			
Telephone and telegraph . . . . . \$33 34				
Telephone switchboard charge . . . . . 21 19				54 53
Incidentals . . . . .	15 26			
Car tickets . . . . .	271 00			
Athletic certificates . . . . .	146 63			
Printing for athletic meets . . . . .	66 88			
Supplies for athletic meets . . . . .	28 58			
Military diplomas . . . . .	74 65			
Printing, playgrounds . . . . .	29 41			
Supplies not severally charged to schools . . . . .	18 76			
Supplies not otherwise charged . . . . .	24 14			
Military bands, use of tents, etc., annual parade . . . . .	687 50			
Plates and photographs, playground activities . . . . .	20 00			
Books lost at playground . . . . .	9 53			
<i>Medical Inspection.</i>				
Salary of Director of Medical Inspection . . . . .			\$1,832 00	
Salary of Medical Inspector . . . . .			2,004 00	
Salaries of physicians assigned to certificating office . . . . .			913 62	
Salary of physician not otherwise charged . . . . .			84 00	
Salary of clerk . . . . .			800 00	
Temporary clerical service . . . . .			350 00	
Office supplies . . . . .			33 57	34 49
Books and subscriptions . . . . .			20 00	
<i>Carried forward.</i> . . . .	\$6,084 08		\$6,037 19	\$146 05

DEPARTMENT OF HYGIENE.—*Concluded.*

	Physical Education Appropriation.	Nurses' Appropriation.	Medical Inspection Appropriation.	Regular Appropriation.
<i>Brought forward</i> .....	\$6,084 08		\$6,037 19	\$146 05
Supplies.....			14 03	
Postage.....			268 20	
Telephone..... \$33 33				
Telephone switchboard charge..... 21 19				54 52
Supplies not severally charged to schools.....			19 84	
Printing.....			619 99	8 88
Incidentals.....			7 00	1 50
<i>Nurses.</i>				
Salary of Supervising Nurse.....		\$1,499 80		
Salary of nurse assigned to certificating office.....		—		
Office supplies and equipment.....		6 40		2 80
Books.....		3 52		
Printing.....		5 25		
Postage.....		59 00		
Telephone..... \$33 34				
Telephone switchboard charge..... 21 19				54 53
Car tickets.....		476 40		
Nurses' supplies not severally charged to schools.....		18 15		
Incidentals.....		1 94		
Sub-totals.....	\$6,084 08	\$2,070 46	\$6,966 25	\$267 78
Total.....				\$15,388 57

## GENERAL CHARGES.

## ATTENDANCE OFFICERS.

Salary of Chief Attendance Officer . . . . .	\$2,480 00
Salaries of Attendance Officers (twenty-three),	30,544 50
Salaries of Temporary Attendance Officers (seven) . . . . .	2,452 00
Salary of clerk . . . . .	900 00
Office supplies . . . . .	14 05
<i>Carried forward</i> . . . . .	\$36,390 55

<i>Brought forward</i> . . . . .	\$36,390 55	
Printing . . . . .	136 46	
Postage . . . . .	142 00	
Telephone . . . . .	\$25 18	
Telephone switchboard charge . . . . .	31 77	
		56 95
Boston Business Directory . . . . .		2 00
Badges . . . . .		14 25
Car tickets . . . . .		699 00
		<u>\$37,441 21</u>

*Supervisor of Licensed Minors.*

Salary of Supervisor of Licensed Minors . . . . .	\$1,656 00	
Salary of clerk . . . . .	860 00	
Office supplies . . . . .	4 08	
Telephone . . . . .	\$25 18	
Telephone switchboard charge . . . . .	15 89	
		41 07
Printing . . . . .		40 46
Postage . . . . .		29 50
Car tickets . . . . .		30 00
Badges for licensed minors . . . . .		137 50
		<u>2,798 61</u>
Total . . . . .		<u>\$40,239 82</u>

GENERAL ACCOUNT.

Salary of City Treasurer, Custodian . . . . .	\$1,000 00
Salary of teachers not otherwise charged . . . . .	65 12
Sampling, testing and expert advice on coal . . . . .	893 60
Premium on fuel . . . . .	159 24
Advertising . . . . .	471 03
Diplomas . . . . .	2,249 86
Ribbon for diplomas . . . . .	299 25
Supplies broken and lost in transit and at schools . . . . .	55 62
Books and supplies sold out of stock . . . . .	3,575 68
Supplies used as samples . . . . .	3 61
Exhibits . . . . .	5 40
Penmanship material . . . . .	2,793 39
Books and supplies received previous to year 1917-18, paid for year 1917-18 . . . . .	—
Supplies not severally charged to schools . . . . .	1,715 61
Supplies for connecting the work of the kindergarten and primary grades . . . . .	41 18
Removing ashes . . . . .	1,722 00
Tuition, wards of the city . . . . .	10,475 20
Transportation, wards of the city . . . . .	749 75
Tuition, paid town of Brookline . . . . .	9,789 00
Tuition, paid town of Winthrop . . . . .	145 36
Transportation, paid town of Winthrop . . . . .	46 80
	<u>\$36,256 70</u>
<i>Carried forward</i> . . . . .	

<i>Brought forward</i> . . . . .		\$36,256 70
Tuition, paid town of Dedham . . . . .		129 00
Tuition, paid Massachusetts Industrial Schools . . . . .		158 88
Tuition, paid Massachusetts Agricultural Schools . . . . .		408 78
Rebate on high school tuition . . . . .		16 50
Rebate on elementary school tuition . . . . .		21 50
Services of experts to the Business Agent on supplies, apparatus, etc. . . . .		596 50
Short postage . . . . .		16 61
Conducting promotional courses for teachers . . . . .		517 70
Conducting professional and cultural courses for teachers . . . . .		523 76
Supplies for courses . . . . .		173 67
License fee, qualification of assistant as Special Commissioner, Order of Court, payment to Mrs. Agnes C. White, Workmen's Compensation Act . . . . .		7 00
Miscellaneous telephone charges . . . . .		4 04
Incidentals . . . . .		6 82
		<hr/>
		\$40,105 64
Credits:		
Discarded books . . . . .	\$856 86	
Barrels, cans, etc. . . . .	45 40	
Penalty exacted from contractors on account of quality of coal falling below standard requirements . . . . .	807 66	
		<hr/>
		1,709 92
Total . . . . .		<hr/> <u>\$38,395 72</u>

## EXTENDED USE OF THE PUBLIC SCHOOLS.

	Extended Use of the Public Schools Appropriation.	Regular Appropriation.
Salary of Director, Extended Use of the Public Schools . . . . .	\$3,407 17	
Salary of clerk . . . . .	960 00	
Office supplies and equipment . . . . .	5 70	\$24 26
Printing . . . . .	69 90	1 92
Postage . . . . .	41 00	
Telephone and telegraph . . . . . \$47 88		
Telephone switchboard charge . . . . . 31 78		
		<hr/>
Messenger services . . . . .	35	
Supplies . . . . .	6 22	
Advertising . . . . .	—	
Subscriptions . . . . .	5 40	
Services of lecturer . . . . .	10 00	
Slides, etc. . . . .	16 75	
Traveling expenses . . . . .	80 00	
Incidentals . . . . .	7 75	
		<hr/>
Sub-totals . . . . .	\$4,610 24	\$105 84
Total . . . . .		<hr/> <u>\$4,716 08</u>



## SUMMARY — COSTS OF ADMINISTRATION, SUPERVISION AND GENERAL CHARGES.

Secretary . . . . .	\$12,602 43	
Business Agent . . . . .	37,829 94	
Schoolhouse Custodian . . . . .	4,737 94	
Superintendent . . . . .	24,366 06	
Assistant Superintendents . . . . .	31,126 95	
Administration account, other items . . . . .	24,068 57	
		\$134,731 89
Department of Practice and Training . . . . .	\$9,747 54	
Department of Educational Investigation and Measurement . . . . .	8,458 02	
Vocational Guidance . . . . .	6,024 09	
Department of Manual Arts . . . . .	33,118 46	
Department of Music . . . . .	27,401 77	
Director of Kindergartens . . . . .	4,321 50	
Director of Household Science and Arts . . . . .	4,860 85	
Supervisor of Special Classes . . . . .	2,553 21	
Director of Salesmanship . . . . .	2,490 22	
Department of Evening Schools . . . . .	7,108 26	
Department of School Hygiene . . . . .	15,388 57	
Attendance Officers * . . . . .	40,239 82	
General account . . . . .	38,395 72	
Extended Use of the Public Schools . . . . .	4,716 08	
		204,824 11
Total cost of administration, supervision and general charges . . . . .		<u>\$339,556 00</u>

## APPORTIONMENT OF COSTS OF ADMINISTRATION, SUPERVISION AND GENERAL CHARGES.

Normal School . . . . .	\$1,186 33
Latin and high schools . . . . .	51,886 27
Elementary schools . . . . .	254,218 64
Horace Mann School . . . . .	729 70
Trade School for Girls . . . . .	3,068 65
Boston Trade School . . . . .	1,414 08
Boston Clerical School . . . . .	380 38
Boston Disciplinary Day School . . . . .	479 65
Continuation School, Voluntary . . . . .	184 65
Continuation School, Compulsory . . . . .	5,309 32
Day School for Immigrants . . . . .	1,459 07
Summer Review High School . . . . .	230 26
Summer Review elementary schools . . . . .	1,131 19
Speech Improvement classes . . . . .	349 32
Evening high schools . . . . .	3,306 17
Carried forward . . . . .	<u>\$325,333 68</u>

\* Including Supervisor of Licensed Minors.

<i>Brought forward</i> . . . . .	\$325,333 68
Evening elementary schools . . . . .	6,257 66
Boston Trade School, evening classes . . . . .	534 14
Central Evening Elementary School . . . . .	509 11
Summer Citizenship Classes . . . . .	495 76
Park playgrounds . . . . .	916 87
Schoolyard playgrounds . . . . .	792 70
School centers . . . . .	3,772 87
Lectures . . . . .	707 41
School accommodations . . . . .	235 80
Total . . . . .	<u>\$339,556 00</u>

## TELEPHONE CHARGES.

All items of telephone costs which could be charged directly to the several offices have been so charged. In addition to such costs there is the cost of installation and operation of the switchboard. This is given in detail and includes the salaries of the operator and relief operator. The total cost of the switchboard is then apportioned to the several offices in proportion to the number of instruments connected to the switchboard.

## TELEPHONE SWITCHBOARD.

Salary of operator . . . . .	\$550 00
Salary of relief operator . . . . .	168 90
Switchboard rental . . . . .	30 72
Trunk lines . . . . .	103 14
Metallic circuits . . . . .	194 63
Changing equipment . . . . .	16
Telephone sets . . . . .	114 22
Operators' sets . . . . .	3 45
Toll calls . . . . .	40 72
Incidentals . . . . .	1 79
	<u>\$1,207 73</u>

## APPORTIONMENT OF COST OF SWITCHBOARD.

Secretary, $\frac{3}{8}$ . . . . .	\$95 36
Business Agent, $\frac{3}{8}$ . . . . .	95 36
Supply room, $\frac{2}{5}$ . . . . .	63 56
Schoolhouse Custodian, $\frac{1}{5}$ . . . . .	31 78
Superintendent, $\frac{1}{2}$ . . . . .	206 59
Assistant Superintendents, $\frac{5}{8}$ . . . . .	158 92
School Committee, $\frac{1}{8}$ . . . . .	31 78
Department of Practice and Training, $\frac{1}{5}$ . . . . .	31 78
<i>Carried forward</i> . . . . .	<u>\$715 13</u>

<i>Brought forward</i> . . . . .	\$715 13
Department of Educational Investigation and Measurement, $\frac{1}{38}$ . . . . .	31 78
Director of Music, $\frac{1}{38}$ . . . . .	31 78
Director of Salesmanship, $\frac{1}{78}$ . . . . .	15 89
Department of Evening Schools, $\frac{3}{38}$ . . . . .	95 35
Director of Household Science and Arts, $\frac{1}{78}$ . . . . .	15 89
Director of Kindergartens, $\frac{1}{78}$ . . . . .	15 89
Supervisor of Special Classes, $\frac{1}{78}$ . . . . .	15 89
Department of Hygiene, $\frac{2}{38}$ . . . . .	63 57
Attendance of Officers, $\frac{1}{38}$ . . . . .	31 77
Supervisor of Licensed Minors, $\frac{1}{78}$ . . . . .	15 89
Director, Extended Use of the Public Schools, $\frac{1}{38}$ . . . . .	31 78
Continuation School, Compulsory, $\frac{4}{38}$ . . . . .	127 12

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\$1,207 73



STOCK BALANCE, 1917-1918.

## 1917-18, STOCK BALANCE.

*Debit.*

Inventory of December 4, 1916:		
Books . . . . .	\$22,037	73
Manual training supplies . . . . .	1,988	99
Drawing supplies . . . . .	1,655	06
Kindergarten supplies . . . . .	2,062	78
Janitors' supplies . . . . .	3,075	49
Miscellaneous educational supplies . . . . .	46,483	20
Laboratory supplies . . . . .	10	35
Nurses' supplies . . . . .	660	72
Physical education supplies . . . . .	1,575	60
Supplies for the extended use of the public schools . . . . .	83	35
Supplies for medical inspection . . . . .	48	96
		<hr/>
		\$79,682 23
Receipts, 1917-18:		
Purchases:		
Books . . . . .	\$32,119	38
Manual training supplies . . . . .	4,250	81
Drawing supplies . . . . .	5,575	46
Kindergarten supplies . . . . .	5,981	00
Janitors' supplies . . . . .	12,180	54
Miscellaneous educational supplies . . . . .	85,241	02
Nurses' supplies . . . . .	869	25
Physical education supplies . . . . .	5,714	16
Supplies for the extended use of the public schools . . . . .	20	00
Supplies for medical inspection . . . . .	826	34
Fuel . . . . .	2,581	51
		<hr/>
		155,359 47
From schools:		
Books . . . . .	\$430	33
Manual training supplies . . . . .	290	10
Drawing supplies . . . . .	91	59
Kindergarten supplies . . . . .	—	—
Janitors' supplies . . . . .	31	64
Miscellaneous educational supplies . . . . .	1,167	20
Laboratory supplies . . . . .	2	40
Physical education supplies . . . . .	239	60
Supplies for the extended use of the public schools . . . . .	2	07
Supplies for medical inspection . . . . .	36	00
		<hr/>
		2,290 93
Manual training supplies severally overcharged to schools . . . . .	\$140	15
Kindergarten supplies severally overcharged to schools . . . . .	20	45
		<hr/>
		160 60
Discarded books . . . . .		856 86
		<hr/>
Total . . . . .	\$238,350	09
		<hr/> <hr/>

NOTE.—The items included in the above account are only those purchased for general distribution and do not include those purchased for any particular school. The latter are charged direct to the school.

1917-18, STOCK BALANCE.

*Credit.*

Deliveries on Requisition:		
Books . . . . .	\$37,651 52	
Manual training supplies . . . . .	3,883 88	
Drawing supplies . . . . .	5,552 56	
Kindergarten supplies . . . . .	5,331 66	
Janitors' supplies . . . . .	10,431 48	
Miscellaneous educational supplies . . . . .	95,992 79	
Laboratory supplies . . . . .	25	
Nurses' supplies . . . . .	641 45	
Physical education supplies . . . . .	5,700 11	
Supplies for the extended use of the public schools . . . . .	43 07	
Supplies for medical inspection . . . . .	412 09	
	<hr/>	\$165,640 86
Books and miscellaneous supplies not severally charged to schools . . . . .	\$1,318 34	
Drawing supplies not severally charged to schools . . . . .	214 24	
Janitors' supplies not severally charged to schools . . . . .	417 72	
Physical education supplies not severally charged to schools . . . . .	18 76	
Nurses' supplies not severally charged to schools . . . . .	18 15	
Supplies for medical inspection not severally charged to schools . . . . .	19 84	
	<hr/>	2,007 05
Discarded books . . . . .		856 86
Inventory of December 4, 1917:		
Books . . . . .	\$16,494 50	
Manual training supplies . . . . .	2,786 17	
Drawing supplies . . . . .	1,555 31	
Kindergarten supplies . . . . .	2,732 57	
Janitors' supplies . . . . .	4,438 47	
Miscellaneous educational supplies . . . . .	36,021 71	
Laboratory supplies . . . . .	12 50	
Nurses' supplies . . . . .	870 37	
Physical education supplies . . . . .	1,810 49	
Supplies for the extended use of the public schools . . . . .	62 35	
Supplies for medical inspection . . . . .	479 37	
Fuel (at wharf, paid for but not delivered) . . . . .	2,581 51	
	<hr/>	69,845 32
Total . . . . .		<u>\$238,350 09</u>

NOTE.—The items included in the above account are only those purchased for general distribution and do not include those purchased for any particular school. The latter are charged direct to the school.

## SUMMARY COSTS OF SCHOOLS.

	Costs Exclusive of Administration, Supervision and General Charges.	Costs with Costs of Administration, Supervision and General Charges Added.	Costs with Proportionate Part of Income Deducted.
Normal School.....	\$45,331 77	\$46,518 10	\$45,130 99
Latin and high schools.....	1,336 862 30	1,388,748 57	1,379,048 49
Elementary schools.....	3,627,590 30	3,881,808 94	3,858,199 93
Speech Improvement classes.....	7,102 03	7,451 35	7,396 51
Horace Mann School.....	29,867 51	30,597 21	6,711 32
Trade School for Girls.....	65,115 24	68,183 89	26,029 04
Boston Trade School.....	44,699 26	46,113 34	27,795 67
Continuation School, Voluntary.....	871 18	1,055 83	291 69
Continuation School, Compulsory.....	62,468 52	67,777 84	41,953 01
Boston Clerical School.....	13,497 25	13,877 63	13,780 29
Boston Disciplinary Day School.....	2,349 71	2,829 36	2,801 94
Day School for Immigrants.....	3,746 35	5,205 42	5,178 00
Summer Review High School.....	2,771 76	3,002 02	2,951 60
Summer Review elementary schools.....	15,135 58	16,266 77	16,102 24
Evening high schools.....	51,598 33	54,904 50	51,742 89
Evening elementary schools.....	55,691 54	61,949 20	55,750 54
Central Evening Elementary School.....	960 09	1,469 20	1,441 78
Summer Citizenship classes.....	349 89	845 65	845 65
Boston Trade School, evening classes.....	10,152 87	10,687 01	5,762 64
Park playgrounds.....	19,374 26	20,291 13	20,291 13
Schoolyard playgrounds.....	16,726 31	17,519 01	17,519 01
Farm service.....	1,636 12	1,636 12	1,636 12
Extended use of the public schools:			
School centers.....	24,424 90	28,197 77	28,197 77
Lectures.....	901 49	1,608 90	1,608 90
Use of school accommodations.....	2,973 71	3,209 51	3,209 51
Totals.....	\$5,442,198 27	\$5,781,754 27	\$5,621,376 66
Add costs of administration, supervision and general charges.....	339,556 00		
Total cost.....	\$5,781,754 27		
Deduct total income.....	160,377 61		
Net total.....	\$5,621,376 66		
Total cost brought down.....	\$5,781,754 27		
Decrease in inventory.....	9,836 91		
Total expenditures, 1917-18*.....	\$5,771,917 36		

\* Exclusive of pensions, cost of buildings, depreciation, repairs, interest and sinking fund charges.



## COMPARISON OF COSTS, 1916-17 AND 1917-18.

	Total Cost, 1917-18.	Total Cost, 1916-17.	Increases.
Normal School.....	\$46,518 10	\$44,230 72	\$2,287 38
Latin and high schools.....	1,388,748 57	1,327,765 43	60,983 14
Elementary schools.....	3,881,808 94	3,681,184 92	200,624 02
Speech Improvement classes.....	7,451 35	5,839 33	1,612 02
Horace Mann School.....	30,597 21	29,752 82	844 39
Trade School for Girls †.....	68,183 89	69,265 83	* 1,081 94
Boston Trade School.....	46,113 34	37,517 68	8,595 66
Continuation School, Voluntary.....	1,055 83	5,649 27	* 4,593 44
Continuation School, Compulsory.....	67,777 84	51,815 93	15,961 91
Boston Clerical School.....	13,877 63	9,824 01	4,053 62
Boston Disciplinary Day School.....	2,829 36	2,631 91	197 45
Day School for Immigrants †.....	5,205 42	.....	5,205 42
Summer Review High School.....	3,002 02	3,298 95	* 296 93
Summer Review elementary schools.....	16,266 77	16,106 44	160 33
Evening high schools.....	54,904 50	53,003 99	1,900 51
Evening elementary schools.....	61,949 20	79,872 19	* 17,922 99
Central Evening Elementary School.....	1,469 20	1,085 33	383 87
Summer Citizenship classes †.....	845 65	.....	845 65
Boston Trade School, evening classes.....	10,687 01	10,193 50	493 51
Park playgrounds.....	20,291 13	20,788 56	* 497 43
Schoolyard playgrounds.....	17,519 01	11,165 79	6,353 22
Farm service †.....	1,636 12	.....	1,636 12
Extended use of the public schools:			
School centers.....	28,197 77	25,604 37	2,593 40
Girls' High Gymnasium §.....	.....	192 73	* 192 73
Lectures.....	1,608 90	2,583 75	* 974 85
Boston Choral Society §.....	.....	113 50	* 113 50
Use of school accommodations.....	3,209 51	1,674 63	1,534 88
Totals.....	\$5,781,754 27	\$5,491,161 58	\$290,592 69

\* Decreases.

† Not in operation in 1916-17.

† Including Girls' Evening Trade School.

§ Not in operation in 1917-18.

TABLE SHOWING COST OF ADMINISTRATION FOR THE YEARS 1911-12 AND 1917-18, AND THE INCREASES IN SIX YEARS.

	1911-12.	1917-18.	Increases in Six Years.	Increases in Six Years, Per Cent.
Secretary.....	\$10,326 66	\$12,602 43	\$2,275 77	22.0
Business Agent *.....	† 36,127 57	37,829 94	1,702 37	4.7
Schoolhouse Custodian.....	4,356 93	4,737 94	381 01	8.7
Superintendent.....	16,880 65	24,366 06	7,485 41	44.3
Assistant Superintendents.....	30,900 31	31,126 95	226 64	0.7
Administration Account, Other Items.....	16,725 58	24,068 57	7,342 99	43.9
Totals.....	\$115,317 70	\$134,731 89	\$19,414 19	16.8

\* Duties of Auditor transferred to Business Agent October 14, 1912.

† Including Auditor.

TABLE SHOWING COST OF SUPERVISION OR PROFESSIONAL CONTROL FOR THE YEARS 1911-12 AND 1917-18, AND THE INCREASES IN SIX YEARS.

	1911-12.	1917-18.	Increases in Six Years,	Increases in Six Years, Per Cent.
Department of Practice and Training.....	* \$5,556 96	\$9,747 54	\$4,190 58	75.4
Department of Educational Investigation and Measurement.....	1,986 05	8,458 02	8,458 02	.....
Vocational Guidance.....	15,422 03	6,024 09	4,038 04	203.3
Department of Manual Arts.....	19,802 72	33,118 46	17,696 43	114.7
Department of Music.....	1,934 78	27,401 77	7,599 05	38.3
Director of Kindergartens.....	2,269 72	4,321 50	2,386 72	123.3
Director of Household Science and Arts.....	.....	4,860 85	2,591 13	114.1
Supervisor of Special Classes.....	.....	2,553 21	2,553 21	.....
Director of Salesmanship.....	.....	2,490 22	2,490 22	.....
Department of Evening Schools.....	4,971 19	7,108 26	2,137 07	42.9
Department of School Hygiene.....	19,396 77	15,388 57	† 4,008 20	† 20.6
Totals.....	\$71,340 22	\$121,472 49	\$50,132 27	70.2

\* Supervisor of Substitutes.

† Decrease.

## STATISTICS, 1911-12 AND 1917-18.

	1911-12.	1917-18.	Increases in Six Years.	Increases in Six Years, Per Cent.
Total expenditures *.....	*\$4,277,938 30	*\$5,856,809 71	\$1,578,871 41	36.9
Day Schools:				
Average membership.....	99,272	108,108	8,836	8.9
Average attendance.....	91,049	98,954	7,905	8.6
Summer Schools:				
Average attendance.....	209	4,341	4,132	1,977.0
Evening Schools:				
Average attendance.....	7,964	6,228	† 1,736	† 21.7
Evening School Extension:				
Average attendance.....	716	294	† 422	† 58.9
Playgrounds:				
Average attendance.....	7,391	11,506	4,115	55.6

\* Exclusive of new buildings, repairs, alterations, rents and extended use of the public schools.

† Decrease.

TABLE SHOWING COST OF ADMINISTRATION FOR THE YEARS 1908-09 AND 1917-18, AND THE INCREASES IN NINE YEARS.

	1908-09.	1917-18.	Increases in Nine Years.	Increases in Nine Years, Per Cent.
Secretary.....	\$8,124 73	\$12,602 43	\$4,477 70	55.1
Business Agent *.....	† 24,112 92	37,829 94	13,717 02	56.8
Schoolhouse Custodian.....	3,011 74	4,737 94	1,726 20	57.3
Superintendent.....	13,240 53	24,366 06	11,125 53	84.0
Assistant Superintendents.....	28,812 84	31,126 95	2,314 11	8.0
Administration Account, Other Items.....	13,454 54	24,068 57	10,614 03	78.8
Totals.....	\$90,757 30	\$134,731 89	\$43,974 59	48.4

\* Duties of Auditor transferred to Business Agent October 14, 1912.

† Including Auditor.

TABLE SHOWING COSTS OF SUPERVISION OR PROFESSIONAL CONTROL FOR THE YEARS 1908-09 AND 1917-18, AND THE INCREASES IN NINE YEARS.

	1908-09.	1917-18.	Increases in Nine Years.	Increases in Nine Years, Per Cent.
Department of Practice and Training.....	* \$3,192 79	\$9,747 54	\$6,554 75	205.2
Department of Educational Investigation and Measurement.....		8,458 02	8,458 02	
Vocational Guidance.....		6,024 09	6,024 09	
Department of Manual Arts.....	13,510 37	33,118 46	19,608 09	145.1
Department of Music.....	19,331 20	27,401 77	8,070 57	41.7
Director of Kindergartens.....	1,807 81	4,321 50	2,513 69	139.0
Director of Household Science and Arts.....	1,486 51	4,860 85	3,374 34	226.9
Supervisor of Special Classes.....		2,553 21	2,553 21	
Director of Salesmanship.....		2,490 22	2,490 22	
Department of Evening Schools.....	3,050 46	7,108 26	4,057 80	133.0
Department of School Hygiene.....	16,878 34	15,388 57	† 1,489 77	† 8.8
Totals.....	\$59,257 48	\$121,472 49	\$62,215 01	104.9

\* Supervisor of Substitutes.

† Decrease.

## STATISTICS, 1908-09 AND 1917-18.

	1908-09.	1917-18.	Increases in Nine Years.	Increases in Nine Years, Per Cent.
Total expenditures *.....	*\$3,621,304 48	*\$5,856,809 71	\$2,235,505 23	61.7
Day Schools:				
Average membership.....	96,925	108,108	11,183	11.5
Average attendance.....	88,475	98,954	10,479	11.8
Summer Schools:				
Average attendance.....		4,341	4,341	
Evening Schools:				
Average attendance.....	7,778	6,228	† 1,550	† 19.9
Evening School Extension:				
Average attendance.....	—	294	294	
Playgrounds:				
Average attendance.....	12,264	11,506	† 758	† 6.1

\* Exclusive of new buildings, repairs, alterations, rents and extended use of the public schools. † Decrease.

TABLE SHOWING TOTAL COSTS \* AND PER CAPITA COSTS \* FOR FIVE YEARS AND THE INCREASES IN FOUR YEARS.

	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.	Increases in Four Years.
Normal.....	Total cost..... \$42,055 21	\$39,433 19	\$42,684 98	\$44,230 72	\$46,518 10	\$4,462 89
	Average membership..... 202	186	226	290	281	79
	Per capita cost, total..... \$208 19	\$212 01	\$188 87	\$152 52	\$165 54	1 \$42 65
Latin and high schools.....	Total cost..... \$1,098,741 53	\$1,195,708 12	\$1,286,326 86	\$1,327,765 43	\$1,388,748 57	\$290,007 04
	Average membership..... 13,733	14,912	16,301	16,754	16,209	2,476
	Per capita cost, total..... \$80 01	\$80 12	\$78 91	\$79 25	\$85 68	\$5 67
Elementary schools.....	Total cost..... \$3,440,697 07	\$3,605,309 87	\$3,682,303 53	\$3,681,184 92	\$3,881,808 94	\$441,111 87
	Average membership..... 90,196	92,092	92,803	91,906	91,294	1,098
	Per capita cost, total..... \$38 15	\$39 15	\$39 53	\$40 32	\$42 52	\$4 37
Speech Improvement classes.....	Total cost..... 2	\$4,044 09	\$4,631 02	\$5,839 33	\$7,451 35	\$7,451 35
	Average membership..... 2					
	Per capita cost, total.....					
Horace Mann School.....	Total cost..... \$29,504 13	\$30,002 56	\$30,410 01	\$29,752 82	\$30,597 21	\$1,093 08
	Average membership..... 136	140	135	129	137	1
	Per capita cost, total..... \$216 94	\$214 30	\$225 26	\$230 64	\$223 84	\$6 40
Trade School for Girls.....	Total cost..... \$52,686 50	\$58,430 51	\$65,645 81	\$69,265 83	\$68,183 89	\$15,497 39
	Average membership..... 137	168	154	151	150	
	Per capita cost, total..... \$202 47	\$185 09	\$426 370	\$454 711	\$437 920	
Boston Trade School.....	Total cost..... \$27,738 11	\$31,065 62	\$36,060 81	\$37,517 68	\$46,113 34	\$18,375 23
	Average membership..... 137	168	154	151	167	30
	Per capita cost, total..... \$202 47	\$185 09	\$234 81	\$248 46	\$276 13	\$73 66
Boston Disciplinary Day School.....	Total cost..... 2	2	\$3,080 41	\$2,631 91	\$2,829 36	\$2,829 36
	Average membership..... 2	2	25	15	17	17
	Per capita cost, total.....		\$123 48	\$175 46	\$166 43	\$166 43
Continuation School, Voluntary.....	Total cost..... \$11,665 18	\$0 628 31	\$5,738 63	\$7,640 27	\$1,055 83	\$10,609 35
	Number of pupil hours..... 93,160 1/2	93,160 1/2	59,230	4,527	4,527	
	Cost per pupil hour..... \$0 31	\$0 103	\$0 096	\$0 100	\$0 233	
Continuation School, Compulsory.....	Total cost..... 2	\$17,019 84	\$44,912 78	\$51,815 93	\$67,777 84	\$67,777 84
	Number of pupil hours..... 18,446	18,446	262,182	354,746	603,650	603,650
	Cost per pupil hour..... 2	\$0 92	\$0 171	\$0 146	\$0 112	\$0 112

Boston Clerical School.....	2	\$4,136 70	\$8,589 75	\$9,824 01	\$13,877 63
{ Average membership.....	2	34	100	124	192
{ Per capita cost, total.....	2	\$ 121 67	\$85 90	\$79 23	\$72 28
Summer Review High School.....	2	\$3,323 31	\$3,752 54	\$3,298 95	\$3,002 02
{ Average attendance.....	2	396	454	395	268
{ Per capita cost, total.....	2	\$8 40	\$83 27	\$8 35	\$11 20
{ Per capita cost, per session.....	2	\$0 20	\$0 051	\$0 052	\$0 07
Summer Review elementary schools	2	\$14,262 94	\$19,608 88	\$16,106 44	\$16,266 77
{ Average attendance.....	2	3,531	4,245	4,073	4,073
{ Per capita cost, total.....	2	\$4 04	\$3 79	\$3 99	\$3 99
{ Per capita cost, per session.....	2	\$0 096	\$0 034	\$0 031	\$0 033
Day School for Immigrants.....	2	2	2	2	\$5,205 42
{ Number of pupil hours.....	2	2	2	2	46,634
{ Cost per pupil hour.....	2	2	2	2	\$0 111
Evening high schools.....	2	\$62,900 98	\$54,788 39	\$53,003 99	\$54,904 50
{ Total cost.....	2	3,323	3,344	3,054	3,014
{ Average attendance.....	2	\$18 38	\$16 38	\$17 36	\$18 22
{ Per capita cost, total.....	2	\$0 274	\$0 289	\$0 12	\$0 16
{ Per capita cost, per session.....	2	2	2	2	\$0 133
Evening elementary schools.....	2	\$105,463 30	\$100,054 81	\$79,872 19	\$61,949 20
{ Total cost.....	2	5,572	5,612	3,697	2,842
{ Average attendance.....	2	\$18 93	\$17 83	\$21 60	\$21 80
{ Per capita cost, total.....	2	\$0 181	\$0 103	\$0 121	\$0 129
{ Per capita cost, per session.....	2	2	2	2	2
Central Evening Elementary School	2	\$8,799 87	\$1,085 33	\$1,085 33	\$1,469 20
{ Total cost.....	2	2,170	125	193	193
{ Average attendance.....	2	\$4 05	\$8 68	\$7 61	\$7 61
{ Per capita cost, total.....	2	\$0 202	\$0 196	\$0 16	\$0 16
{ Per capita cost, per session.....	2	2	2	2	2
Summer Citizenship classes.....	2	2	2	2	\$845 65
{ Total cost.....	2	2	2	2	101
{ Average attendance.....	2	2	2	2	\$8 37
{ Per capita cost, total.....	2	2	2	2	\$0 299
{ Per capita cost, per session.....	2	2	2	2	2

<sup>1</sup> Decrease.  
<sup>2</sup> Not in operation.  
<sup>3</sup> Includes day and evening classes.  
<sup>4</sup> Number of pupil hours.  
<sup>5</sup> Cost per pupil per hour.  
<sup>6</sup> Per capita cost, per session.

\* EXCLUSIVE OF COSTS OF BUILDING, DEPRECIATION, REPAIRS, INTEREST AND SINKING FUND CHARGES.

PER CAPITA COSTS OF TEACHERS' SALARIES, BOOKS, OTHER EDUCATIONAL SUPPLIES, ALL EDUCATIONAL SUPPLIES AND INCIDENTALS AND TOTAL FOR INSTRUCTION, BASED ON AVERAGE ATTENDANCE.

*Normal School.*

	Teachers' Salaries.*	Books.	Other Educational Supplies and Incidentals.*	All Educational Supplies and Incidentals.*	Total for Instruction.*
Normal.....	\$128 16	\$3 27	\$6 48	\$9 75	\$137 91

*Latin and High Schools.*

	Teachers' Salaries.*	Books.	Other Educational Supplies and Incidentals.*	All Educational Supplies and Incidentals.*	Total for Instruction.*
Public Latin.....	\$84 24	\$2 18	\$1 74	\$3 92	\$88 16
Girls' Latin.....	63 41	1 83	1 56	3 39	66 80
Brighton High.....	63 90	2 20	4 15	6 35	70 25
Charlestown High.....	70 79	2 34	4 95	7 29	78 08
Dorchester High.....	60 56	1 35	2 37	3 72	64 28
East Boston High.....	72 72	1 53	3 00	4 53	77 25
English High.....	76 15	1 47	2 59	4 06	80 21
Girls' High.....	56 27	1 75	2 63	4 38	60 65
High School of Commerce.....	75 84	1 17	3 72	4 89	80 73
High School of Practical Arts.....	92 63	1 40	3 63	5 03	97 66
Hyde Park High.....	61 19	1 99	4 07	6 06	67 25
Mechanic Arts High.....	151 77	80	8 33	9 13	160 90
Roxbury High.....	51 68	1 81	2 45	4 26	55 94
South Boston High.....	62 50	1 54	2 14	3 68	66 18
West Roxbury High.....	69 09	2 58	3 42	6 00	75 09
Averages.....	\$72 36	\$1 63	\$2 96	\$4 59	\$76 95

\* Exclusive of physical education.

*Elementary Schools.*

	Teachers' Salaries.*	Books.	Other Educational Supplies and Incidentals.*	All Educational Supplies and Incidentals.*	Total for Instruction.*
Abraham Lincoln.....	\$34 85	\$0 76	\$1 25	\$2 01	\$36 86
Agassiz.....	44 70	42	2 03	2 45	47 15
Bennett.....	33 07	46	1 30	1 76	34 83
Bigelow.....	40 68	49	1 57	2 06	42 74
Bowditch.....	35 82	58	1 33	1 91	37 73
Bowdoin.....	33 98	40	1 46	1 86	35 84
Bunker Hill.....	43 08	19	1 25	1 44	44 52
Chapman.....	36 17	87	1 25	2 12	38 29
Charles Sumner.....	35 29	55	1 46	2 01	37 30
Christopher Gibson.....	35 43	56	1 53	2 09	37 52
Dearborn.....	38 81	39	1 57	1 96	40 77
Dillaway.....	38 69	49	1 47	1 96	40 65
Dudley.....	43 22	24	2 91	3 15	46 37
Dwight.....	48 05	47	1 69	2 16	50 21
Edmund P. Tileston.....	32 91	48	2 04	2 52	35 43
Edward Everett.....	32 89	42	1 46	1 88	34 77
Elihu Greenwood.....	29 57	40	1 52	1 92	31 49
Eliot.....	31 78	46	1 10	1 56	33 34
Emerson.....	33 57	68	1 31	1 99	35 56
Everett.....	42 26	45	1 37	1 82	44 08
Francis Parkman.....	38 21	57	1 42	1 99	40 20
Franklin.....	36 42	44	1 34	1 78	38 20
Frederic W. Lincoln.....	38 55	38	1 37	1 75	40 30
Frothingham.....	38 71	56	1 33	1 89	40 60
Gaston.....	34 01	62	1 05	1 67	35 68
George Putnam.....	32 64	57	1 33	1 90	34 54
Gilbert Stuart.....	33 59	57	1 41	1 98	35 57
Hancock.....	32 43	42	1 11	1 53	33 96
Harvard.....	41 20	56	2 27	2 83	44 03
Henry Grew.....	33 50	53	1 55	2 08	35 58
Henry L. Pierce.....	33 08	91	1 67	2 58	35 66

\* Exclusive of physical education.

*Elementary Schools.—Continued.*

	Teachers' Salaries.*	Books.	Other Educational Supplies and Incidentals.*	All Educational Supplies and Incidentals.*	Total for Instruction.*
Hugh O'Brien.....	\$34 11	\$0 68	\$1 29	\$1 97	\$36 08
Hyde.....	43 25	35	1 66	2 01	45 26
Jefferson.....	37 53	44	1 53	1 97	39 50
John A. Andrew.....	37 80	15	1 84	1 99	39 79
John Cheverus.....	35 76	74	1 47	2 21	37 97
John Winthrop.....	34 19	86	1 38	2 24	36 43
Lawrence.....	41 02	50	2 62	3 12	44 14
Lewis.....	30 38	80	1 50	2 30	32 68
Longfellow.....	31 70	54	1 34	1 88	33 58
Lowell.....	36 82	42	1 72	2 14	38 96
Martin.....	40 53	17	2 28	2 45	42 98
Mary Hemenway.....	31 79	71	1 48	2 19	33 98
Mather.....	33 76	43	1 76	2 19	35 95
Minot.....	37 67	28	2 42	2 70	40 37
Norcross.....	34 10	28	1 51	1 79	35 89
Oliver Hazard Perry.....	37 80	69	1 41	2 10	39 90
Oliver Wendell Holmes.....	31 69	37	1 39	1 76	33 45
Phillips Brooks.....	32 76	50	1 35	1 85	34 61
Prescott.....	41 97	47	2 49	2 96	44 93
Prince.....	37 78	51	1 53	2 04	39 82
Quincy.....	41 88	54	2 47	3 01	44 89
Rice.....	36 01	46	1 78	2 24	38 25
Robert G. Shaw.....	31 95	94	1 63	2 57	34 52
Roger Wolcott.....	28 39	52	1 28	1 80	30 19
Samuel Adams.....	28 28	45	1 18	1 63	29 91
Sherwin.....	50 50	21	2 77	2 98	53 48
Shurtleff.....	34 55	39	1 21	1 60	36 15
Theodore Lyman.....	32 45	30	2 11	2 41	34 86
Thomas Gardner.....	34 12	45	1 53	1 98	36 10
Thomas N. Hart.....	37 84	65	1 43	2 08	39 92
Ulysses S. Grant.....	35 99	76	1 34	2 10	38 09
Warren.....	36 02	50	1 44	1 94	37 96

\* Exclusive of physical education.



*Elementary Schools.— Concluded.*

	Teachers' Salaries.*	Books.	Other Educational Supplies and Incidentals.*	All Educational Supplies and Incidentals.*	Total for Instruction.*
Washington.....	\$34 85	\$0 44	\$1 18	\$1 62	\$36 47
Washington Allston.....	36 13	47	1 51	1 98	38 11
Wells.....	33 82	27	1 49	1 76	35 58
Wendell Phillips.....	39 20	26	2 22	2 48	41 68
William E. Russell.....	40 47	56	* 1 49	2 05	42 52
Averages.....	\$35 25	\$0 51	\$1 54	\$2 05	\$37 30

\* Exclusive of physical education.

*Special Schools.*

	Teachers' Salaries.*	Books.	Other Educational Supplies and Incidentals.*	All Educational Supplies and Incidentals.*	Total for Instruction.*
Horace Mann.....	\$188 08	\$0 83	\$3 84	\$4 67	\$192 75
Boston Clerical.....	59 69	1 71	7 19	8 90	68 59
Boston Disciplinary Day.....	109 68	3 41	5 16	8 57	118 25
Boston Trade.....	186 44	5 71	49 96	55 67	242 11

\* Exclusive of physical education.

PER CAPITA COSTS OF JANITORS' SUPPLIES BASED ON AVERAGE  
ATTENDANCE.

*Normal School.*

SCHOOL.	Janitors' Supplies.
Normal.....	\$0 16

*Latin and High Schools.*

SCHOOLS.	Janitors' Supplies.	SCHOOLS.	Janitors' Supplies.
Public Latin.....	\$0 14	High School of Commerce.....	\$0 12
Girls' Latin.....	05	High School of Practical Arts..	42
Brighton High.....	09	Hyde Park High.....	16
Charlestown High.....	20	Mechanic Arts High.....	32
Dorchester High.....	11	Roxbury High.....	14
East Boston High.....	14	South Boston High.....	19
English High.....	08	West Roxbury High.....	16
Girls' High.....	13	Average.....	\$0 15

*Elementary Schools.*

SCHOOLS.	Janitors' Supplies.	SCHOOLS.	Janitors' Supplies.
Abraham Lincoln.....	\$0 09	Dudley.....	\$0 16
Agassiz.....	05	Dwight.....	12
Bennett.....	13	Edmund P. Tileston.....	12
Bigelow.....	19	Edward Everett.....	12
Bowditch.....	12	Elihu Greenwood.....	10
Bowdoin.....	15	Eliot.....	10
Bunker Hill.....	14	Emerson.....	13
Chapman.....	15	Everett.....	13
Charles Sumner.....	14	Francis Parkman.....	16
Christopher Gibson.....	08	Franklin.....	05
Dearborn.....	09	Frederic W. Lincoln.....	11
Dillaway.....	12	Frothingham.....	14

PER CAPITA COSTS OF JANITORS' SUPPLIES BASED ON AVERAGE  
ATTENDANCE.— *Concluded.**Elementary Schools.— Concluded.*

SCHOOLS.	Janitors' Supplies.	SCHOOLS.	Janitors' Supplies.
Gaston.....	\$0 10	Oliver Wendell Holmes.....	\$0 13
George Putnam.....	09	Phillips Brooks.....	12
Gilbert Stuart.....	09	Prescott.....	11
Hancock.....	10	Prince.....	12
Harvard.....	18	Quincy.....	13
Henry Grew.....	14	Rice.....	12
Henry L. Pierce.....	12	Robert G. Shaw.....	11
Hugh O'Brien.....	13	Roger Wolcott.....	07
Hyde.....	12	Samuel Adams.....	07
Jefferson.....	09	Sherwin.....	20
John A. Andrew.....	12	Shurtleff.....	13
John Cheverus.....	12	Theodore Lyman.....	13
John Winthrop.....	10	Thomas Gardner.....	13
Lawrence.....	22	Thomas N. Hart.....	12
Lewis.....	21	Ulysses S. Grant.....	14
Longfellow.....	14	Warren.....	18
Lowell.....	12	Washington.....	13
Martin.....	19	Washington Allston.....	10
Mary Hemenway.....	08	Wells.....	12
Mather.....	12	Wendell Phillips.....	15
Minot.....	13	William E. Russell.....	14
Norcross.....	13	Average.....	\$0 12
Oliver Hazard Perry.....	14		

*Special Schools.*

SCHOOLS.	Janitors' Supplies.
Horace Mann.....	\$0 77
Boston Clerical.....	15
Boston Disciplinary Day.....	2 38
Boston Trade.....	1 95



**STANDARD REPORT ON THE FINANCIAL  
STATISTICS OF THE PUBLIC SCHOOLS.**

## STANDARD REPORT ON THE FINANCIAL STATISTICS OF THE PUBLIC SCHOOLS.\*

### A. PAYMENTS.

I.— EXPENSES (Cost of Conducting School System).	Total.	Salaries.	Other Objects.
EXPENSES OF GENERAL CONTROL (OVERHEAD CHARGES).			
1. Board of Education and Secretary's Office.....	\$12,992 13	\$11,269 00	\$1,723 13
2. School elections and school census.....			
3. Finance offices and accounts †.....	37,829 94	21,273 17	16,556 77
4. Legal services †.....			
5. Operation and maintenance of office buildings.....	13,756 23	2,814 76	10,941 47
6. Officers in charge of buildings.....	98,222 68	80,069 23	18,153 45
6a. Schoolhouse Custodian.....	4,737 94	3,905 89	.32 05
7. Office of Superintendent of Schools.....	73,698 57	68,538 93	5,159 64
8. Enforcement of compulsory education and truancy laws...	40,239 82	38,892 50	1,347 32
9. Other expenses of general control.....	28,914 85	1,000 00	27,914 85
10. Totals.....	\$310,392 16	\$227,763 48	\$82,628 68

\* This standard form corresponds to Schedule G 34 of the Bureau of the Census and has been worked out by that bureau after conference and correspondence with representatives of the United States Bureau of Education, the National Education Association, the National Association of School Accounting Officers and with many school superintendents.

† Also in charge of supplies.

‡ Undertaken by Law Department of the city without expense to the School Committee.

STANDARD REPORT ON THE FINANCIAL STATISTICS OF THE PUBLIC SCHOOLS.—Continued

A. PAYMENTS.—Continued.

EXPENSES OF INSTRUCTION.	Total.	DAY SCHOOLS.		EVENING SCHOOLS.					SPECIAL SCHOOLS AND ACTIVITIES.											EXTENDED USE OF THE PUBLIC SCHOOLS			
		Elementary, Including Kindergarten.	Latin and High.	Evening Elementary.	Evening High.	Central Evening Elementary.	Evening Citizenship Classes, Summer Term.	Boston Trade School, Evening Classes.	Normal School.	Horace Mann School for the Deaf.	Schools for the Industries.	Continuation Schools.	Day School for Immigrants.	Boston Clerical School.	Boston Disciplinary Day School.	Speech Improvement Classes.	Summer Review High.	Summer Review Elementary.	Playgrounds.	Farm Service.	School Centers.	Lectures.	Use of School Accommodations for Various Purposes.
11. Salaries of supervisors of grades and subjects.....	\$82,565 30	\$57,716 01	\$12,733 80	\$2,077 79	\$1,554 14	\$259 03	\$259 03	\$207 37	\$115 71	\$33 94	\$66 11	\$742 00	\$1,033 92	\$32 49	\$0 72	\$1 45	\$0 72	\$4 34	\$1,358 87	—	\$3,493 74	\$655 08	\$218 35
12. Other expenses of supervisors.....	11,823 50	5,391 45	2,290 83	502 54	514 80	84 08	84 09	70 02	10 09	3 18	35 19	107 10	333 04	1 59	80	1 59	80	4 74	324 23	\$1,022 81	279 13	52 34	17 44
13. Salaries of principals and their clerks.....	320,307 80	213,562 66	72,069 99	7,420 00	4,896 00	120 00	—	615 50	4,846 05	3,327 12	10,371 16	5,944 02	—	1,115 30	—	280 00	1,800 00	—	—	—	—	—	—
14. Other expenses of principals.....	5,174 10	1,625 75	1,547 54	137 00	185 04	2 75	—	64 75	105 15	23 63	427 64	902 82	—	32 02	13 40	29 75	1 00	5 00	—	13 31	56 30	—	—
15. Salaries of teachers.....	4,082,438 00	2,706,055 25	1,064,181 73	30,136 50	35,618 00	554 00	192 00	0,039 75	31,689 69	19,997 94	69,806 24	47,727 93	3,660 98	0,029 27	1,200 53	5,772 00	2,268 00	11,424 00	21,804 85	—	\$14,107 50	\$265 00	241 00
16. Text-books, supplementary and reference books.....	69,250 34	41,158 08	24,641 92	156 97	723 77	—	—	—	895 03	103 27	1,016 67	62 32	65 08	308 20	37 56	89 56	—	—	—	—	—	—	—
17. Stationery and supplies used in instruction.....	219,509 80	130,520 33	52,803 82	874 38	1,788 86	8 85	8 50	577 10	2,029 65	468 16	14,523 70	4,150 09	33 01	1,267 34	28 95	60 46	80 02	635 75	9,454 61	—	252 10	4 00	—
18. Other expenses of instruction.....	4,912 35	719 11	133 80	96 25	70 63	—	—	—	6 44	50	733 55	274 95	—	1 51	21 12	3 00	—	—	35 38	—	2,346 61	460 50	—
19. TOTAL FOR INSTRUCTION.....	\$4,802,101 35	\$3,156,749 24	\$1,230,403 43	\$41,492 03	\$45,360 30	\$1,028 71	\$543 62	\$7,574 55	\$39,699 06	\$23,957 70	\$97,040 35	\$59,911 95	\$5,117 53	\$12,388 38	\$1,309 08	\$5,957 81	\$2,630 54	\$13,873 83	\$32,977 94	\$1,636 12	\$20,535 38	\$1,436 92	\$470 79
EXPENSES OF OPERATION OF SCHOOL PLANT.																							
20. Wages of janitors and other employees.....	\$357,254 56	\$259,537 32	\$59,518 02	\$8,232 04	\$3,736 28	\$134 19	\$125 34	\$1,290 51	\$3,128 77	\$1,480 41	\$5,453 12	\$2,214 18	—	\$558 76	\$439 04	\$688 57	\$126 44	\$1,084 47	\$4,805 73	—	\$2,800 53	\$79 92	\$1,820 92
21. Fuel.....	243,011 09	181,532 71	41,376 00	4,911 86	1,983 41	96 25	24	1,342 25	1,895 23	536 11	3,950 27	876 00	\$0 24	411 84	309 63	409 20	25	1 47	—	—	2,739 71	57 07	574 09
22. Water.....	288 10	—	—	—	—	—	—	—	—	—	—	288 10	—	—	—	—	—	—	—	—	—	—	—
23. Light and power.....	61,392 82	31,808 20	15,289 14	3,773 19	2,610 96	48 00	27 75	226 00	543 08	610 20	2,621 67	1,138 43	—	84 98	61 23	55 08	—	—	—	—	2,122 15	34 10	337 70
24. Janitors' supplies.....	12,992 58	10,116 83	2,251 37	—	—	—	—	—	42 97	95 45	331 32	99 15	38	26 62	26 20	2 29	—	—	—	—	—	—	—
25. Other expenses of operation of school plant.....	1,722 00	1,270 84	320 29	20 66	10 33	1 73	1 73	1 72	8 61	6 89	34 44	22 38	1 72	3 44	1 73	3 44	1 72	10 33	—	—	—	—	—
26. TOTAL FOR OPERATION.....	\$670,661 75	\$484,265 96	\$118,755 78	\$16,937 75	\$8,340 98	\$280 17	\$155 06	\$2,861 38	\$5,618 06	\$2,729 06	\$12,396 82	\$4,638 24	\$2 34	\$1,085 64	\$837 83	\$1,158 58	\$128 41	\$1,096 27	\$4,805 73	—	\$7,602 39	\$171 99	\$2,732 71
EXPENSES OF MAINTENANCE OF SCHOOL PLANT.																							
27. Repair of buildings and upkeep of grounds.....	\$278,728 21	\$244,849 18	\$28,037 47	\$20 67	\$17 93	—	—	—	\$1,744 13	\$922 24	\$643 82	\$2,492 77	—	—	—	—	—	—	—	—	—	—	—
28. Repair and replacement of equipment.....	28,073 56	22,145 89	4,737 25	—	—	—	—	—	284 61	340 06	337 34	218 41	—	—	—	—	—	—	—	—	\$10 00	—	—
29. Insurance.....	6,752 23	5,772 13	801 90	—	—	—	—	—	35 64	17 82	71 28	53 46	—	—	—	—	—	—	—	—	—	—	—
30. Other expenses of maintenance of school plant.....	4,606 48	2,667 71	427 52	—	5 00	—	—	\$16 00	58 00	19 00	1,013 75	399 50	—	—	—	—	—	—	—	—	—	—	—
31. TOTAL FOR MAINTENANCE.....	\$318,160 48	\$275,434 91	\$34,004 14	\$20 67	\$22 93	—	—	\$16 00	\$2,122 38	\$1,299 12	\$2,066 19	\$3,164 14	—	—	—	—	—	—	—	—	\$10 00	—	—
EXPENSES OF AUXILIARY AGENCIES.																							
LIBRARIES.																							
32. Salaries.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
33. Books.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
34. Other expenses.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VOCATIONAL GUIDANCE.																							
32a. Salaries.....	\$5,674 60	\$1,134 92	\$4,539 68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
33b. Books.....	39 25	7 85	31 40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
34c. Other expenses.....	310 24	62 04	248 20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PROMOTION OF HEALTH.																							
35. Salaries.....	62,122 10	55,794 81	4,060 37	\$71 80	\$35 90	\$5 99	\$5 99	\$5 09	\$197 93	\$188 15	\$702 50	\$77 79	\$5 99	\$80 59	\$5 09	\$11 92	\$25 99	\$244 40	—	—	—	—	—
36. Other expenses.....	3,542 04	3,185 31	263 04	12 98	6 49	1 08	1 08	1 08	5 18	5 58	30 08	15 07	1 08	2 17	1 08	2 17	1 08	6 49	—	—	—	—	—
TRANSPORTATION OF PUPILS.																							
37. Salaries.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
38. Other expenses.....	6,474 50	3,189 55	—	—	—	—	—	—	—	3,074 95	—	—	—	—	210 00	—	—	—	—	—	—	—	—
39. TOTAL FOR AUXILIARY AGENCIES.....	\$78,163 33	\$63,374 48	\$9,742 69	\$84 78	\$42 39	\$7 07	\$7 07	\$7 07	\$264 11	\$3,268 08	\$733 18	\$92 86	\$7 07	\$82 76	\$217 07	\$14 09	\$27 07	\$250 89	—	—	—	—	—
MISCELLANEOUS EXPENSES.																							
40. Payments to private schools.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
41. Payments to schools of other civil divisions.....	\$21,106 22	\$20,538 56	\$1403 78	—	—	—	—	—	—	—	\$158 88	—	—	—	—	—	—	—	—	—	—	—	—
42. Care of children in institutions.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
43. Pensions*.....	112,348 97	91,435 00	18,807 01	—	—	—	—	—	\$650 40	\$1,455 96	—	—	—	—	—	—	—	—	—	—	—	—	—
44. Rent.....	28,494 10	17,230 33	3,347 79	—	—	—	—	—	—	—	—	\$7,916 04	—	—	—	—	—	—	—	—	—	—	—
45. Other miscellaneous expenses.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
46. TOTAL MISCELLANEOUS.....	\$161,949 35	\$129,204 49	\$22,563 58	—	—	—	—	—	\$650 40	\$1,455 96	\$158 88	\$7,916 04	—	—	—	—	—	—	—	—	—	—	—
TOTAL EXPENSE (11-16, INCLUSIVE).....	\$6,037,036 26	\$4,109,029 08	\$1,415,469 02	\$68,535 23	\$53,766 00	\$1,315 95	\$705 75	\$10,459 00	\$48,344 61	\$32,710 61	\$112,395 42	\$75,723 23	\$5,120 94	\$13,550 78	\$2,363 98	\$7,130 48	\$2,780 02	\$15,220 99	\$37,783 67	\$1,636 12	\$28,207 77	\$1,608 91	\$3,200 50
II.—OUTLAYS (Capital Acquisition and Construction).																							
47. Land.....	\$132,726 72	\$23,883 93	\$108,842 79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
48. New buildings.....	\$65,614 12	\$48,740 01	\$8,545 12	—	—	—	—	—	—	—	\$70,328 39	—	—	—	—	—	—	—	—	—	—	—	—
49. Alteration of old buildings.....	31,929 70	15,054 80	3,845 90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50. Equipment of new buildings and grounds.....	60,460 85	9,544 84	5,975 14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
51. Equipment of old buildings, exclusive of replacements.....	28,190 55	18,272 67	4,835 03	\$36 85	\$4 25	—	—	—	\$99 25	47 20	108 25	4,823 05	—	—	—	—	—	—	—	—	—	—	—
52. TOTAL OUTLAYS.....	\$1,058,927 94	\$715,490 85	\$210,043 95	\$36 85	\$4 25	—	—	—	\$90 25	\$11,837 20	\$115,377 51	\$8,002 05	—	—	—	—	—	—	—	—	—	—	—

\* Includes pensions to teachers and to attendance officers and janitors, etc.

† Agricultural schools.

‡ Salaries of managers, leaders, conductors, etc.

§ Payments to lecturers.





## STANDARD REPORT ON THE FINANCIAL STATISTICS OF THE PUBLIC SCHOOLS.— *Continued.*

III.— OTHER PAYMENTS.	Total.
53. Redemption of bonds.....	\$339,500 00
54. Redemption of short-term loans.....	—
55. Payment of warrants and orders of preceding year.....	—
56. Payments to sinking funds and for serial debt requirements.....	473,420 00
56a. Payments to sinking funds, receipts from sales of real property.....	11,643 09
57. Payments of interest.....	607,445 00
58. Miscellaneous payments, including payments to trust funds, text-books to be sold to pupils, etc.....	29,754 33
59. Total.....	\$1,461,762 42
60. Balances at close of year, cash in treasury.....	\$1,531,749 18
60a. Stock on hand, close of year.....	69,845 32
61. Total payments (sum of totals 10-59, inclusive).....	8,868,118 78
61a. Total payments and balances (60-61, inclusive).....	\$10,469,713 28

### B. RECEIPTS.

REVENUE RECEIPTS.	Total.
62. Subventions and grants from state.....	\$123,908 67
63. Subventions and grants from county.....	—
64. Subventions and grants from other civil divisions.....	—
65. Appropriations from city treasury.....	8,348,671 42
65a. Transferred from accrued interest, Permanent Pension Fund.....	—
66. General property taxes.....	—
67. Business taxes (licenses, excise taxes, taxes on corporations, taxes on occupations, etc.).....	—
67a. Dog tax (less damages by dogs).....	18,854 27
68. Poll taxes.....	—
69. Fines and penalties (forfeited advance payments, evening schools),	5,169 48
70. Rents and interest.....	565 90
71. Tuition and other fees from patrons.....	5,794 85
72. Transfers from other districts in payment of tuition.....	6,138 68
73. All other revenue.....	17,299 01
74. Total revenue receipts.....	\$8,526,402 28

## STANDARD REPORT ON THE FINANCIAL STATISTICS OF THE PUBLIC SCHOOLS.— *Concluded.*

### B. RECEIPTS.— *Concluded.*

NON-REVENUE RECEIPTS.	Total.
75. Loans and bond sales.....	—
75a. Sinking Funds.....	\$129,000 00
76. Warrants issued and unpaid.....	—
77. Sales of real property and proceeds of insurance adjustments.....	11,643 09
78. Sales of equipment and supplies.....	6,968 71
79. Refund of payments.....	—
80. Other non-revenue receipts.....	—
81. Total non-revenue receipts.....	\$147,611 80
82. Total receipts (sum of 74 and 81).....	\$8,674,014 08
83. Balance at beginning of year, cash in treasury.....	1,716,016 97
83a. Credit money refunded.....	—
83b. Stock on hand, beginning of year.....	79,682 23
84. Total receipts and balances (82-83b, inclusive).....	\$10,469,713 28

### C. VALUE OF SCHOOL PROPERTY.

CLASS OF BUILDINGS.	Total Value of Sites, Buildings and Equip- ment.	Value of Sites and Buildings.	Value of Equipment.	Interest on Value of School Plant.
General control.....	\$264,000 00	\$256,000 00	\$8,000 00	—
Elementary schools.....	20,249,839 83	19,587,580 04	662,259 79	—
Secondary schools.....	6,132,099 32	5,805,125 00	326,974 32	—
Normal schools.....	403,275 00	387,075 00	16,200 00	—
Schools for the industries...	519,529 58	434,246 64	85,282 94	—
Special schools.....	101,300 00	98,000 00	3,300 00	—

### D. EXPENDITURES, INCOME FROM TRUST FUNDS.

	Total.
Bowdoin (Dorchester) School Fund.....	\$84 57
Eastburn School Fund.....	200 00
Franklin Medal Fund.....	36 97
Gibson School Fund.....	2,526 95
Horace Mann School Fund.....	436 73
Teachers' Waterston Fund.....	—
Charlestown Free School Fund.....	190 61
Total.....	\$3,475 83

## TEXT-BOOKS.

### TEXT-BOOKS LOST.

The number of text-books reported lost during the year was as follows:

High schools . . . . .	1,534
Elementary schools . . . . .	5,585
Evening schools . . . . .	737
Special schools . . . . .	23
	7,879
Total number reported lost . . . . .	
The average number reported lost each year since 1885-86	
(a period of thirty-two years) was 3,550, a total for the	
thirty-two years of . . . . .	105,734
	113,613
Total number of books lost in thirty-three years . . . . .	

The number of books in addition to the above lost and paid for, but which were not reordered by schools, was 983.

### TEXT-BOOKS RETURNED.

The number of text-books returned from the schools as worn out during the year was as follows:

High schools . . . . .	17,305
Elementary schools . . . . .	50,591
Evening schools . . . . .	5,411
Special schools . . . . .	64
	73,371
Total number reported worn out . . . . .	
The average number reported worn out each year since	
1885-86 (a period of thirty-two years) was 53,919, a total	
for the thirty-one years of . . . . .	1,725,420
	1,798,791
Total number of books worn out in thirty-three years . . . . .	

In addition, 18,212 books were returned by principals as not being wanted.

### BOOKS DESTROYED.

During the year 6,127 books were destroyed for fear of contagion.

## TEXT-BOOKS GIVEN TO PUPILS.

During the year 4,947 copies of Morris's Household Science and Arts were retained by pupils completing the course in elementary schools.

## TOTALS.

Since the free text-book law went into effect the schools have been supplied with 3,538,682 text-books. Of this number 1,279,280 are still in use in the schools, and the balance, 2,259,249, either have been lost or returned to the supply room as worn out or displaced.

## BOOKS IN THE NORMAL, LATIN AND HIGH SCHOOLS.

The number of books charged January 1, 1918, used as text-books by the pupils of the Normal, Latin and high schools, was as follows:

	Number of Books January 1, 1918.	Number of Books January 1, 1917.	Increase for the Year.
Normal School.....	9,917	8,891	1,026
Public Latin School.....	33,425	31,518	1,907
Girls' Latin School.....	23,058	23,114	* 56
Brighton High School.....	13,611	12,671	940
Charlestown High School.....	10,987	11,390	* 403
Dorchester High School.....	40,244	39,641	603
East Boston High School.....	17,860	19,031	* 1,171
English High School.....	33,938	35,057	* 1,119
Girls' High School.....	40,008	39,077	931
High School of Commerce.....	24,418	24,213	205
High School of Practical Arts.....	10,613	9,719	894
Hyde Park High School.....	12,689	11,889	800
Mechanic Arts High School.....	18,234	18,546	* 312
Roxbury High School.....	23,060	24,341	* 1,281
South Boston High School.....	17,662	19,062	* 1,400
West Roxbury High School.....	17,772	17,271	501
Total number in Normal, Latin and high schools.....	347,496	345,431	2,065

\* Decrease.

NUMBER OF TEXT-BOOKS CHARGED TO ELEMENTARY SCHOOLS  
JANUARY 1, 1918.

DISTRICT.	Number of Books January 1, 1918.	Number of Books January 1, 1917.	Increase for the Year.	Decrease for the Year.
Abraham Lincoln.....	20,114	19,394	720	—
Agassiz.....	6,478	6,713	—	235
Bennett.....	14,184	13,636	548	—
Bigelow.....	11,262	12,227	—	965
Bowditch.....	10,526	9,944	582	—
Bowdoin.....	10,003	10,046	—	43
Bunker Hill.....	8,283	7,655	628	—
Chapman.....	14,958	14,480	478	—
Charles Sumner.....	11,340	11,184	156	—
Christopher Gibson.....	10,143	9,621	522	—
Dearborn.....	18,943	19,070	—	127
Dillaway.....	13,070	12,818	252	—
Dudley.....	13,493	15,293	—	1,800
Dwight.....	7,939	8,123	—	184
Edmund P. Tileston.....	6,939	7,069	—	130
Edward Everett.....	13,240	13,793	—	553
Elihu Greenwood.....	13,446	12,200	1,246	—
Eliot.....	20,416	20,472	—	56
Emerson.....	14,404	13,695	709	—
Everett.....	6,941	8,088	—	1,147
Francis Parkman.....	6,435	6,383	52	—
Franklin.....	11,539	12,072	—	533
Frederic W. Lincoln.....	10,114	10,560	—	446
Frothingham.....	11,214	11,735	—	521
Gaston.....	10,792	10,941	—	149
George Putnam.....	18,513	18,263	250	—
Gilbert Stuart.....	10,621	11,034	—	413
Hancock.....	19,605	19,839	—	234
Harvard.....	8,842	8,716	126	—
Henry Grew.....	7,843	7,670	173	—
Henry L. Pierce.....	17,071	15,737	1,334	—
Hugh O'Brien.....	15,318	15,881	—	563
Hyde.....	8,819	9,272	—	453
Jefferson.....	9,088	10,210	—	1,122
John A. Andrew.....	14,498	14,954	—	456
John Cheverus.....	13,190	13,267	—	77
John Winthrop.....	18,715	17,400	1,315	—
Lawrence.....	9,631	9,604	27	—
Lewis.....	23,778	23,564	214	—
Longfellow.....	14,370	14,177	193	—
Lowell.....	10,971	11,164	—	193
Martin.....	15,201	15,766	—	565
Mary Hemenway.....	15,984	14,945	1,039	—
Mather.....	20,419	20,897	—	478
Minot.....	6,292	6,279	13	—
Norcross.....	11,419	13,336	—	1,917
Oliver Hazard Perry.....	9,234	10,689	—	1,455
Oliver Wendell Holmes.....	32,189	31,075	1,114	—
Phillips Brooks.....	16,064	17,379	—	1,315
Prescott.....	9,289	9,341	—	52
Prince.....	11,110	11,491	—	381
Quincy.....	12,675	12,431	244	—
Rice.....	7,714	8,521	—	807
Robert G. Shaw.....	10,466	9,423	1,043	—
Roger Wolcott.....	20,888	20,849	39	—
Samuel Adams.....	17,576	18,369	—	793
Sherwin.....	8,281	8,822	—	541
Shurtleff.....	8,910	8,890	20	—
Theodore Lyman.....	13,867	13,982	—	115
Thomas Gardner.....	14,421	14,366	55	—
Thomas N. Hart.....	9,865	10,368	—	503
Ulysses S. Grant.....	12,932	12,138	794	—
Warren.....	11,219	11,518	—	299
Washington.....	12,175	12,284	—	109
Washington Allston.....	10,302	10,066	236	—
Wells.....	20,994	21,498	—	504
Wendell Phillips.....	14,369	17,512	—	3,143
William E. Russell.....	10,102	11,024	—	922
Total for elementary schools.....	881,046	891,223	14,122	24,299

Net decrease for the year 10,177.

## TEXT-BOOKS CHARGED TO ELEMENTARY SCHOOLS

JANUARY 1, 1918.

Adams: Elementary Commercial Geography . . . . .	6,016
Aldrich & Forbes: Progressive Course in Reading, Book I . . . . .	1,481
"    "    "    "    "    "    Book II . . . . .	3,352
"    "    "    "    "    "    Book III . . . . .	4,110
Aldrich & Forbes: Progressive Course in Reading, Book IV, Part 1 . . . . .	1,870
Aldrich & Forbes: Progressive Course in Reading, Book IV, Part 2 . . . . .	1,607
Aldrich & Forbes: Progressive Course in Reading, Book V, Part 1 . . . . .	1,162
Aldrich & Forbes: Progressive Course in Reading, Book V, Part 2 . . . . .	907
Aldrich & Foster: French Reader . . . . .	168
Aldrich: Selections . . . . .	45
Alexander: Spelling Book, Part I . . . . .	6,133
"    "    "    "    "    "    Part II . . . . .	10,571
Arnold Primer . . . . .	2,893
Arnold & Gilbert: Stepping Stones to Literature, First Reader . . . . .	4,523
"    "    "    "    "    "    Second Reader . . . . .	5,114
"    "    "    "    "    "    Third Reader . . . . .	5,203
"    "    "    "    "    "    Fourth Reader . . . . .	3,269
"    "    "    "    "    "    Fifth Reader . . . . .	2,015
"    "    "    "    "    "    Sixth Reader . . . . .	1,390
"    "    "    "    "    "    Seventh Reader . . . . .	1,718
"    "    "    "    "    "    Higher Grades . . . . .	1,529
Bacon: German Grammar for Beginners . . . . .	35
Bailey-Manly Spelling Book, Part I . . . . .	6,143
"    "    "    "    "    "    Part II . . . . .	13,275
Baldwin & Bender: First Reader . . . . .	597
"    "    Second Reader . . . . .	1,081
"    "    Third Reader . . . . .	1,594
"    "    Fourth Reader . . . . .	899
"    "    Fifth Reader . . . . .	726
"    "    Sixth Reader . . . . .	311
"    "    Seventh Reader . . . . .	406
"    "    Eighth Reader . . . . .	143
Ballard: Short Stories of Oral French . . . . .	180
Bassett: Plain Story American History . . . . .	45
Bender: The Bender Primer . . . . .	595
Bertenshaw: Longman's Modern French Course, Part I . . . . .	474
Bieman & Frank: French Reader . . . . .	45
Blaisdell: Child's Book of Health . . . . .	691
"    Our Bodies and How We Live . . . . .	540
"    Child Life Primer . . . . .	4,147
"    Second Reader . . . . .	5,069
<i>Carried forward</i> . . . . .	102,072

<i>Brought forward</i> . . . . .	102,072
Blaisdell: Third Reader . . . . .	2,708
“ Fourth Reader . . . . .	2,467
Blodgett: Primer . . . . .	2,977
“ First Reader . . . . .	1,619
Boyden: First Book in Algebra . . . . .	708
Brigham & McFarlane: Essentials of Geography, First Book . . . . .	1,193
“ “ “ “ Second Book . . . . .	1,784
Brooks: English Composition, Book I . . . . .	220
Brown: The Plant Baby and its Friends . . . . .	125
Browne & Haldeman: Clarendon Dictionary . . . . .	10,171
Bruce: Lectures Faciles . . . . .	688
Brumbaugh: Standard Fourth Reader . . . . .	1,859
“ Standard Fifth Reader . . . . .	1,423
Bryce & Spaulding: Aldine First Language Book, Part I . . . . .	1,987
“ “ “ “ “ “ Complete . . . . .	1,518
“ “ Aldine Second Language Book . . . . .	494
Buckwalter: Easy Primer . . . . .	251
“ Easy First Reader . . . . .	782
“ Second Reader . . . . .	2,002
“ Third Reader . . . . .	2,003
“ Fourth Reader . . . . .	3,715
“ Fifth Reader . . . . .	1,245
Buehler & Hotchkiss: Modern English Lessons, Book I . . . . .	847
Burchill, Ettinger & Shimer: Progressive Road to Reading, Book I . . . . .	3,095
Burchill, Ettinger & Shimer: Progressive Road to Reading, Book II . . . . .	3,498
Burchill, Ettinger & Shimer: Progressive Road to Reading, Introductory Book III . . . . .	1,327
Burchill, Ettinger & Shimer: Progressive Road to Reading, Book III . . . . .	2,326
Burchill, Ettinger & Shimer; Progressive Road to Reading, Introductory Book IV . . . . .	253
Burchill, Ettinger & Shimer: Progressive Road to Reading, Book IV . . . . .	1,035
Burns' Poems . . . . .	90
Carroll & Brooks: Brooks Primer . . . . .	627
“ “ First Reader . . . . .	1,147
Chancellor: Reading and Language Lessons . . . . .	154
Channing: Elements of United States History . . . . .	436
“ Short History of the United States . . . . .	1,847
Chardenal: French Course . . . . .	92
Chapuzet & Daniels: Mes Premiers Pas en Français . . . . .	338
Chapuzet: Elementary Spanish Reader . . . . .	30
Claude: Twilight Thoughts . . . . .	798
Coe: School Reader, Third Grade . . . . .	1,499
“ “ “ Fourth Grade . . . . .	2,036
Coe & Christie: Story Hour Reader III . . . . .	30
<i>Carried forward</i> . . . . .	165,516

<i>Brought forward</i> . . . . .	165,516
Cole: Graded Arithmetic, Book III . . . . .	1,573
“ “ “ Book IV . . . . .	1,350
“ “ “ Book V . . . . .	726
“ “ “ Book VI . . . . .	647
“ “ “ Book VII . . . . .	517
Congdon: Music Primer, No. 1 . . . . .	1,624
“ “ “ No. 2 . . . . .	422
Conn: Introductory Physiology and Hygiene . . . . .	8,112
“ Elementary Physiology and Hygiene . . . . .	7,919
Cooley: Elements of Natural Philosophy . . . . .	58
Cooper: Spy . . . . .	60
Culler: First Book in Physics . . . . .	2,783
Cunningham: First Book for Non-English Speaking People . . . . .	710
Cyr: Primer . . . . .	8,223
“ First Reader . . . . .	4,246
“ Second Reader . . . . .	4,952
“ Third Reader . . . . .	5,200
“ Fourth Reader . . . . .	5,443
“ Fifth Reader . . . . .	2,817
Daly: Advanced Rational Speller . . . . .	1,930
Davison & Surette: Book of Words . . . . .	2,138
DeMonvert: LaBelle Français . . . . .	150
DeSegur: Les Malheurs de Sophie . . . . .	43
Dowling: Reading, Writing and Speaking Spanish . . . . .	591
Dryer: Elementary Economic Geography . . . . .	65
Dunn: Community & Citizen . . . . .	179
Dunton & Kelley: Graded Course in English, First Book . . . . .	1,269
“ “ Graded Course in English, Language Lessons, . . . . .	1,025
Dunton & Kelley: Inductive Course in English, Language . . . . .	
Lessons . . . . .	1,370
Durrell & Hall: Arithmetic, Book I . . . . .	576
“ “ “ Book II . . . . .	917
“ “ “ Book III . . . . .	674
Edson-Laing: Reader I . . . . .	35
“ Reader II . . . . .	86
“ Reader III . . . . .	170
“ Reader IV . . . . .	45
“ Reader V . . . . .	45
Eldridge: Business Speller . . . . .	50
Elson: Elson Primary School Reader, Book I . . . . .	603
“ “ “ “ “ Book II . . . . .	650
“ “ “ “ “ Book III . . . . .	883
“ “ “ “ “ Book IV . . . . .	677
Elson & Keck: Elson Grammar School Reader, Book I . . . . .	682
“ “ “ “ “ “ Book II . . . . .	712
“ “ “ “ “ “ Book III . . . . .	1,236
“ “ “ “ “ “ Book IV . . . . .	1,256
<i>Carried forward</i> . . . . .	240,955



<i>Brought forward</i>	240,955
Elson & Runkel: Primer	333
Evans & Marsh: First Year Mathematics	834
Fassett: The Beacon Primer	692
“ “ “ First Reader	439
“ “ “ Second Reader	249
“ “ “ Third Reader	75
Finch Primer	1,674
Fiske: History of United States for Schools	845
Foster: Geschichten und Marchen	136
Franklin Arithmetics	470
Franklin Readers	1,016
Frye: Leading Facts in Geography, Book I	1,193
“ “ “ “ Book II	1,116
Funk & Wagnalls: Comprehensive Standard Dictionary	2,106
“ “ Concise Standard Dictionary	3,610
Gifford: Elementary Lessons in Physics	1,237
“ Progressive Mental Arithmetic, Book I	4,575
“ “ “ “ Book II	3,563
Gilbert & Harris: Guide Book to English, Book I	2,173
Gordy: Elementary History of the United States	2,567
“ History of the United States for Schools	2,682
Griffith: Essentials of Woodworking	48
Gronow: Jung Deutschland	129
Guerber: Contes et Légendes, Part I	778
“ Märchen und Erzählungen, Part I	492
Hall: All Spanish Method, First Book	165
Hall & Brumbaugh: Standard Primer	19
Hapgood: School Needlework	60
Harris & Waldo: First Journeys in Numberland	570
Hartwell: Boston and Its Story	226
Hazen: Fourth Reader	1,963
Heath: Primer	1,104
“ First Reader	1,351
“ Second Reader	2,267
“ Third Reader	2,474
“ Fourth Reader	2,156
“ Fifth Reader	1,759
Hervey & Hix: Horace Mann Reader I	25
“ “ “ “ “ II	105
“ “ “ “ “ III	70
“ “ “ “ “ IV	94
Hicks: Champion Spelling Book, Part I	903
“ “ “ “ “ Part II	864
“ “ “ “ “ Complete	85
Higgins: Lessons in Physics	2,384
Higginson: Young Folks' History of the United States	62
Hitchcock: New Practice Book	930
<i>Carried forward</i>	293,623

<i>Brought forward</i> . . . . .	293,623
How to Run a Lathe . . . . .	135
Howe: Primer . . . . .	1,445
" First Reader . . . . .	1,114
" Second Reader . . . . .	1,762
" Third Reader . . . . .	1,829
" Fourth Reader . . . . .	3,323
" Fifth Reader . . . . .	3,443
" Reader, Book VI . . . . .	770
" " Book VII . . . . .	1,250
" " Book VIII . . . . .	1,144
Hoyt & Peet: Everyday Arithmetics, Book I . . . . .	180
" " " " Book II . . . . .	500
" " " " Book III . . . . .	303
" " First Year in Number . . . . .	305
Huebsch & Smith: Progressive Lessons in German, Part I . . . . .	180
Hunt: Geometry . . . . .	153
" Simple Problems in Industrial Arithmetic . . . . .	76
James & Sanford: Our Government, Local, State and National . . . . .	5,125
Jones: First Reader . . . . .	2,461
" Second Reader . . . . .	4,369
" Third Reader . . . . .	5,224
" Fourth Reader . . . . .	4,067
" Fifth Reader . . . . .	2,500
" The Child's Own Spelling Book . . . . .	100
Judson & Bender: Graded Literature Readers, First Book . . . . .	230
" " " " " Second Book . . . . .	386
" " " " " Third Book . . . . .	513
" " " " " Fourth Book . . . . .	460
" " " " " Fifth Book . . . . .	40
Kelley & Morse: Natural Speller, Lower Grades . . . . .	2,260
" " " " Higher Grades . . . . .	1,084
King: Elementary Geography . . . . .	9,554
" Advanced Geography . . . . .	9,556
Kittredge: Practical Homemaking . . . . .	28
Krohn: First Book in Physiology and Hygiene . . . . .	4,417
" Graded Lessons in Physiology and Hygiene . . . . .	5,102
Lewis: Lippincott Primer . . . . .	498
" " First Reader . . . . .	264
" " Second Reader . . . . .	807
Lincoln: Boston School Kitchen Text-book . . . . .	25
Lister: Writing Lessons for Primary Grades . . . . .	31,303
Macaulay: Lays and Ballads . . . . .	75
MacDermott: Lectura Natural de Heath, Libro Primero . . . . .	325
" " " " " Segundo . . . . .	40
McLaughlin & Gilchrist: New Educational First Music Reader, . . . . .	10,267
McLaughlin & Gilchrist: New Educational Second Music Reader . . . . .	5,645
<i>Carried forward</i> . . . . .	418,620

<i>Brought forward</i> . . . . .	418,620
McLaughlin & Gilchrist: New Educational Third Music Reader . . . . .	5,158
McLaughlin & Gilchrist: New Educational Fourth Music Reader . . . . .	4,918
McLaughlin & Gilchrist: New Educational Fifth Music Reader . . . . .	3,902
McLaughlin & Van Tyne: History of the United States . . . . .	1,217
McMaster: Brief History of the United States . . . . .	945
Mace: School History of the United States . . . . .	137
Mairet: La Tache du Petit Pierre . . . . .	45
Mason & Veazie: National Fourth Music Reader . . . . .	299
Masterpieces of American Literature . . . . .	5,996
Meras: Le Premier Livre . . . . .	145
Meras & Roth: Pequeno Livre . . . . .	50
Meservey: Bookkeeping, Single Entry . . . . .	148
Metcalf: English Grammar . . . . .	1,203
“ Language Exercises . . . . .	291
Metcalf & Bright: Language Lessons, Part I . . . . .	2,630
“ “ “ “ Part II . . . . .	1,365
Metcalf & Rafter: Language Series, Book I . . . . .	22,606
“ “ “ “ Book II . . . . .	20,250
Mickens & Robinson: Mother Goose Reader . . . . .	1,254
Miller & Meras: Ein Wortschatz . . . . .	93
Mitchell: Public School Class Method for Violin, Book I . . . . .	475
“ “ “ “ “ “ Book II . . . . .	312
Monroe: New Fourth Reader . . . . .	1,798
Montgomery: Elementary American History . . . . .	7,876
“ Leading Facts of American History . . . . .	10,992
Moore: Second Book for Non-English Speaking People . . . . .	416
Morey: Elementary Arithmetic, Part I . . . . .	8
“ “ “ Part II . . . . .	106
“ “ “ Part III . . . . .	102
“ Advanced Arithmetic, Part I . . . . .	147
“ “ “ Part II . . . . .	133
“ “ “ Part III . . . . .	239
“ Outline of Greek History . . . . .	207
Morris: Household Science and Arts . . . . .	13,673
Moulton: Short Stories . . . . .	50
Mowry: Elements of Civil Government . . . . .	701
Murray: Wide Awake Primer . . . . .	5,428
“ “ “ First Reader . . . . .	4,682
“ “ “ Second Reader . . . . .	5,608
“ “ “ Third Reader . . . . .	3,240
“ “ “ Fourth Reader . . . . .	1,790
Myers: Arithmetic, Book I . . . . .	680
“ “ Book II . . . . .	796
“ “ Book III . . . . .	712
<i>Carried forward</i> . . . . .	551,443

<i>Brought forward</i>	551,443
Nichols: New Graded Lessons in Arithmetic, Book III	5,320
“ “ “ “ “ Book IV	5,894
“ “ “ “ “ Book V	4,740
“ “ “ “ “ Book VI	4,472
“ “ “ “ “ Book VII	3,419
“ “ “ “ “ Book VIII	3,086
Noyes & Guild: Sunshine Primer	415
Palmer Method of Business Writing	71,834
Pearson: Essentials of Latin for Beginners	232
Pelo & Gardner: Sanborn Speller, Part I	46
“ “ “ “ Part II	715
“ “ “ “ Part III	278
Pichon: Premières Leçons de Vocabulaire et d'Elocution	161
Pichon-Sattler: Deutsches Lese und Redebuch	448
Redway & Hinman: Natural Advanced Geography	2,961
“ “ “ “ School Geography	4,072
Reinsch: Civil Government	244
Ripley & Tapper: Natural Music Readers, old edition	931
“ “ “ Harmonic Primer	6,515
“ “ “ “ First Music Reader	3,795
“ “ “ “ Second Music Reader	3,286
“ “ “ “ Third Music Reader	3,295
“ “ “ “ Fourth Music Reader	2,573
“ “ “ “ Fifth Music Reader	1,618
Ritchie: Primer of Sanitation	1,951
“ Fabulae Faciles	50
Ritchie & Caldwell: Primer of Hygiene	3,964
“ “ “ “ Physiology	285
Scott & Denny: Elementary Composition	50
Scott & Southworth: Lessons in English, Book I	6,018
Sensenig-Anderson: Introductory Arithmetic	855
“ “ Essentials of Arithmetic	1,424
Shakespeare: As You Like It	225
“ Midsummer Night's Dream	328
“ Tempest	340
Sheldon-Barnes: American History	506
Snow & Lebon: Easy French	54
Solano: Spanish	205
Spaulding & Bryce: Aldine Primer	5,127
“ “ “ First Reader	4,656
“ “ “ Second Reader	4,095
“ “ “ Third Reader	3,588
“ “ “ Fourth Grade Reader	1,581
“ “ “ Fifth Grade Reader	738
“ “ “ Sixth Grade Reader	478
“ “ “ Seventh Grade Reader	527
Stone: History of England	229
Stone-Millis: Arithmetic, Primary Book	5,480
<i>Carried forward</i>	724,547

<i>Brought forward</i> . . . . .	724,547
Stone-Millis: Arithmetic, Intermediate Book . . . . .	6,499
“ “ “ Advanced Book . . . . .	6,455
Stowell: Healthy Body . . . . .	796
Summers: Primer . . . . .	202
“ First Reader . . . . .	181
“ Second Reader . . . . .	379
Sutherland & Sanford: Practical Exercises in Geography . . . . .	49
Swinton: Language Lessons . . . . .	48
Talbot: Le Français et sa Patrie . . . . .	174
Tappan: Our Country's Story . . . . .	3,366
Tarbell: Introductory Geography . . . . .	3,425
“ Complete Geography . . . . .	1,855
Tarr & McMurry: Geography, Book I, Part 1 . . . . .	1,110
“ “ “ Book I, Part 2 . . . . .	668
“ “ “ Book I, Complete . . . . .	8,131
“ “ “ Book II, Part 1 . . . . .	2,907
“ “ “ Book II, Part 2 . . . . .	1,970
“ “ “ Book II, Complete . . . . .	12,656
“ “ Geographies, old edition . . . . .	568
Thwaite & Kendall: History United States . . . . .	104
Tuell & Fowler: First Book Latin . . . . .	125
Tufts: Cecilian Series of Study and Song, Book III . . . . .	2,362
“ “ “ “ “ Book IV . . . . .	1,831
Tufts: Cecilian Series of Study and Song, Books III and IV, combined . . . . .	1,722
Tufts & Holt: New Normal First Music Reader . . . . .	6,849
“ “ “ “ Second Music Reader, Part 1 . . . . .	1,443
“ “ “ “ “ “ “ Part 2 . . . . .	791
“ “ “ “ “ “ “ Complete . . . . .	4,747
“ “ “ “ Third Music Reader, Part 1 . . . . .	2,387
“ “ “ “ “ “ “ Part 2 . . . . .	281
“ “ “ “ “ “ “ Complete . . . . .	646
“ “ Normal Music Readers, old edition . . . . .	383
Tweed: Grammar . . . . .	45
Van Sickle, Seegmiller & Jenkins: Riverside Primer . . . . .	327
“ “ “ Riverside First Reader . . . . .	313
“ “ “ Riverside Second Reader . . . . .	1,031
“ “ “ Riverside Third Reader . . . . .	1,066
“ “ “ Riverside Fourth Reader . . . . .	564
“ “ “ Riverside Fifth Reader . . . . .	503
“ “ “ Riverside Sixth Reader . . . . .	247
Varney: Robin Reader . . . . .	2,370
Vosburgh & Gentleman: Mathematics . . . . .	381
Wallach: First Book in English . . . . .	107
“ Second Book in English for Foreigners . . . . .	34
Walsh & Suzzalo: Arithmetic, Book II . . . . .	95
“ “ “ Book III . . . . .	50
Walton & Holmes: Arithmetic, Book I . . . . .	5,936
<i>Carried forward</i> . . . . .	812,720

<i>Brought forward</i> . . . . .	812,720
Walton & Holmes: Arithmetic, Book II . . . . .	10,388
“ “ “ Book III . . . . .	10,671
“ “ “ Book IV . . . . .	5,018
Webster: Academic Dictionary . . . . .	3,119
“ Elementary School Dictionary . . . . .	658
“ Shorter School Dictionary . . . . .	898
Wentworth & Smith: Arithmetic, Book I . . . . .	331
“ “ “ Book II . . . . .	1,107
“ “ “ Book III . . . . .	492
Wentworth & Smith: Essentials of Arithmetic, Intermediate Book . . . . .	51
Wentworth & Smith: Essentials of Arithmetic, Advanced Book, . . . . .	4
Werner: Primer . . . . .	343
Williams & Fisher: Elements of the Theory and Practice of Cookery . . . . .	6
Woodburn & Moran: Elementary American History and Government . . . . .	4,864
Worcester: New Primary Dictionary . . . . .	2,972
“ Comprehensive Dictionary . . . . .	19,647
“ New Pronouncing Speller . . . . .	1,382
“ New School Dictionary of the English Language, . . . . .	5
Young & Jackson: Appleton Arithmetic, Primary Book . . . . .	641
“ “ “ “ Second Book . . . . .	1,036
“ “ “ “ Third Book . . . . .	1,076
Miscellaneous books in Hyde Park schools . . . . .	3,617
Total . . . . .	<u>881,046</u>

SUMMARY TEXT-BOOKS CHARGED TO SCHOOLS  
JANUARY 1, 1918.

Normal, Latin and high schools . . . . .	347,496
Elementary schools . . . . .	881,046
Boston Clerical School . . . . .	1,170
Horace Mann School . . . . .	1,558
Trade School for Girls . . . . .	360
Boston Trade School . . . . .	1,441
Continuation schools . . . . .	331
Day School for Immigrants . . . . .	605
Class for Conservation of Eyesight . . . . .	68
Speech Improvement classes . . . . .	840
Boston Disciplinary Day School . . . . .	317
Evening schools . . . . .	44,048
Total . . . . .	<u>1,279,280</u>

This shows a net decrease of 11,672 books during the year.

ESTIMATES AND ITEMIZED APPROPRIATION  
ORDER FOR THE FINANCIAL  
YEAR 1918-19.

## BUDGET.

## APPROPRIATION, 1918-1919.

OFFICE OF THE BUSINESS AGENT OF THE SCHOOL COMMITTEE,  
ROOM 801, CITY HALL ANNEX, May 20, 1918.

*To the School Committee:*

In compliance with section 66 of the rules, I submit herewith the estimates and itemized appropriation order to cover the expenses of the public schools for the financial year February 1, 1918, to January 31, 1919, both included.

The average valuation of the city for the three years 1915, 1916 and 1917, with all abatements allowed up to December 31, 1917, as certified to his Honor the Mayor by the Board of Assessors, is \$1,541,597,610.68. This is the sum upon which all appropriations by the City Council and the School Committee for the financial year are based.

The School Committee is authorized by law to appropriate the following sums:

(a.) Four dollars and sixty-two cents upon each one thousand dollars of the valuation of the city for the public schools and their support, of which amount not more than sixty cents upon every such one thousand dollars shall be appropriated solely for new school buildings, lands, yards and furnishings, not more than thirty-five cents upon every such one thousand dollars shall be appropriated solely for alterations and repairs of school buildings, and not less than twenty-five cents upon every such one thousand dollars shall be appropriated for salaries of teachers as set forth in chapter 708 of the Acts of 1911: (Chapter 400 of the Acts of 1898, chapter 448 of the Acts of 1901, chapter 170 of the Acts of 1903, chapter 205 of the Acts of 1906, chapter 388 of the Acts of 1909, chapter 708 of the Acts of 1911, chapter 615 of the Acts of 1913, chapter 267 of the Acts of 1916 and chapter 132 of the Special Acts of 1918.)

(b.) Four cents upon each one thousand dollars of the valuation of the city for organizing and conducting physical training and exercises, athletics, sports, games and play, and for providing proper apparatus, equipment and facilities for same in buildings, yards and playgrounds under the control of the School Committee or upon any other land it may have the right to use for the purpose. (Chapter 295 of the Acts of 1907.)

(c.) Two cents upon each one thousand dollars of the valuation of the city for the service of nurses in the public schools. (Chapter 357 of the Acts of 1907.)

(d.) Seven cents upon each one thousand dollars of the valuation of the city for the establishment of a permanent school pension fund and the



payment of pensions to retired teachers. (Chapter 589 of the Acts of 1908, chapter 617 of the Acts of 1910 and chapter 304 of the Acts of 1915.)

(e.) Two cents upon each one thousand dollars of the valuation of the city for the extended use of the public schools. (Chapter 195 of the Acts of 1912.)

(f.) The unexpended balance for the financial year 1917-18.

(g.) The excess of income for the financial year 1917-18 over that estimated, if any.

(h.) The estimated income for the financial year 1918-19.

#### MONEY AVAILABLE.

Exclusive of the money available for new school buildings, lands, yards and furnishings, viz., sixty cents on each one thousand dollars of the valuation and amounting to \$924,958.57, the sums available for the financial year 1918-19 are as follows:

\$3.42 per \$1,000 for general purposes . . . . .	\$5,272,263 83
.25 per \$1,000 for salaries of teachers (chapter 708, Acts of 1911) . . . . .	385,399 40
.35 per \$1,000 for repairs and alterations to school buildings * . . . . .	539,559 16
.04 per \$1,000 for physical education . . . . .	61,663 90
.02 per \$1,000 for nurses . . . . .	30,831 95
.07 per \$1,000 for pensions . . . . .	107,911 83
.02 per \$1,000 for extended use of the public schools . . . . .	30,831 95
Unexpended balance general appropriation 1917-18, viz., \$41,249.19, less difference between income for 1917-18 and the amount collected, viz., \$3,424.71 . . . . .	37,824 48
Unexpended balance appropriation Schoolhouse Department . . . . .	19,729 28
Estimated income, 1918-19 . . . . .	163,956 65
	<hr/>
Amount available, as above . . . . .	\$6,649,972 43
Additional amount available by reduction of appropriation for new school buildings, lands, yards and furnishings . . . . .	213,027 57
Total amount available . . . . .	<u>\$6,863,000 00</u>

#### INCREASE IN MONEY AVAILABLE FOR CERTAIN PURPOSES.

Exclusive of the sums set aside for pensions, physical education, extended use of the public schools, repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new electric lighting fixtures, equipment and apparatus for nurses' rooms, and rents of hired buildings, the amount of money provided in the appropriation order this year for general school purposes, medical inspection, and the service of nurses in excess of the amount appropriated for the same purposes last year is \$358,137.97.

\* Not more than thirty-five cents.

## INCREASES IN SALARIES OF INSTRUCTORS.

The increases in salaries of instructors for the past nine years have been as follows:

1909-10 over 1908-09	\$130,829 52
1910-11 over 1909-10	136,039 34
1911-12 over 1910-11	99,206 87
1912-13 over 1911-12	321,488 72
1913-14 over 1912-13	278,135 70
1914-15 over 1913-14	182,608 65
1915-16 over 1914-15	201,297 13
1916-17 over 1915-16	78,656 15
1917-18 over 1916-17	84,146 20
Total increase in nine years	<u>\$1,512,408 28</u>

The estimated increase in the salaries of instructors for the current year over that of 1917-18, without change in the salary schedule, is \$69,341.74.

An allowance has also been made in the appropriation for Salaries of Instructors for a further increase of \$134,119, made available under chapter 132 of the Special Acts of 1918.

The total estimated increase in the cost of this item for the current financial year is, therefore, \$203,460.74.

I recommend the passage of the accompanying order.

WILLIAM T. KEOUGH,  
*Business Agent.*

## ESTIMATES FOR FINANCIAL YEAR 1918-19.

## SALARIES OF INSTRUCTORS.

*Normal School.*

Normal School . . . . .	\$39,474 60
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*Latin and High Schools.*

Public Latin . . . . .	\$74,735 20
Girls' Latin . . . . .	45,658 10
Brighton High . . . . .	33,873 27
Charlestown High . . . . .	31,855 87
Dorchester High . . . . .	120,038 37
East Boston High . . . . .	49,453 20
English High . . . . .	151,362 39
Girls' High . . . . .	104,018 40
High School of Commerce . . . . .	106,814 87
High School of Practical Arts . . . . .	59,111 00
Hyde Park High . . . . .	40,464 20
Mechanic Arts High . . . . .	135,256 20
Roxbury High . . . . .	53,478 93
South Boston High . . . . .	50,980 00
West Roxbury High . . . . .	49,652 10
Laboratory assistance, English High . . . . .	600 00
Laboratory assistance, Girls' High . . . . .	500 00
2 additional assistant instructors in salesman- ship from September 16, 1918 . . . . .	567 00
2 school librarians for 4 months of service . . . . .	464 00
Temporary teachers . . . . .	12,380 00

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\$1,121,263 10

Reduction in estimates . . . . .	20,000 00
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1,101,263 10

*Elementary School Districts (Including Kindergarten Teachers).*

Abraham Lincoln . . . . .	\$61,381 21
Agassiz . . . . .	27,469 34
Bennett . . . . .	43,150 66
Bigelow . . . . .	36,612 88
Bowditch . . . . .	35,128 93
Bowdoin . . . . .	33,046 55
Bunker Hill . . . . .	24,702 07
Chapman . . . . .	36,311 81
Charles Sumner . . . . .	34,743 08

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Carried forward . . . . .	\$332,546 53	\$1,140,737 70
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<i>Brought forward</i>	\$332,546 53	\$1,140,737 70
Christopher Gibson	32,276 67	
Dearborn	57,505 12	
Dillaway	42,375 54	
Dudley	44,337 00	
Dwight	32,953 87	
Edmund P. Tileston	23,130 68	
Edward Everett	46,426 27	
Elihu Greenwood	35,231 23	
Eliot	69,278 20	
Emerson	39,744 27	
Everett	25,604 81	
Francis Parkman	22,812 66	
Franklin	33,791 88	
Frederic W. Lincoln	28,322 88	
Frothingham	24,078 15	
Gaston	30,904 91	
George Putnam	55,076 35	
Gilbert Stuart	28,609 02	
Hancock	71,864 15	
Harvard	26,492 20	
Henry Grew	19,343 06	
Henry L. Pierce	47,531 74	
Hugh O'Brien	44,539 36	
Hyde	30,218 55	
Jefferson	29,865 74	
John A. Andrew	35,766 81	
John Cheverus	48,244 92	
John Winthrop	45,767 06	
Lawrence	31,923 94	
Lewis	57,874 53	
Longfellow	34,510 54	
Lowell	39,367 53	
Martin	39,346 40	
Mary Hemenway	55,340 40	
Mather	66,576 02	
Minot	17,670 54	
Norcross	35,258 12	
Oliver Hazard Perry	26,008 27	
Oliver Wendell Holmes	100,209 58	
Phillips Brooks	41,972 36	
Prescott	25,263 07	
Prince	30,007 73	
Quincy	42,359 81	
Rice	26,802 54	
Robert G. Shaw	34,298 34	
Roger Wolcott	64,131 59	
Samuel Adams	65,019 29	
Sherwin	39,310 93	
<i>Carried forward</i>	\$2,277,891 16	\$1,140,737 70

<i>Brought forward</i> . . . . .	\$2,277,891 16	\$1,140,737 70
Shurtleff . . . . .	24,619 87	
Theodore Lyman . . . . .	41,343 88	
Thomas Gardner . . . . .	42,865 87	
Thomas N. Hart . . . . .	37,034 82	
Ulysses S. Grant . . . . .	38,785 40	
Warren . . . . .	32,284 11	
Washington . . . . .	51,960 35	
Washington Allston . . . . .	31,524 65	
Wells . . . . .	59,352 30	
Wendell Phillips . . . . .	45,305 99	
William E. Russell . . . . .	33,377 47	
Allowance for special assistants . . . . .	59,588 00	
20 additional assistants from November 16, 1918 . . . . .	1,500 00	
5 additional assistants, kindergarten, from October 1, 1918 . . . . .	600 00	
Promotion of 5 assistants, kindergarten, to first assistants, kindergarten, from October 1, 1918 . . . . .	30 00	
5 additional instructors, special classes, from November 1, 1918 . . . . .	650 00	
10 special assistants for ten new special classes, three from January 1, 1918, four from April 1, 1918, and three from October 1, 1918, at \$2.50 per diem . . . . .	3,681 00	
Assignment of Marie A. Solano to supervision of language work in intermediate classes . . . . .	600 00	
	<u>\$2,782,994 87</u>	
Reduction in estimates . . . . .	20,000 00	2,762,994 87
<i>Horace Mann School.</i>		
Principal and teachers . . . . .		21,696 00
<i>Trade School for Girls (Day, Evening and Summer Classes).</i>		
Principal, teachers and clerks . . . . .	\$52,048 62	
Reduction in estimates . . . . .	7,000 00	45,048 62
<i>Boston Trade School.</i>		
Master, teachers and clerks, day school (existing force) . . . . .	\$31,527 72	
2 instructors in academic and technical branches from September 9, 1918 . . . . .	933 32	
2 shop instructors from September 9, 1918 . . . . .	686 93	
1 additional tool keeper from September 9, 1918 . . . . .	148 00	
	<u>33,295 97</u>	
<i>Boston Clerical School.</i>		
Head-master and teachers . . . . .		14,719 26
<i>Carried forward</i> . . . . .		<u>\$4,018,492 42</u>

<i>Brought forward</i> . . . . .		\$4,018,492 42
<i>Boston Disciplinary Day School.</i>		
Teachers' salaries . . . . .		1,286 53
<i>Department of Manual Arts.</i>		
Director . . . . .	\$3,420 00	
Associate Director, part time . . . . .	900 00	
2 Assistant Directors . . . . .	4,872 67	
1 Temporary Assistant Director, two-fifths time to July 1 and full time thereafter . . . . .	1,190 00	
8 Assistants . . . . .	12,982 20	
21 Prevocational Instructors . . . . .	29,117 83	
13 Instructors in Manual Training . . . . .	17,455 00	
41 Assistant Instructors in Manual Training, . . . . .	48,343 89	
10 Shop Work Instructors . . . . .	11,257 66	
4 Temporary Prevocational Instructors . . . . .	3,384 80	
2 additional Prevocational Instructors from September 11, 1918 . . . . .	814 00	
Assistant, elementary school, assigned . . . . .	1,176 00	
1 additional Assistant in Manual Arts from September 11, 1918 . . . . .	370 33	
2 additional Prevocational Assistants from September 11, 1918 . . . . .	484 00	
Assignment of a Junior Assistant in connec- tion with gardening for 5 months of service at \$75 . . . . .	375 00	
54 Instructors in Gardening, 25 Supervisors of Gardening, and 15 Assistant Supervisors of Gardening . . . . .	5,000 00	
2 Temporary Teachers of Modeling, North Bennet Street Industrial School, one on one-fifth time and one on two-fifths time, from January 1, 1918 . . . . .	273 00	
3 proposed Vocational Art Instructors (Art Museum) on part time, and 1 Monitor on full time . . . . .	1,200 00	
1 Special Assistant to the head of the Manual Arts Department, Dorchester High School, at the rate of \$2 per day from January 1, 1918 . . . . .	366 00	
		142,982 38
<i>Department of Household Science and Arts.</i>		
Director . . . . .	\$2,700 00	
Assistant Director . . . . .	1,500 00	
42 Teachers of Cookery . . . . .	42,949 21	
62 Teachers of Sewing . . . . .	62,397 76	
Temporary Teachers, Cookery . . . . .	—	
Temporary Teachers, Sewing . . . . .	—	
<i>Carried forward</i> . . . . .	\$109,546 97	\$4,162,761 33

<i>Brought forward</i> . . . . .	\$109,546 97	\$4,162,761 33
2 additional Teachers of Cookery to be assigned to prevocational classes from September 11, 1918 . . . . .	425 33	
1 additional Teacher of Cookery from May 6, 1918 . . . . .	400 00	
1 additional Teacher of Sewing to be assigned to prevocational classes from September 11, 1918 . . . . .	212 66	
		110,584 96
<i>Department of Music.</i>		
Director . . . . .	\$3,209 67	
4 Assistant Directors . . . . .	10,056 00	
9 Assistants . . . . .	11,839 80	
		25,105 47
<i>Speech Improvement Classes.</i>		
Teachers' salaries . . . . .	\$7,056 00	
1 additional Instructor from April 1, 1918 . . . . .	585 00	
		7,641 00
<i>Classes for Conservation of Eyesight.</i>		
Teachers' salaries . . . . .	\$1,683 50	
Provision for increase in salaries . . . . .	37 00	
		1,720 50
<i>Continuation School.</i>		
Teachers' salaries . . . . .	\$53,753 40	
Temporary teachers now in service . . . . .	5,114 50	
1 additional Trade Instructor from January 1, 1918 . . . . .	1,236 00	
1 part time Trade Instructor for 35 weeks at \$12 . . . . .	420 00	
1 Aid from January 1, 1918 . . . . .	457 50	
1 additional Trade Assistant from January 1, 1918 . . . . .	996 00	
4 additional Special Assistants from January 1, 1918 . . . . .	2,928 00	
6 Instructors instead of 6 Special Assistants now employed, from September 9, 1918 . . . . .	1,769 58	
1 Trade Assistant instead of 1 Helper now employed, from September 9, 1918 . . . . .	60 86	
3 Instructors instead of 3 Assistants, elementary schools, now on assignment, from September 9, 1918 . . . . .	884 79	
	\$67,620 63	
Reduction in estimates . . . . .	4,000 00	
		63,620 63
<i>Department of Evening Schools.</i>		
Director . . . . .	\$3,407 00	
Supervisor of Division C Classes . . . . .	210 00	
		3,617 00
<i>Carried forward</i> . . . . .		\$4,375,050 89

<i>Brought forward</i> . . . . .		\$4,375,050 89
<i>Evening High Schools.</i>		
Salaries of principals, teachers and clerical assistants, existing schools . . . . .		32,400 00
<i>Evening Elementary Schools.</i>		
Salaries of principals, teachers and clerical assistants, existing schools . . . . .		24,300 00
<i>Boston Trade School, Evening Classes.</i>		
Salaries of teachers and clerks . . . . .		6,022 02
<i>Day School for Immigrants.</i>		
Salaries of teachers . . . . .	\$2,857 86	
2 Special Assistants . . . . .	736 00	
1 additional Special Assistant, 120 half days . . . . .	240 00	
	<hr/>	3,833 86
SUMMER REVIEW SCHOOLS.		
<i>High Review School.</i>		
Salaries of principal and teachers . . . . .		3,480 00
<i>Elementary Review Schools.</i>		
9 Principals at \$5 per day — 1 Assistant in Charge at \$3 per day — 160 Assistants at \$2 per day . . . . .		13,920 00
<i>Department of Practice and Training.</i>		
First Assistant Director . . . . .	\$2,340 00	
4 Assistant Directors . . . . .	7,834 67	
	<hr/>	10,174 67
<i>Director of Kindergartens.</i>		
Director . . . . .	\$2,380 00	
Assistant Director . . . . .	1,500 00	
	<hr/>	3,880 00
<i>Supervisor of Special Classes.</i>		
Supervisor . . . . .		1,980 00
<i>Vocational Guidance.</i>		
Director . . . . .	\$1,980 00	
3 Vocational Assistants . . . . .	4,428 00	
1 additional Vocational Assistant from May 1, 1918, at the rate of \$1,620 per year . . . . .	1,080 00	
	<hr/>	7,488 00
<i>Department of Salesmanship.</i>		
Director . . . . .		1,980 00
<i>Department of Educational Investigation and Measurement.</i>		
Assistant Director of Promotion and Educa- tional Measurement . . . . .	\$2,340 00	
Allowance for proposed increase in salary . . . . .	40 00	
	<hr/>	
<i>Carried forward</i> . . . . .	\$2,380 00	\$4,484,509 44



<i>Brought forward</i> . . . . .	\$2,380 00	\$4,484,509 44
Supervision of the work of testing (summer work) . . . . .	200 00	
Salary of an elementary assistant assigned . . . . .	891 47	
	<hr/>	3,471 47
Total . . . . .		\$4,487,980 91
Allowance for proposed increases in salaries of teachers of all ranks . . . . .		134,119 00
Total, salaries of instructors . . . . .		<u>\$4,622,099 91</u>

SALARIES OF OFFICERS.

*Officers, Clerks, Assistants and Stenographers.*

Superintendent . . . . .	\$10,000 00	
Acting Secretary (1) to the Superintendent and assistants (24) to the Superintendent . . . . .	20,292 00	
Assistant Superintendents (5) . . . . .	27,480 00	
Secretary . . . . .	4,740 00	
Chief Clerk (1) and assistants (7) to the Secretary . . . . .	8,508 00	
Business Agent . . . . .	4,740 00	
Chief Accountant (1), assistants (22) and chauffeur (1) to the Business Agent . . . . .	28,080 00	
Schoolhouse Custodian . . . . .	3,000 00	
Clerk to Schoolhouse Custodian . . . . .	900 00	
City Treasurer, Custodian of the Retirement Fund . . . . .	1,000 00	
Telephone operator . . . . .	672 00	
Substitute telephone operator . . . . .	205 00	
Allowances for temporary assistance and increases:		
Superintendent, proposed increase in number of assistants, three from January 1, 1918 . . . . .	1,800 00	
Superintendent, temporary assistance . . . . .	1,200 00	
Superintendent, proposed increases in salaries . . . . .	800 00	
Secretary, proposed increase in number of assistants, one from July 1, 1918 . . . . .	300 00	
Secretary, temporary assistance . . . . .	200 00	
Secretary, proposed increases in salaries . . . . .	400 00	
Business Agent, temporary assistance . . . . .	1,400 00	
Business Agent, proposed increases in salaries . . . . .	1,120 00	
Schoolhouse Custodian, temporary assistance . . . . .	36 00	
Schoolhouse Custodian, proposed increases in salaries . . . . .	40 00	
Officers, clerks, assistants and stenographers . . . . .	<hr/>	\$116,913 00
<i>Carried forward</i> . . . . .		\$116,913 00

Brought forward . . . . .		\$116,913 00
<i>Attendance Officers.</i>		
1 Chief Attendance Officer . . . . .	\$2,640 00	
22 Attendance Officers . . . . .	32,068 20	
3 Temporary Attendance Officers . . . . .	1,652 00	
		36,360 20
<i>Supervisor of Licensed Minors.</i>		
Supervisor . . . . .		1,728 00
<i>Newsboys' Trial Board.</i>		
Salaries, Judges . . . . .	\$78 00	
Salary, Clerk . . . . .	26 00	
		104 00
Total, salaries of officers . . . . .		<u>\$155,105 20</u>

## SALARIES OF JANITORS.

## Normal Group:

Janitor . . . . .	\$7,232 16	
Matron . . . . .	539 76	
		\$7,771 92
Latin and High Schools:		
English High and Public Latin . . . . .	5,539 56	
Brighton High . . . . .	2,713 36	
Charlestown High . . . . .	2,665 00	
Dorchester High:		
Janitor . . . . .	\$5,754 32	
Matron . . . . .	539 76	
2 Portables . . . . .	156 00	
		6,450 08
East Boston High . . . . .	2,772 12	
Girls' High:		
Janitor . . . . .	\$4,635 80	
Matron . . . . .	539 76	
		5,175 56
High School of Commerce . . . . .	4,589 52	
High School of Practical Arts:		
Janitor . . . . .	\$4,462 12	
Matron . . . . .	539 76	
		5,001 88
Hyde Park High . . . . .	1,875 64	
Mechanic Arts High . . . . .	6,192 68	
Roxbury High . . . . .	3,896 36	
South Boston High:		
Janitor . . . . .	\$3,468 40	
Matron . . . . .	539 76	
		4,008 16
West Roxbury High:		
Janitor . . . . .	\$3,061 24	
Matron . . . . .	539 76	
		3,601 00
Normal, Latin and High Schools . . . . .		<u>\$62,252 84</u>

Normal, Latin and High Schools . . . . .		\$62,252 84
240 Elementary School Buildings:		
Janitors . . . . .	\$248,463 80	
Matrons (4) . . . . .	2,159 04	
126 Portables . . . . .	10,042 24	
Barnard Memorial . . . . .	300 00	
Lincoln House . . . . .	100 00	
	<hr/>	261,065 08
Horace Mann School:		
Janitor . . . . .	\$929 76	
Matron . . . . .	539 76	
	<hr/>	1,469 52
Trade School for Girls . . . . .		2,043 08
Boston Trade School . . . . .		5,060 64
Continuation School:		
25 La Grange street . . . . .	\$1,083 68	
Brimmer Building . . . . .	1,530 88	
2 Portables . . . . .	208 00	
	<hr/>	2,822 56
Boston Disciplinary Day School . . . . .		463 84
Evening schools, existing schools . . . . .		11,732 67
Summer review schools . . . . .		1,250 00
Supply Room, Dartmouth street . . . . .		460 72
218 Tremont street (employment certificates, etc.) . . . . .		437 32
Mason Street Building . . . . .		1,916 72
Janitors on leave of absence . . . . .		2,500 00
Janitor service, new buildings to be completed during the year . . . . .		4,185 00
Temporary assistance . . . . .		340 01
		<hr/>
Total . . . . .		\$358,000 00
Allowance for proposed increase in schedule of janitors' salaries . . . . .		20,040 76
		<hr/>
Total, salaries of janitors . . . . .		\$378,040 76

## FUEL AND LIGHT.\*

28,000 tons bituminous coal at \$12 . . . . .	\$336,000 00	
8,000 tons anthracite coal at \$12 . . . . .	96,000 00	
600 cords of wood at \$15, including sawing, splitting and housing . . . . .	9,000 00	
100 bushels charcoal at \$0.20 . . . . .	20 00	
Cost of expert services, advice, sampling, testing and inspecting . . . . .	1,200 00	
Cost of moving coal and wood . . . . .	6,000 00	
	<hr/>	
Total for fuel . . . . .		\$448,220 00
Gas . . . . .	\$5,600 00	
Electric current for light . . . . .	37,400 00	
	<hr/>	
Carried forward . . . . .	\$43,000 00	\$448,220 00

\* The quantities of coal are those necessary to heat the schools until April 1, 1919, after making allowance for the amounts saved by closing schools in January, February and March, 1918.

<i>Brought forward</i> . . . . .	\$43,000 00	\$448,220 00
Mazda lamps . . . . .	150 00	
		<hr/>
Total for light . . . . .		43,150 00
Electric current for power . . . . .		8,500 00
		<hr/>
Total . . . . .		\$499,870 00
Reduction in estimates . . . . .		21,849 56
		<hr/>
Total, fuel and light . . . . .		<u>\$478,020 44</u>

## SUPPLIES AND INCIDENTALS.

*Normal School.*

265 pupils at \$6 . . . . .	\$1,590 00	
Drawing supplies . . . . .	100 00	
Manual training supplies . . . . .	50 00	
Additional appropriation as follows: Books, special apparatus, fresh specimens and supplies . . . . .	566 10	
		<hr/>
Total for Normal School . . . . .		\$2,306 10
(Total allowance per pupil, \$8.70.)		

*Latin and High Schools.*

16,238 pupils, as per schedule following, from \$3.54 per pupil to \$2.29 per pupil (average \$3.23) . . . . .	\$52,528 02	
Additional appropriations for High Schools, as follows:		
Mechanic Arts High, equipment . . . . .	1,750 00	
Mechanic Arts High, additional supplies . . . . .	1,300 00	
High School of Practical Arts, additional supplies . . . . .	400 00	
Hyde Park High, additional supplies . . . . .	250 00	
South Boston High, additional equipment, High School of Commerce, additional sup- plies . . . . .	131 25	
	400 00	
Manual training supplies (except Mechanic Arts High) . . . . .	2,200 00	
Drawing supplies, art books, models, etc. . . . .	3,500 00	
Penmanship supplies and special materials, Typewriters . . . . .	175 00	
	5,000 00	
Special allowance for cookery supplies . . . . .	450 00	
		<hr/>
Total for Latin and high schools . . . . .		68,084 27
(Total allowance per pupil, \$4.20.)		

*Elementary Schools.*

Grades, 84,692 pupils as per schedule following, from \$1.19 to \$0.69 per pupil (average \$1.09) . . . . .	\$92,376 28	
Kindergartens, 7,088 pupils (average \$0.48) . . . . .	3,402 05	
		<hr/>
<i>Carried forward</i> . . . . .	\$95,778 33	\$70,390 37

<i>Brought forward</i> . . . . .	\$95,778 33	\$70,390 37
Supplies for connecting the work of the kindergarten and the primary grades . . . . .	75 00	
Additional appropriations as follows:		
Henry L. Pierce District . . . . .	400 00	
Lawrence District (equipment) . . . . .	100 00	
Martin District (equipment) . . . . .	150 00	
Norcross District (equipment) . . . . .	100 00	
Mary Hemenway District . . . . .	400 00	
Roger Wolcott District . . . . .	200 00	
Allowance for established intermediate classes, . . . . .	3,283 30	
Allowance for proposed intermediate classes, . . . . .	2,600 00	
Regular manual training supplies and equipment . . . . .	22,000 00	
Manual training supplies and equipment for prevocational classes . . . . .	3,000 00	
Manual training supplies and equipment for special classes . . . . .	1,550 00	
Manual training supplies and equipment for additional special classes . . . . .	100 00	
Manual training supplies and equipment for intermediate classes . . . . .	850 00	
Manual training supplies and equipment for ungraded classes . . . . .	250 00	
Manual training supplies and equipment for girls' classes . . . . .	150 00	
Manual training supplies and equipment — gardening . . . . .	3,100 00	
Drawing supplies and equipment for the grades . . . . .	12,498 00	
Drawing supplies and equipment for special classes . . . . .	200 00	
Vases, models, plants, charts and illustrative materials . . . . .	800 00	
Drawing supplies and equipment for prevocational classes . . . . .	200 00	
Cookery supplies and equipment for the grades . . . . .	11,000 00	
Cookery supplies for special classes . . . . .	1,050 00	
Cookery supplies and equipment for prevocational classes for girls . . . . .	2,500 00	
Supplementary cooking equipment for established prevocational classes . . . . .	400 00	
Sewing supplies for pupils unable to purchase them . . . . .	200 00	
Penmanship supplies and special materials . . . . .	2,200 00	
Unassigned for special needs . . . . .	6,406 26	
Total for elementary schools (91,780 pupils) (Total allowance per pupil, \$1.86.)	—————	171,540 89
<i>Carried forward</i> . . . . .		\$241,931 26

<i>Brought forward</i> . . . . .		\$241,931 26	
<i>Boston Clerical School.</i>			
237 pupils at \$4.30 . . . . .	\$1,019 10		
Additional appropriation . . . . .	550 00		
			1,569 10
<i>Horace Mann School.</i>			
147 pupils at \$2.99 (exclusive of traveling expenses) . . . . .			439 50
<i>Trade School for Girls. (Day and Evening Classes.)</i>			
Books, supplies and equipment, printing and postage, etc., . . . . .			5,000 00
<i>Boston Trade School.</i>			
Books, supplies and equipment, printing and postage, etc., . . . . .			5,490 00
<i>Boston Disciplinary Day School.</i>			
18 pupils at \$4.74 . . . . .			85 32
<i>Continuation School.</i>			
Books, supplies, printing and postage . . . . .			4,500 00
<i>Evening Schools.</i>			
Supplies for existing schools . . . . .			3,500 00
<i>Day School for Immigrants.</i>			
Books and supplies, printing and postage . . . . .			300 00
<i>Summer Review Schools.</i>			
Supplies for High Review School . . . . .	\$60 00		
Supplies for Elementary Review schools . . . . .	450 00		
Reimbursement to day schools for use of books and materials . . . . .	200 00		
			710 00
<i>Classes for Conservation of Eyesight.</i>			
Books, apparatus and supplies . . . . .			400 00
<i>Speech Improvement Classes.</i>			
Books and supplies . . . . .	\$250 00		
Supplies for proposed extension . . . . .	350 00		
			600 00
<i>Music Appropriation.</i>			
Kindergarten pianos . . . . .	\$525 00		
Orchestral instruments . . . . .	200 00		
Drum corps instruments . . . . .	—		
Metronomes . . . . .	175 00		
Pianos for special classes . . . . .	350 00		
Pianos for Classes for Conservation of Eye- sight . . . . .	175 00		
Pianos for Speech Improvement Classes . . . . .	350 00		
Pianos for Horace Mann School . . . . .	175 00		
Repairs and regulation of pianos . . . . .	35 00		
			1,985 00
<i>Carried forward</i> . . . . .	\$1,985 00	\$264,525 18	

<i>Brought forward</i> . . . . .	\$1,985 00	\$264,525 18
Piano covers, stools and stands . . . . .	100 00	
Piano tuning and minor repairs . . . . .	1,620 00	
Moving pianos . . . . .	110 00	
	<hr/>	3,815 00
<i>Printing, Etc.</i>		
Printing and stock for same . . . . .	\$19,000 00	
Advertising . . . . .	300 00	
Records, proceedings, newspapers, etc. . . . .	1,900 00	
Account books, etc. . . . .	330 00	
	<hr/>	21,530 00
<i>Janitors' Supplies.</i>		
Janitors' supplies . . . . .		15,000 00
<i>Superintendent.</i>		
Stationery and office supplies, printing and postage . . . . .		1,200 00
<i>Board of Superintendents.</i>		
Stationery and office supplies, printing and postage . . . . .		350 00
<i>Secretary.</i>		
Stationery and office supplies, printing and postage . . . . .		1,200 00
<i>Business Agent (Including Supply Room).</i>		
Stationery and office supplies, printing and postage . . . . .		1,600 00
<i>Schoolhouse Custodian.</i>		
Stationery and office supplies, printing and postage . . . . .		250 00
<i>Department of Practice and Training.</i>		
Books, pedagogical material and office supplies . . . . .		300 00
<i>Department of Educational Investigation and Measurement.</i>		
Special printing and supplies for such investigations as may be approved by the School Committee during the year . . . . .	\$275 00	
Supplies for testing . . . . .	700 00	
Printing in connection with testing . . . . .	325 00	
Timing devices for testing . . . . .	50 00	
Office supplies and incidentals . . . . .	150 00	
	<hr/>	1,500 00
<i>Director of Household Science and Arts.</i>		
Books, pedagogical material and office supplies . . . . .		225 00
<i>Director of Kindergartens.</i>		
Books, pedagogical material and office supplies . . . . .		125 00
<i>Supervisor of Special Classes.</i>		
Books, pedagogical material and office supplies . . . . .		225 00
<i>Director of Salesmanship.</i>		
Books, pedagogical material and office supplies, etc. . . . .		225 00
	<hr/>	
<i>Carried forward</i> . . . . .		\$312,070 18

<i>Brought forward</i> . . . . .		\$312,070 18	
<i>Director of Music.</i>			
Books, pedagogical material and office supplies . . . . .	\$150 00		
Examiners of pupils, expenses . . . . .	350 00		
			500 00
<i>Director of Evening Schools.</i>			
Books, postage and office supplies . . . . .			350 00
<i>Vocational Guidance.</i>			
Supplies, car fares, postage, etc., in connection with vocational guidance . . . . .			350 00
<i>Advisory Committee on Music.</i>			
Material, copying of music, postage, etc. . . . .			250 00
<i>Express Charges.</i>			
Express charges . . . . .			800 00
<i>Transportation.</i>			
(a) Railroad and other fares (except street car tickets), Horace Mann School pupils . . . . .	\$1,000 00		
(b) Car tickets as authorized by the Board . . . . .	6,000 00		
			7,000 00
<i>Tuition.</i>			
(a) Wards of the city . . . . .	\$12,000 00		
(b) Others . . . . .	7,500 00		
			19,500 00
<i>Miscellaneous.</i>			
(a) Diplomas . . . . .	\$2,800 00		
(b) Removing ashes and snow . . . . .	1,800 00		
(c) Surety bonds . . . . .	70 00		
(d) School Committee Contingent Fund . . . . .	250 00		
(e) Board of Superintendents' Contingent Fund, traveling expenses of Board of Superintendents and teachers of all ranks, educational magazines, books, lectures, etc. . . . .	850 00		
(f) Assistance at teachers' examinations . . . . .	1,800 00		
(g) School exhibits . . . . .	100 00		
(h) Telephone and telegraph (exclusive of schools) . . . . .	3,500 00		
(i) Bath expenses . . . . .	1,400 00		
(j) Badges, licensed minors . . . . .	160 00		
(k) Professional and cultural courses for teachers . . . . .	1,550 00		
(l) Services of certified public accountants, auditing accounts . . . . .	1,000 00		
(m) Services of experts to the Business Agent . . . . .	900 00		
(n) Traveling expenses, Business Agent . . . . .	200 00		
			5,000 00
<i>Carried forward</i> . . . . .	\$16,380 00	\$340,820 18	



<i>Brought forward</i> . . . . .	\$16,380 00	\$340,820 18
(o) Automobile supplies, equipment, repairs, etc. . . . .	4,800 00	
(p) Sundries . . . . .	1,500 00	
		<u>22,680 00</u>
		\$363,500 18
Reduction in inventory . . . . .		<u>20,000 00</u>
Total, supplies and incidentals . . . . .		<u>\$343,500 18</u>

SCHEDULE FOR SUPPLIES AND INCIDENTALS FOR LATIN AND HIGH SCHOOLS, 1918-19.

Each school shall be allowed \$3.54 for each pupil up to 400; for all pupils in excess of 400 each school is to be allowed \$3.29 per pupil up to 800; for all pupils in excess of 800 each school is to be allowed \$3.04 per pupil up to 1,200; for all pupils in excess of 1,200 each school is to be allowed \$2.79 per pupil up to 1,600; for all pupils in excess of 1,600 each school is to be allowed \$2.54 per pupil up to 2,000; and for all pupils in excess of 2,000 each school is to be allowed \$2.29 per pupil.

It should be understood that the allowance per pupil is the same in all schools up to the limit of the number of pupils.

NUMBER OF PUPILS.	Allowance per Pupil.	Total Allowance.
Up to 400.....	\$3 54	\$1,416
401 to 800.....	3 29	2,732
801 to 1,200.....	3 04	3,948
1,201 to 1,600.....	2 79	5,064
1,601 to 2,000.....	2 54	6,080
2,001 and upwards.....	2 29	—

SCHEDULE FOR SUPPLIES AND INCIDENTALS FOR ELEMENTARY SCHOOLS — GRADES, 1918-19.

Each school shall be allowed \$1.19 per pupil up to 600; for all pupils in excess of 600 each school is to be allowed \$1.09 per pupil up to 1,000; for all pupils in excess of 1,000 each school is to be allowed \$0.99 per pupil up to 1,400; for all pupils in excess of 1,400 each school is to be allowed \$0.89 per pupil up to 1,800; for all pupils in excess of 1,800 each school is to be allowed \$0.79 per pupil up to 2,200; for all pupils in excess of 2,200 each school is to be allowed \$0.69 per pupil.

It should be understood that the allowance per pupil is the same in all schools up to the limit of the number of pupils.

NUMBER OF PUPILS.	Allowance per Pupil.	Total Allowance.
Up to 600.....	\$1 19	\$714
601 to 1,000.....	1 09	1,150
1,001 to 1,400.....	99	1,546
1,401 to 1,800.....	89	1,902
1,801 to 2,200.....	79	2,218
2,201 and upwards.....	69	—

## PHYSICAL EDUCATION.

*Salaries.*

Assistant Director of Athletics . . . . .	\$3,060 00	
Clerk . . . . .	780 00	
Instructor in Military Drill . . . . .	2,004 00	
Assistant Instructor in Military Drill . . . . .	—	
Armorer . . . . .	1,200 00	
13 Instructors, Physical Training . . . . .	18,675 20	
7 Assistant Instructors, Physical Training . . . . .	7,698 20	
11 Teacher Coaches at \$3 per session . . . . .	6,000 00	
1 Pianist at \$1.50 per day . . . . .	120 00	
2 Temporary Instructors in Military Drill at \$8 per day (158 days) . . . . .	2,528 00	
1 Temporary Instructor of Drum and Bugle Corps, signalling and armorer, Latin and day high schools, at \$8 per day (183 days), . . . . .	1,464 00	
3 Additional Assistant Instructors, Physical Training, from October 7, 1918 . . . . .	680 00	
3 Temporary Assistant Instructors, Physical Training (120 days) . . . . .	1,080 00	
	<hr/>	\$45,289 40

*Supplies and Equipment.*

Supplies, equipment and incidentals, high school athletics . . . . .	\$1,200 00	
Military supplies and annual parade . . . . .	2,000 00	
Rifle practice for high school pupils . . . . .	600 00	
Supplies, postage, printing and incidentals . . . . .	1,900 00	
Supplies and equipment (formerly furnished by Schoolhouse Commission) . . . . .	3,000 00	
	<hr/>	8,700 00

## PLAYGROUNDS.

*Salaries.*

Salaries of Supervisors, First Assistants, Assistants, Assistants in Sand Gardens and Play Teachers (including 4 additional playgrounds) . . . . .	\$25,739 75	
Salaries of Janitors . . . . .	4,831 80	
	<hr/>	30,571 55

*Supplies and Equipment.*

New apparatus and repairs on apparatus (including 4 additional playgrounds) . . . . .	\$6,000 00	
Supplies for games and play (including 4 addi- tional playgrounds) . . . . .	3,500 00	
	<hr/>	9,500 00
Total, Physical Education . . . . .		<u>\$94,060 95</u>

Amount available under chapter 295 of the Acts of 1907, viz., 4 cents on each \$1,000 of the valuation of the city . . . . .	\$61,663 90	
Physical Education Special Appropriation, amount that must be diverted from the appropriation for general school purposes . . . . .	32,397 05	
		<u>\$94,060 95</u>

## NURSES.

*Salaries.*

1 Supervising Nurse . . . . .	\$1,500 00	
40 Assistant Nurses . . . . .	34,039 35	
1 additional Nurse from September 1, 1918 . . . . .	236 00	
		<u>\$35,775 35</u>

*Supplies and Incidentals.*

Supplies . . . . .	\$300 00	
Car tickets . . . . .	600 00	
Postage, printing, office supplies and incidentals . . . . .	300 00	
		<u>1,200 00</u>
Total, Nurses . . . . .		<u>\$36,975 35</u>

Amount available under chapter 357 of the Acts of 1907, viz., 2 cents on each \$1,000 of the valuation of the city . . . . .	\$30,831 95	
Amount that must be diverted from the appropriation for general school purposes . . . . .	6,143 40	
		<u>\$36,975 35</u>

## MEDICAL INSPECTION.

*Salaries.*

Director . . . . .	\$2,496 00	
Medical Inspector . . . . .	2,004 00	
40 School Physicians . . . . .	20,160 00	
1 School Physician . . . . .	900 00	
Temporary School Physicians . . . . .	2,173 00	
2 additional School Physicians, from September 1, 1918 . . . . .	336 00	
		<u>\$28,069 00</u>

*Supplies and Incidentals.*

Special outfits, charts and apparatus . . . . .	\$250 00	
Supplies, postage and office incidentals . . . . .	900 00	
Printing . . . . .	950 00	
		<u>2,100 00</u>
Total, Medical Inspection . . . . .		<u>\$30,169 00</u>

## PENSIONS TO TEACHERS.

For pensions to retired teachers and payments to the Trustees of the Permanent Pension Fund, the amount available under chapter 589 of the Acts of 1908, chapter 617 of the Acts of 1910, and chapter 304 of the Acts of 1915, viz., 7 cents on each \$1,000 of the valuation of the city . . . . . \$107,911 83

## PENSIONS TO ATTENDANCE OFFICERS AND JANITORS.

Pensions to 2 retired attendance officers and  
13 retired janitors . . . . . \$7,827 24  
Proposed pensions to janitors now in the  
service . . . . . 750 00  
\$8,577 24

## EXTENDED USE OF THE PUBLIC SCHOOLS.

*Salaries, Administration.*

Director . . . . . \$3,420 00  
Clerk . . . . . 960 00  
\$4,380 00

*Supplies and Incidentals, Administration.*

Office supplies . . . . . \$225 00  
Advertising, printing, tickets, etc. . . . . 200 00  
New office equipment . . . . . —  
425 00

*Salaries, Centers and Other Activities.*

Managers (7) . . . . . \$6,000 00  
Assistant Managers (4) . . . . . 3,482 00  
Leaders, helpers, matrons, 7 districts . . . . . 6,676 72  
Lectures, concerts, etc. (English), 7 centers . . . . . 1,500 00  
Patriotic meetings . . . . . 1,000 00  
18,658 72

*Janitors' Salaries, Centers and Other Activities.*

Centers . . . . . \$2,789 82  
Schoolhouse accommodations . . . . . 1,591 59  
Public lectures . . . . . 466 42  
4,847 83

*Supplies and Equipment, Centers and Other Activities.*

Supplies . . . . . \$500 00  
Equipment . . . . . 475 00  
Motion picture machines (2) . . . . . 1,200 00  
New office equipment . . . . . 75 00  
Community concerts and programs for com-  
munity singing . . . . . 1,000 00  
3,250 00

*Reserve.*

Reserve for permanent equipment . . . . . 1,918 43

Total, Extended Use of the Public Schools . . . . . \$33,479 98

Amount available under chapter 195 of the Acts of 1912, viz., 2 cents on each \$1,000 of the valuation of the city . . . . .	\$30,831 95	
Balance unexpended, appropriation 1917-18 . . . . .	2,648 03	
		<u>\$33,479 98</u>

## REPAIRS, ALTERATIONS AND RENTS.

(To be Expended by the Schoolhouse Department.)

Repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new lighting fixtures . . . . .	\$539,559 16	
Rents of hired school accommodations . . . . .	35,000 00	
Equipment and apparatus for nurses' rooms . . . . .	500 00	
		<u>\$575,059 16</u>

The foregoing estimates call for appropriations (which aggregate the total amount the School Committee may appropriate) as follows:

Salaries of instructors . . . . .	\$4,622,099 91
Salaries of officers . . . . .	155,105 20
Salaries of janitors . . . . .	378,040 76
Fuel and light . . . . .	478,020 44
Supplies and incidentals . . . . .	343,500 18
Physical education . . . . .	61,663 90
Physical education special appropriation . . . . .	32,397 05
Salaries and expenses of nurses . . . . .	36,975 35
Medical inspection . . . . .	30,169 00
Pensions to teachers . . . . .	107,911 83
Pensions to attendance officers and janitors . . . . .	8,577 24
Extended use of the public schools . . . . .	33,479 98
Repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new lighting fixtures . . . . .	540,059 16
Rents of hired school accommodations . . . . .	35,000 00
	<u>\$6,863,000 00</u>

On April 15, 1918, the School Committee appropriated "on account" the following sums:

Salaries of instructors . . . . .	\$2,285,967 00
Salaries of officers . . . . .	79,142 00
Salaries of janitors . . . . .	182,000 00
Fuel and light . . . . .	226,647 00
Supplies and incidentals . . . . .	201,572 00
Physical education . . . . .	61,663 90
Salaries and expenses of nurses . . . . .	30,831 95
Medical inspection . . . . .	15,084 00
Pensions to teachers . . . . .	107,911 83
<i>Carried forward</i> . . . . .	<u>\$3,190,819 68</u>

<i>Brought forward</i> . . . . .	\$3,190,819 68
Pensions to attendance officers and janitors . . . . .	4,288 00
Extended use of the public schools . . . . .	17,363 32
Repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new lighting fixtures . . . . .	270,029 00
Rents of hired school accommodations . . . . .	17,500 00
	\$3,500,000 00

It is, therefore, necessary to appropriate the balances of the estimates for the above purposes, and the following order carries this intention into effect:

*Ordered*, That to meet the current expenses of the School Committee and to provide funds for repairs and alterations to school buildings, rents of hired school accommodations, pensions to teachers, etc., during the financial year February 1, 1918, to January 31, 1919, the following sums are hereby appropriated for the purposes stated, in addition to those appropriated on April 15, 1918, on account:

Salaries of instructors . . . . .	\$2,336,132 91
Salaries of officers . . . . .	75,963 20
Salaries of janitors . . . . .	196,040 76
Fuel and light . . . . .	251,373 44
Supplies and incidentals . . . . .	141,928 18
Physical education . . . . .	*
Physical education special appropriation . . . . .	32,397 05
Salaries and expenses of nurses . . . . .	6,143 40
Medical inspection . . . . .	15,085 00
Pensions to teachers . . . . .	*
Pensions to attendance officers and janitors . . . . .	4,289 24
Extended use of the public schools . . . . .	16,116 66
Repairs and alterations, protection against fire and fire hazard, and new furniture and furnishings for old buildings, including new lighting fixtures . . . . .	270,030 16
Rents of hired school accommodations . . . . .	17,500 00
Total . . . . .	\$3,363,000 00

The foregoing orders appropriating the sum of \$6,863,000 for the purposes stated were passed by the School Committee on April 15 and May 20, 1918, and were approved by his Honor the Mayor on April 20 and May 31, 1918.

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\* Full amount appropriated April 15, 1918.







TOTAL AND PER CAPITA COSTS OF SCHOOLS AND ALL OTHER ACTIVITIES. INCLUDING COSTS OF ADMINISTRATION, SUPERVISION AND GENERAL CHARGES, AND WITH INCOME DEDUCTED.

Table with multiple columns representing different school types (Normal School, Latin and High Schools, Elementary Schools, etc.) and rows representing various cost metrics (Average membership, Cost per pupil, Average attendance, etc.).

\* Including day, summer and evening classes.

† Per capita cost.

‡ Total attendance.

§ That part of the total cost coming from the School Committee's share of the tax levy.

¶ Including the cost of tuition of pupils in the schools of Brookline, Dedham and Winthrop and of wards of the city placed in other cities and towns; the average number—520—and the total pupil hours—468,000—of such pupils should be added to the average membership, average attendance and number of pupil hours, making a total of 91,294 pupils on average membership, 83,243 on average attendance and 74,374,780 pupil hours.

‡ Cost for resident and non-resident pupils.

¶ Half the net cost of maintenance as aid from the Commonwealth for the period September 1, 1915 to August 31, 1916, \$24,639.68; tuition, \$5,279.73; sale of products, \$11,719; interest on deposits, \$23.62; telephone charges, \$17.02; miscellaneous items, \$411.32; forfeited advance payments, Evening Trade School, and interest on same, \$64.48; total, \$42,164.85.

¶ Half the net cost of maintenance as aid from the Commonwealth for the period September 1, 1915 to August 31, 1916, \$16,407.09; sale of products, \$379.06; work done for Schoolhouse Commission, \$909.65; miscellaneous items, \$137.93; total, \$17,833.73.

¶ Half the net cost of maintenance as aid from the Commonwealth for the period September 1, 1915 to August 31, 1916, \$24,842.23; sale of products, \$642.45; work done for Schoolhouse Commission, \$10.25; miscellaneous items, \$329.90; total, \$25,824.83.

The cost of tuition of pupils, residents of the City of Boston, attending industrial and agricultural schools in other cities and towns, amounting to \$567.66, is included under general charges, but the number of such pupils (8) is not included in the average membership or average attendance of any of the above schools.

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NORMAL SCHOOL.\*

[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

Table with 34 columns: School, Salaries of Head Masters, Salaries of Clerks, Postage, Telephone, Salaries of Teachers, Salaries of Physical Education Teachers, Text Books, Supplementary and Reference Books, Drawing Supplies, Manual Training Supplies, Cookery Supplies, Sewing Supplies, Commercial Supplies, Laboratory Supplies, Music Supplies, Printing, Miscellaneous Educational Supplies, Physical Education Supplies, Incidentals, Total for Instruction, Number of Pupils, Cost per Pupil Hour of Instruction, Salaries of Janitors, Fuel, Electric Light, Electric Power, Gas, Janitors' Supplies, Total for Operation of Plant, Salaries, Medical Inspection, Supplies, Medical Inspection, Nurses' Salaries, Nurses' Supplies and Incidentals, Total for Promotion of Health, Total\*, Average Monthly Membership, Average Attendance, Cost per Pupil, Average Attendance, Number of Pupils, Cost per Pupil Hour, School.

\* Including salary of matron.

LATH AND HIGH SCHOOLS.\*

[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

Table with 34 columns: School, Salaries of Head Masters, Salaries of Clerks, Postage, Telephone, Salaries of Teachers, Salaries of Physical Education Teachers, Text Books, Supplementary and Reference Books, Drawing Supplies, Manual Training Supplies, Cookery Supplies, Sewing Supplies, Commercial Supplies, Laboratory Supplies, Music Supplies, Printing, Miscellaneous Educational Supplies, Physical Education Supplies, Incidentals, Total for Instruction, Number of Pupils, Cost per Pupil Hour of Instruction, Salaries of Janitors, Fuel, Electric Light, Electric Power, Gas, Janitors' Supplies, Total for Operation of Plant, Salaries, Medical Inspection, Supplies, Medical Inspection, Nurses' Salaries, Nurses' Supplies and Incidentals, Total for Promotion of Health, Total\*, Average Monthly Membership, Average Attendance, Cost per Pupil, Average Attendance, Number of Pupils, Cost per Pupil Hour, School.

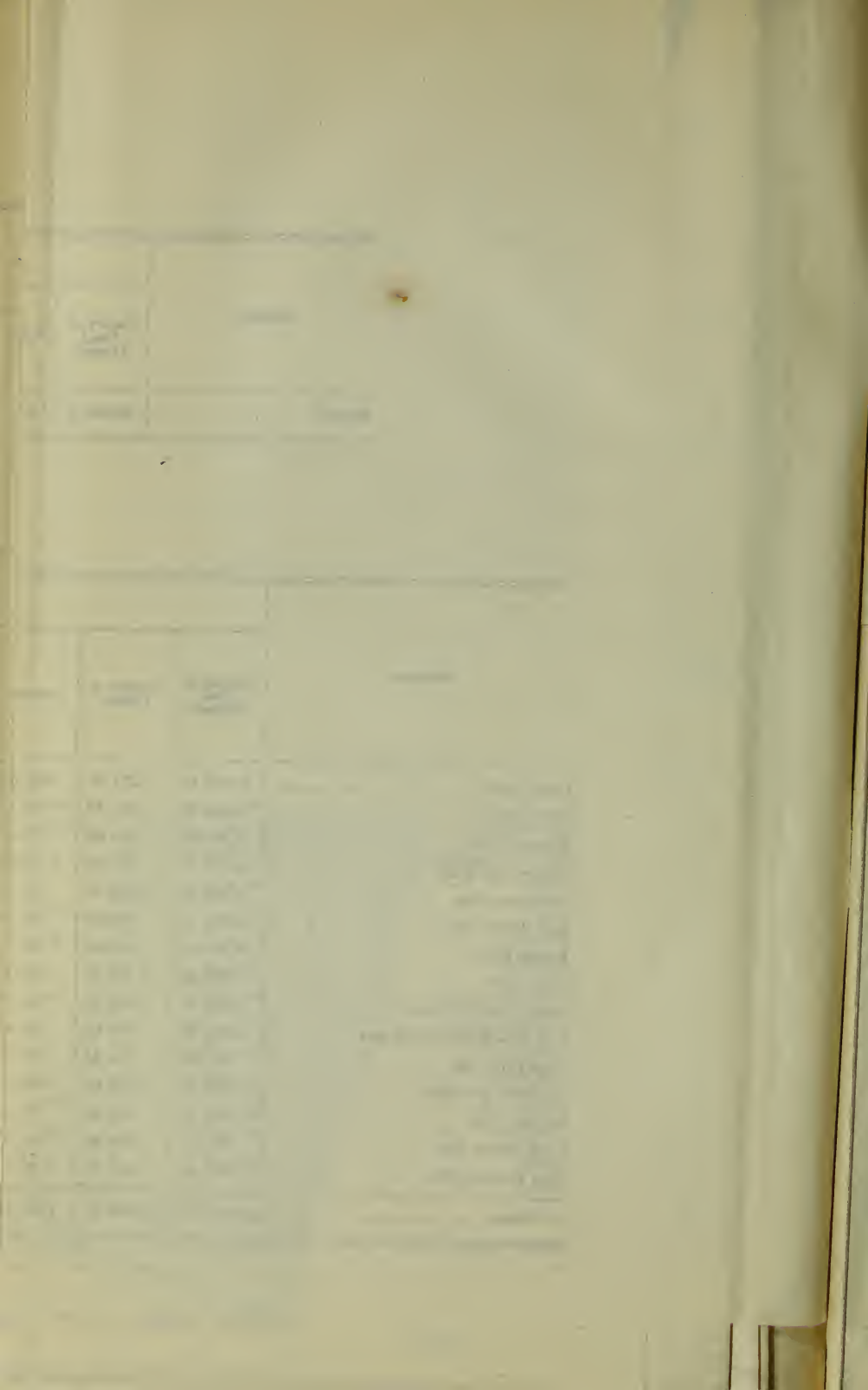
\* Including salary of matron.

ELEMENTARY SCHOOLS.\*

[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

Table with 34 columns: School, Salaries of Principals, Salaries of Clerks, Postage, Telephone, Salaries of Teachers, Salaries of Physical Education Teachers, Text Books, Supplementary and Reference Books, Drawing Supplies, Manual Training Supplies, Cookery Supplies, Sewing Supplies, Commercial Supplies, Laboratory Supplies, Music Supplies, Printing, Miscellaneous Educational Supplies, Physical Education Supplies, Incidentals, Total for Instruction, Number of Pupils, Cost per Pupil Hour of Instruction, Salaries of Janitors, Fuel, Electric Light, Electric Power, Gas, Janitors' Supplies, Total for Operation of Plant, Salaries, Medical Inspection, Supplies, Medical Inspection, Nurses' Salaries, Nurses' Supplies and Incidentals, Total for Promotion of Health, Total\*, Average Monthly Membership, Average Attendance, Cost per Pupil, Average Attendance, Number of Pupils, Cost per Pupil Hour, School.

\* Including salary of matron.

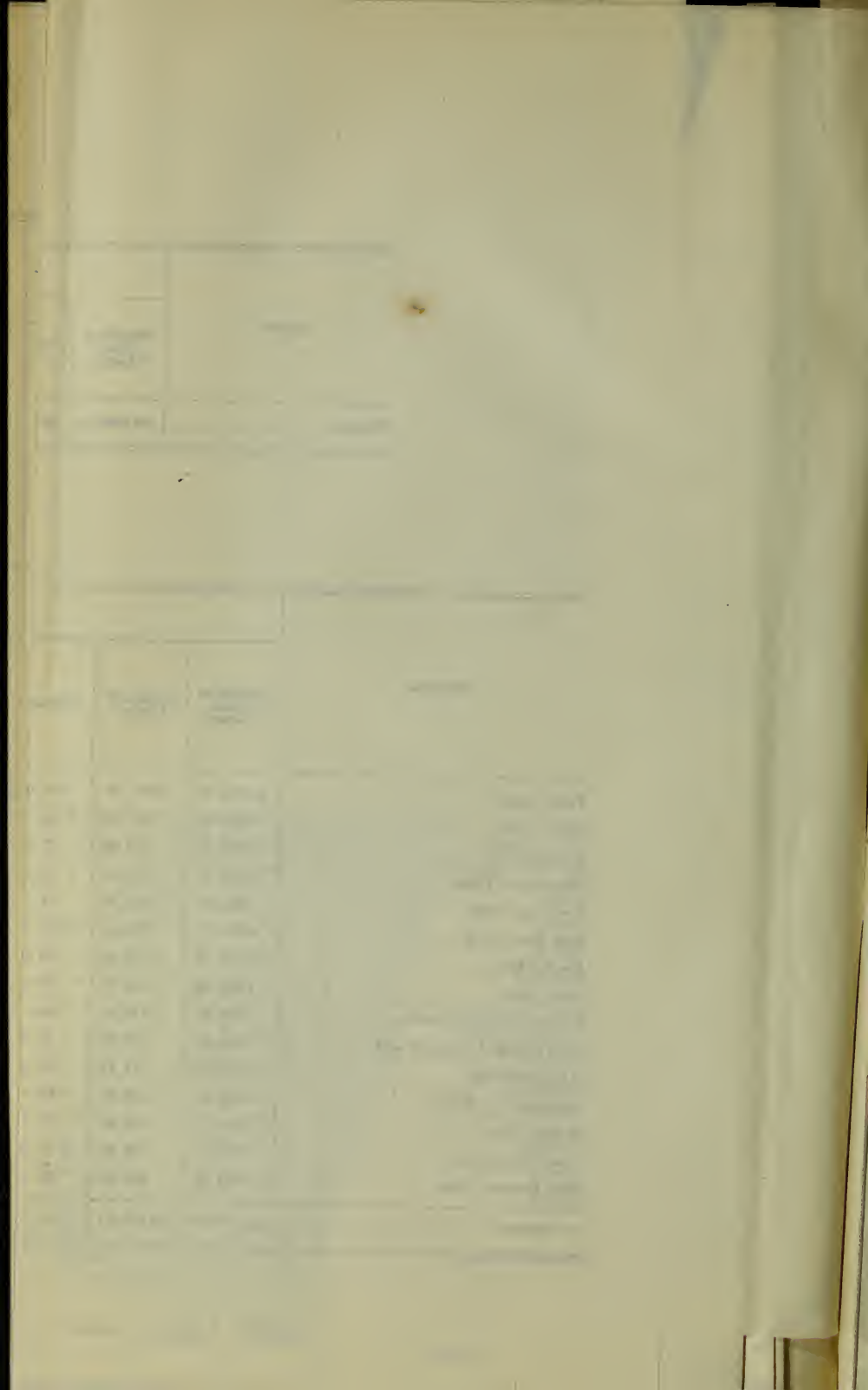


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SHEET NO. 3.

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COST OF DAY SCHOOLS, EXCLUSIVE OF ADMINISTRATION, SUPERVISION, AND GENERAL CHARGES, AND WITHOUT INCOME DEDUCTED.\*—Continued.

HORACE MANN SCHOOL.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.															OPERATION OF PLANT.						PROMOTION OF HEALTH.						TRANSFORMATION.	Total.*	Average Membership.	Cost per Pupil, Average Membership.*	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.						
	Salary of Principal.	Salary of Clerks.	Postage.	Telephone.	Salaries of Teachers.	Salaries of Physical Education Teachers.	Text Books.	Supplementary and Reference Books.	Drawing Supplies and Equipment.	Manual Training Supplies and Equipment.	Cookery Supplies and Equipment.	Sewing Supplies.	Kindergarten Supplies.	Music Supplies.	Printing.	Miscellaneous Educational Supplies.	Physical Education Supplies.	Incidentals.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salary of Janitor.	Fuel.	Electric Light.	Electric Power.	Gas.	Janitors' Supplies.										Total for Operation of Plant.	Salaries, Medical Inspection.	Supplies, Medical Inspection.	Nurses' Salaries.	Nurses' Supplies.	Total for Promotion of Health.
Horace Mann School.....	\$3,377 12		\$11 50	\$12 18	\$19,994 94	\$3 00	\$83 97	\$39 30	\$55 05	\$14 18	\$126 93		\$15 34	\$3 00	\$1 19	\$226 02	\$ 59	\$ 50	\$23,065 90	112,715	\$ 212	\$1,450 11	\$535 13	\$534 96	\$30 00	\$46 21	\$95 45	\$2,121 10	\$4 00	\$1 25	\$50 22		\$105 47	\$3,074 95	\$29,807 61*	127	\$218 04*	124	\$248 87*	112,745	\$ 204*	Horace Mann School.

\*Including salary of Matron.

BOSTON CLERICAL SCHOOL.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.															OPERATION OF PLANT.						PROMOTION OF HEALTH.						TRANSFORMATION.	Total.*	Average Membership.	Cost per Pupil, Average Membership.*	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.		
	Salary of Principal.	Salary of Clerks.	Postage.	Telephone.	Salaries of Teachers.	Salaries of Physical Education Teachers.	Text Books.	Supplementary and Reference Books.	Drawing Supplies and Equipment.	Manual Training Supplies and Equipment.	Cookery Supplies and Equipment.	Sewing Supplies.	Kindergarten Supplies.	Music Supplies.	Printing.	Miscellaneous Educational Supplies.	Physical Education Supplies.	Incidentals.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salary of Janitor.	Fuel.	Electric Light.	Electric Power.	Gas.	Janitors' Supplies.										Total for Operation of Plant.	Salaries, Medical Inspection.
Boston Clerical School.....	\$929 30	\$195 00	\$28 57	\$4 05	\$9,020 27		\$308 20		\$ 23	\$89 81	\$12 68	\$37 54		\$1 51	\$12,346 92	702,256	\$ 01	\$558 70	\$411 35	\$72 85	\$10 45	\$1 65	\$26 07	\$1,081 71	\$68 62					\$68 62	\$19,497 25*	192	\$70 30*	180	\$71 99*	202,236	\$ 066*	Boston Clerical School.

BOSTON DISCIPLINARY DAY SCHOOL.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.															OPERATION OF PLANT.						PROMOTION OF HEALTH.						TRANSFORMATION.	Total.*	Average Membership.	Cost per Pupil, Average Membership.*	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.
	Salary of Principal.	Salary of Clerks.	Postage.	Telephone.	Salaries of Teachers.	Salaries of Physical Education Teachers.	Text Books.	Supplementary and Reference Books.	Drawing Supplies and Equipment.	Manual Training Supplies and Equipment.	Cookery Supplies and Equipment.	Sewing Supplies.	Kindergarten Supplies.	Music Supplies.	Printing.	Miscellaneous Educational Supplies.	Physical Education Supplies.	Incidentals.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salary of Janitor.	Fuel.	Electric Light.	Electric Power.	Gas.	Janitors' Supplies.									
Boston Disciplinary Day School.....	\$1,206 53		\$13 40	\$10 00	\$20 00	\$1 04	\$31 21	\$3 00	\$21 12	\$1,263 66	10,087	\$ 129	\$139 01	\$399 38	\$10 00	\$42 23	\$70 20	\$315 85									\$210 00	\$2,340 71*	17	\$138 27*	14	\$213 01*	10,087	\$ 232*	Boston Disciplinary Day School.	

TRADE SCHOOL FOR GIRLS.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.															OPERATION OF PLANT.						PROMOTION OF HEALTH.						TRANSFORMATION.	Total.*	Average Membership.	Cost per Pupil, Average Membership.*	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.		
	Salary of Principal.	Salary of Clerks.	Office Supplies.	Postage.	Telephone.	Salaries of Teachers.	Salaries of Physical Education Teachers.	Books and Subscriptions.	Drawing Supplies and Equipment.	Manual Training Supplies and Equipment.	Cookery Supplies and Equipment.	Sewing Supplies.	Kindergarten Supplies.	Music Supplies.	Printing.	Miscellaneous Educational Supplies.	Physical Education Supplies.	Incidentals.	Advertising.	Total for Instruction.	Credit for Work Done for Other Units of the School System.	Net Total.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salary of Janitor.	Fuel.	Electric Light.										Electric Power.	Gas.
Trade School for Girls.....	\$4,470 00	\$1,762 50	\$4 31	\$95 00	\$46,180 70	\$162 00	\$137 60	\$77 13	\$11 66	\$7,383 03	\$4,455 38	\$54 01	\$17 85	\$203 02	\$297 38	\$ 50	\$59,715 83	\$18 00	\$39,569 93	\$77,020	\$ 188	\$2,246 15	\$1,019 50	\$1,158 70	\$222 07	\$28 71	\$31 36	\$4,917 05	\$175 95	\$2 15	\$302 43	\$ 72	\$181 26	\$50 00	\$65,115 74*	277,020	\$ 177*	Trade School for Girls.

The above cost includes Day, Summer and Evening Classes.

BOSTON TRADE SCHOOL, DAY CLASSES.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.															OPERATION OF PLANT.						PROMOTION OF HEALTH.						TRANSFORMATION.	Total.*	Average Membership.	Cost per Pupil, Average Membership.*	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.				
	Salary of Principal.	Salary of Clerks.	Office Supplies.	Postage.	Telephone.	Traveling Expenses of Principal.	Salaries of Teachers.	Salaries of Physical Education Teachers.	Books and Subscriptions.	Drawing Supplies and Equipment.	Manual Training Supplies and Equipment.	Cookery Supplies and Equipment.	Sewing Supplies.	Kindergarten Supplies.	Music Supplies.	Printing.	Miscellaneous Educational Supplies.	Physical Education Supplies.	Incidentals.	Credit for Work Done for Other Units of the School System.	Net Total.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salary of Janitor.	Fuel.	Electric Light.	Electric Power.										Gas.	Janitors' Supplies.	Total for Operation of Plant.	Salaries, Medical Inspection.
Boston Trade School, Day Classes.....	\$3,672 00	\$1,516 66	\$7 15	\$16 71	\$45 48	\$40 00	\$23,521 64		\$370 07	\$256 50	\$0,079 41	\$4 25	\$904 55		\$120 75	\$37,285 47	\$187 25	\$37,098 22	212,492	\$ 171	\$3,500 07	\$2,931 84	\$692 65	\$273 87	\$35 17	\$229 96	\$7,440 43	\$104 44	\$ 17		\$110 61	\$50 00	\$4,099 26*	607	\$207 66*	154	\$290 25*	212,402	\$ 210*	Boston Trade School, Day Classes.

COMPULSORY CONTINUATION SCHOOL.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.															OPERATION OF PLANT.						PROMOTION OF HEALTH.						TRANSFORMATION.	Total.*	Average Membership.	Cost per Pupil, Average Membership.*	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.		
	Salary of Principal.	Salary of Clerks.	Office Supplies.	Postage.	Telephone.	Traveling Expenses of Principal.	Salaries of Teachers.	Salaries of Physical Education Teachers.	Books and Subscriptions.	Drawing Supplies and Equipment.	Manual Training Supplies and Equipment.	Cookery Supplies and Equipment.	Sewing Supplies.	Kindergarten Supplies.	Music Supplies.	Printing.	Miscellaneous Educational Supplies.	Physical Education Supplies.	Incidentals.	Credit for Work Done for Other Units of the School System.	Net Total.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salary of Janitor.	Fuel.	Electric Light.	Electric Power.										Gas.	Janitors' Supplies.
Compulsory Continuation School.....	\$3,237 00	\$2,107 07	\$107 16	\$401 00	\$223 61	\$97 83	\$17,664 76		\$62 32	\$2 51	\$1,070 54	\$204 84	\$299 07	\$852 26	\$55 00	\$500 40	\$219 62	\$38,187 87	\$94 93	\$58,092 94	603,650	\$ 000	\$2,214 18	\$872 81	\$511 45	\$293 53	\$33 45	\$99 15	\$4,374 67	\$ 85		\$ 16	\$1 01	\$50 00	\$5,408 82*	603,650	\$ 103*	Compulsory Continuation School.

Nine thousand follow-up visits were made during 1917. This does not figure in pupil hour cost.

VOLUNTARY CONTINUATION SCHOOL.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.															OPERATION OF PLANT.						PROMOTION OF HEALTH.						TRANSFORMATION.	Total.*	Average Membership.	Cost per Pupil, Average Membership.*	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.
	Salary of Principal.	Salary of Clerks.	Postage.	Telephone.	Salaries of Teachers.	Salaries of Physical Education Teachers.	Text Books.	Supplementary and Reference Books.	Drawing Supplies and Equipment.	Manual Training Supplies and Equipment.	Cookery Supplies and Equipment.	Sewing Supplies.	Kindergarten Supplies.	Music Supplies.	Printing.	Miscellaneous Educational Supplies.	Physical Education Supplies.	Incidentals.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salary of Janitor.	Fuel.	Electric Light.	Electric Power.	Gas.	Janitors' Supplies.									
Voluntary Continuation School.....				\$13 25	\$666 07											\$100 00		\$55 85		\$5 33	\$871 68	4,527	\$ 192									\$571 18*	4,527	\$ 122*	Voluntary Continuation School.	

DAY SCHOOL FOR IMMIGRANTS.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.										OPERATION OF PLANT.			PROMOTION OF HEALTH.			Total.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.
	Salaries of Teachers.	Text Books.	Supplementary and Reference Books.	Printing.	Miscellaneous Educational Supplies.	Physical Education Supplies.	Incidentals.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salaries of Janitors.	Fuel.	Electric Power.	Gas.	Janitors' Supplies.	Total for Promotion of Health.				
Day School for Immigrants.....	\$3,690 68	\$31 66	\$24 00	\$2 55	\$20 70	\$3,745 97	40,634	\$ 080	\$ 38	\$ 38	\$3,746 35*	40,634	\$ 090*	Day School for Immigrants.						

SPEECH IMPROVEMENT CLASSES.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.										OPERATION OF PLANT.			PROMOTION OF HEALTH.			Total.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.
	Salaries of Teachers.	Postage.	Telephone.	Text Books.	Supplementary and Reference Books.	Music Supplies.	Incidentals.	Sewing Supplies.	Miscellaneous Educational Supplies.	Physical Education Supplies.	Total for Instruction.	Salaries of Janitors.	Fuel.	Electric Light.	Electric Power.	Gas.				
Speech Improvement Classes.....	\$1,772 00	\$14 76	\$16 00	\$31 68	\$57 68	\$1 50	\$3 00	\$10 58	\$1 09	\$3,047 38	\$688 67	\$108 71	\$36 05	\$ 00	\$12 13	\$2 29	\$1,154 05	\$7,102 03*	Speech Improvement Classes.	

FARM SERVICE.

SCHOOL.	Expenses of Supervisors.	Printing.	Postage.	Office Supplies.	Total.	SCHOOL.
Farm Service.....	\$1,622 81	\$4 25	\$7 50	\$1 50	\$1,636 12	Farm Service.

SUMMER REVIEW HIGH SCHOOL.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.															OPERATION OF PLANT.						PROMOTION OF HEALTH.						TRANSFORMATION.	Total.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.
	Salary of Principal.	Salary of Clerks.	Postage.	Salaries of Teachers.	Text Books.	Supplementary and Reference Books.	Commercial Supplies and Equipment.	Laboratory Supplies.	Printing.	Miscellaneous Educational Supplies.	Incidentals.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salary of Janitor.	Salaries, Medical Inspection.	Supplies, Medical Inspection.	Nurses' Salaries.	Nurses' Supplies.	Total for Promotion of Health.	Traveling Expenses of Pupils.											
Summer Review High.....	\$250 00		\$1 00	\$2,268 00		\$4 41				\$71 91		\$2,025 32	47,880	\$ 001	\$195 44	\$20 00					\$20 00	\$2,771 76	40	268	\$10 34	12,850	\$ 061	Summer Review High.				

SUMMER REVIEW ELEMENTARY SCHOOLS.\*  
[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.															OPERATION OF PLANT.						PROMOTION OF HEALTH.						TRANSFORMATION.	Total.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.
	Salaries of Principals.	Salaries of Clerks.	Postage.	Salaries of Teachers.	Text Books.	Supplementary and Reference Books.	Commercial Supplies and Equipment.	Printing.	Miscellaneous Educational Supplies.	Incidentals.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salary of Janitor.	Salaries, Medical Inspection.	Supplies, Medical Inspection.	Nurses' Salaries.	Nurses' Supplies.	Total for Promotion of Health.	Traveling Expenses of Pupils.												
Bigelow.....	\$200 00			\$1,712 00					\$21 74		\$3,663 74	66,959	\$ 029	\$208 50	\$30 00						\$30 00	\$2,210 54*	40	558	\$4 03*	60,960	\$ 033*	Bigelow.				
Charlestown.....	200 00			862 00					43 63		1,304 63	34,800	031	105 27	18 00						18 00	1,227 80*	40	200	4 23*	34,800	036*	Charlestown.				
City.....	1,100 00			1,100 00				\$ 24	37 82		1,129 00	81,500	968	111 27	22 50						22 50	1,661 83*	40	425	3 00*	51,000	030*	City.				
Dorchester.....	300 00		\$3 00	1,858 00					75 05		2,111 05	83,540	025	131 15	20 00						20 00	2,202 80*	49	607	3 29*	83,019	027*	Dorchester.				
East Boston.....	1,200 00			1,551 17					74 17		1,551 17	55,200	028	145 69	18 00						18 00	1,687 86*	40	490	3 07*	65,200	030*	East Boston.				
Hugh O'Brien.....	200 00			950 00					90 30		1,210 30	47,120	024	113 04	30 00						30 00	1,333 94*	40	351	3 65*	42,120	032*	Hugh O'Brien.				
Hyde Park.....	200 00			714 00					27 28		941 28	31,080	029	103 38	30 00						30 00	1,074 62*	40	264	4 07*	31,080	033*	Hyde Park.				
Lewis.....	200 00			1,424 00					60 63		1,229 05	68,929	029	119 69	20 00						20 00	1,680 32*	40	411	3 79*	58,920	031*	Lewis.				
West End.....	200 00			1,424 00					105 27		1,279 27	64,440	026	77 00																		



SHEET NO. 4.



COST OF EVENING SCHOOLS, EXCLUSIVE OF ADMINISTRATION, SUPERVISION AND GENERAL CHARGES, AND WITHOUT INCOME DEDUCTED.\*

EVENING HIGH SCHOOLS.\*

[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOLS.	EXPENSES OF INSTRUCTION.																OPERATION OF PLANT.						Total.*	Number of Sessions.	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOLS.	
	Salaries of Principals.	Salaries of Clerks.	Postage.	Salaries of Teachers.	Text Books.	Supplementary and Reference Books.	Drawing Supplies and Equipment.	Manual Training Supplies and Equipment.	Laboratory Supplies and Equipment.	Musical Instruments and Supplies.	Printing.	Commercial Supplies and Equipment.	Miscellaneous Educational Supplies.	Incidentals.	Advertising.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salaries of Janitors.	Fuel.	Light.	Power.								Janitors' Supplies.
Brighton Commercial High.....	\$34 00	\$68 00	\$3 00	\$999 00	\$147 75					\$15 75	\$26 22	\$10 98		\$10 09	\$1,215 70	11,052	\$9 109	\$47 04	\$140 50	\$98 35			\$255 89	\$1,471 59*	35	158	\$9 31*	11,052	\$9 133*	Brighton Commercial High.
Central High.....	420 00	155 09	27 50	6,532 00	69 70			\$54 26		41 45	64 98	130 57	\$0 07	9 25	7,495 78	68,246	109	612 30	360 50	225 40	\$70 00		1,208 20	\$,703 98*	70	487	18 09*	68,246	128*	Central High.
Charlestown Commercial High.....	420 00	158 09	23 50	3,099 00	\$3 00					31 50	50 10	52 38		8 99	3,897 08	35,614	109	402 35	181 39	319 20			902 85	\$,479 93*	79	251	18 90*	35,614	134*	Charlestown Commercial High.
Dorchester Commercial High.....	420 00	150 00	22 50	5,918 00	136 15				\$7 00	43 31	197 08	96 25		19 00	7,090 29	69,259	101	554 34	270 90	396 20			1,221 44	\$,821 73*	70	495	19 61*	69,259	118*	Dorchester Commercial High.
East Boston Commercial High.....	420 00	145 09	13 00	2,200 00	23 50					33 10	56 10	67 68	16	19 00	2,968 64	26,062	113	355 39	189 60	141 40			677 30	\$,345 94*	70	189	19 00*	26,062	139*	East Boston Commercial High.
Girls' Commercial High.....	420 00	156 00	12 50	3,338 00	94 12					28 37	82 39	72 41		5 25	4,679 04	51,484	999	457 14	279 99	402 00	42 09		1,232 04	\$,911 08*	79	368	16 90*	51,484	114*	Girls' Commercial High.
Hyde Park Commercial High.....	29 00	59 99	2 95	976 09						20	10 59	5 98		5 00	1,115 42	6,680	165	193 40	55 04	32 00			190 53	\$,130 55*	64	52	25 11*	6,680	195*	Hyde Park Commercial High.
North Commercial High.....	420 00	134 09	14 98	1,868 00	49 65					18 90	12 79	35 19		2 65	2,546 83	17,439	148	187 89	70 99	56 09	7 41		321 30	\$,268 13*	70	125	22 95*	17,439	164*	North Commercial High.
Roxbury Commercial High.....	420 00	283 00	51 00	6,374 00	61 40				7 00	56 72	163 56	124 29		9 25	7,550 13	73,626	102	569 63	181 30	350 09			1,091 23	\$,841 36*	70	525	19 46*	73,626	117*	Roxbury Commercial High.
South Boston Commercial High.....	408 00	159 09	14 71	3,952 00	65 89	\$40 09				51 77	33 96	74 90		10 00	4,899 24	51,006	994	459 50	270 99	441 09			1,198 49	\$,598 64*	79	364	16 40*	51,006	117*	South Boston Commercial High.
Totals.....	\$3,411 00	\$1,485 09	\$185 04	\$35,618 09	\$983 77	\$40 00		\$54 25	\$14 09	\$321 07	\$707 74	\$559 64	\$0 23	\$79 40	\$43,269 15	410,358	\$9 105	\$3,736 28	\$1,981 04	\$2,491 55	\$110 41		\$8,329 18	\$51,598 33*	.....	3,014	\$17 12*	419,359	\$9 125*	Totals.

EVENING ELEMENTARY SCHOOLS.\*

[FOR TOTALS AND NET COSTS, SEE SHEET NO. 1.]

SCHOOLS.	EXPENSES OF INSTRUCTION.																OPERATION OF PLANT.						Total.*	Number of Sessions.	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOLS.	
	Salaries of Principals.	Salaries of Clerks.	Postage.	Salaries of Teachers.	Text Books.	Supplementary and Reference Books.	Drawing Supplies and Equipment.	Manual Training Supplies and Equipment.	Cookery Supplies and Equipment.	Sewing Supplies and Equipment.	Musical Instruments and Supplies.	Printing.	Miscellaneous Educational Supplies.	Incidentals.	Advertising.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salaries of Janitors.	Fuel.	Light.	Power.								Janitors' Supplies.
Abraham Lincoln.....	\$372 00	\$44 87	\$11 50	\$1,104 00							\$1 44	\$70 23		\$7 00	\$1,611 04	19,982	\$0 080	\$113 77	\$240 87	\$65 10	\$23 25		\$742 09	\$2,354 03*	93	107	\$22 09*	19,982	\$9 117*	Abraham Lincoln.
Bigelow.....	372 00	99 87	20 00	2,483 00	\$32 00			\$25 49	\$4 00		1 08	59 89		18 00	3,106 21	41,098	075	512 45	360 01	455 29			1,327 76	\$,433 06*	93	220	20 15*	41,098	108*	Bigelow.
Bowdoin.....	372 00	44 87	11 20	1,254 00		\$9 96				41 09		9 85		5 50	1,739 38	21,652	080	445 84	240 87	74 40			701 11	\$,259 49*	93	119	21 56*	21,652	115*	Bowdoin.
Brighton.....	308 00	12 87	0 09	1,124 00				17 72	12			35 02			1,657 33	18,580	084	453 79	109 37	48 83			692 99	\$,219 32*	93	100	21 79*	18,580	116*	Brighton.
Comins.....	372 00	93 87	7 80	2,138 50	4 37			18 61	41 94		40	56 66		10 00	2,744 15	35,404	077	597 74	429 87	283 19			1,257 80	\$,490 95*	93	190	21 09*	35,404	113*	Comins.
Dearborn.....	372 00	25 87	8 88	972 00							16	14 13		12 40	1,405 44	18,008	078	331 54	139 50	83 70			554 84	\$,190 28*	93	97	20 21*	18,008	108*	Dearborn.
Eliot.....	372 00	47 87	3 09	2,103 00							48	29 30		5 00	2,550 65	33,582	076	604 41	478 95	146 94			1,130 30	\$,369 95*	93	181	20 39*	33,582	109*	Eliot.
Franklin.....	372 00	93 87	12 02	4,104 00	72 90			27 71	5 27			193 91	\$0 80	10 09	4,891 58	65,026	073	783 27	473 37	460 35	62 31		1,779 30	\$,580 83*	93	350	18 89*	65,026	101*	Franklin.
Hancock.....	372 00	26 87	7 35	1,290 00	22 64			1 35			1 44	12 34			1,643 99	18,108	099	321 67	240 87	89 28			651 72	\$,295 71*	93	97	23 97*	18,108	126*	Hancock.
Hyde Park.....	372 00	6 87	2 50	1,018 00				11 95						3 00	1,444 32	12,694	113	234 62	186 00	161 82			552 44	\$,202 76*	93	68	29 81*	12,694	159*	Hyde Park.
John A. Andrew.....	188 00			496 00				32 78				18 95			735 73	6,130	120	273 36	121 73	82 25			477 34	\$,123 07*	47	65	18 96*	6,130	197*	John A. Andrew.
Lewis.....	188 00		2 00	490 00	20 00				Cr. 22 88			3 66			650 78	7,370	088	210 08	121 73	56 40			389 11	\$,103 99*	47	78	13 33*	7,370	141*	Lewis.
Phillips Brooks.....	352 00	96 80	5 00	2,997 00					60		08	48 28		1 55	3,501 37	39,950	088	895 23	481 74	468 72	103 23		1,948 92	\$,545 29*	93	213	25 59*	39,950	137*	Phillips Brooks.
Quincy.....	188 00	29 00		918 00							16	22 26			885 42	13,212	067	154 68	121 73	87 42			393 73	\$,124 15*	47	141	8 80*	13,212	054*	Quincy.
Theodore Lyman.....	372 00	87 86	11 75	2,025 99				24 90	18		48	43 79		5 00	2,570 96	33,120	077	480 56	239 11	250 86			970 53	\$,361 49*	93	178	19 99*	33,120	106*	Theodore Lyman.
Ulysses S. Grant.....	180 00	49 00	2 00	821 50					Cr. 18 00			1,031 59			11,066	11,066	098	388 35	243 46	113 27			745 08	\$,170 58*	47	118	15 06*	11,066	160*	Ulysses S. Grant.
Warren.....	372 00	24 86	7 90	1,018 00				44 42	Cr. 41 00			25 52		5 00	1,455 80	15,840	091	372 00	139 59	185 00			698 10	\$,215 00*	93	85	25 34*	15,840	135*	Warren.
Washington.....	372 00	95 50	13 60	2,262 50	5 00						64	28 70		0 09	2,787 39	39,070	075	437 13	240 87	209 25	12 39		899 61	\$,368 97*	93	199	18 53*	39,070	099*	Washington.
Wells.....	372 00	48 80		1,180 00								24 52		4 00	1,629 38	19,122	085	292 10	240 87	192 75			695 72	\$,235 10*	93	193	22 57*	19,122	121*	Wells.
Wendell Phillips.....	188 00	14 00	3 09	700 00											965 09	12,830	070	158 05	70 50	70 07	35 25		334 77	\$,129 77*	47	136	9 12*	12,830	996*	Wendell Phillips.
Totals.....	\$9,488 00	\$932 00	\$137 60	\$30,136 60	\$159 01	\$0 96		\$203 55	\$12 58		\$6 39	\$907 58	\$0 80	\$95 45	\$38,777 39	479,450	\$0 080	\$5,232 04	\$4,908 92	\$3,536 79	\$236 40		\$16,914 15	\$55,991 54*	.....	2,812	\$19 00*	479,460	\$9 16*	Totals.

CENTRAL EVENING ELEMENTARY SCHOOL.\*

[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.							OPERATION OF PLANT.						Total.*	Number of Sessions.	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.	
	Salary of Principal.	Salaries of Clerks.	Postage.	Salaries of Teachers.	Miscellaneous Educational Supplies.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salaries of Janitors.	Fuel.	Light.	Power.	Janitors' Supplies.								Total for Operation of Plant.
Central Evening Elementary.....	\$96 00	\$24 00	\$2 75	\$554 00	\$5 15	\$681 90	9,146	\$0 074	\$134 10	\$96 00	\$24 00	\$24 00		\$278 19	\$900 09*	24	193	\$4 97*	9,146	\$0 194*	Central Evening Elementary.

EVENING CITIZENSHIP CLASSES.—SUMMER TERM.\*

[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.					OPERATION OF PLANT.			Total.*	Number of Sessions.	Average Attendance.	Cost per Pupil, Average Attendance.*	Number of Pupil Hours.	Cost per Pupil Hour.*	SCHOOL.
	Salaries of Teachers.	Miscellaneous Educational Supplies.	Total for Instruction.	Number of Pupil Hours.	Cost per Pupil Hour of Instruction.	Salaries of Janitors.	Light.	Total for Operation of Plant.							
Evening Citizenship Classes, Summer Term.....	\$192 00	\$4 80	\$196 80	2,820	\$0 069	\$125 34	\$27 75	\$153 09	\$349 89*	15	101	\$3 46*	2,820	\$0 124*	Evening Citizenship Classes, Summer Term.

BOSTON TRADE SCHOOL, EVENING CLASSES.\*

[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

SCHOOL.	EXPENSES OF INSTRUCTION.														OPERATION OF PLANT.						Total.*	Number of Sessions.	Average Attendance.	Cost per
---------	--------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	---------------------	--	--	--	--	--	---------	---------------------	---------------------	----------



THE UNIVERSITY OF CHICAGO  
 DIVISION OF PHYSICAL SCIENCES  
 DEPARTMENT OF CHEMISTRY  
 LABORATORY OF ORGANIC CHEMISTRY

Run	Temp	Time	Yield	mp	lit	Notes
1	100	10	0.5	100	100	
2	100	10	0.5	100	100	
3	100	10	0.5	100	100	
4	100	10	0.5	100	100	
5	100	10	0.5	100	100	
6	100	10	0.5	100	100	
7	100	10	0.5	100	100	
8	100	10	0.5	100	100	
9	100	10	0.5	100	100	
10	100	10	0.5	100	100	

## SHEET NO. 5.

THE UNIVERSITY OF CHICAGO  
 DIVISION OF PHYSICAL SCIENCES  
 DEPARTMENT OF CHEMISTRY  
 LABORATORY OF ORGANIC CHEMISTRY

Run	Temp	Time	Yield	mp	lit	Notes
1	100	10	0.5	100	100	
2	100	10	0.5	100	100	
3	100	10	0.5	100	100	
4	100	10	0.5	100	100	
5	100	10	0.5	100	100	
6	100	10	0.5	100	100	
7	100	10	0.5	100	100	
8	100	10	0.5	100	100	
9	100	10	0.5	100	100	
10	100	10	0.5	100	100	

THE UNIVERSITY OF CHICAGO  
 DIVISION OF PHYSICAL SCIENCES  
 DEPARTMENT OF CHEMISTRY  
 LABORATORY OF ORGANIC CHEMISTRY

Run	Temp	Time	Yield	mp	lit	Notes
1	100	10	0.5	100	100	
2	100	10	0.5	100	100	
3	100	10	0.5	100	100	
4	100	10	0.5	100	100	
5	100	10	0.5	100	100	
6	100	10	0.5	100	100	
7	100	10	0.5	100	100	
8	100	10	0.5	100	100	
9	100	10	0.5	100	100	
10	100	10	0.5	100	100	





COST OF ACTIVITIES, EXTENDED USE OF PUBLIC SCHOOLS, EXCLUSIVE OF ADMINISTRATION, SUPERVISION AND GENERAL CHARGES.\*

SCHOOL CENTERS.\*

[FOR TOTAL AND NET COSTS, SEE SHEET No. 1.]

	Salaries of Managers, Leaders, etc.	Services of Community Motion Picture Bureau.	Moving Picture Machine Accessories and Incidentals.	Stereopticon Accessories and Repairs.	Musical Instruments, Music Supplies and Repairs.	Miscellaneous Supplies.	Printing and Advertising.	Postage.	Telephone.	Incidentals.	Salaries of Janitors.	Fuel.	Light.	Total.*	Number of Sessions.	Average Attendance.	Per Capita Cost, Average Attendance.*	Number of Pupil Hours.	Per Capita Cost Per Hour.*	
Charlestown.....	\$2,296 50	\$384 70	\$2 85	\$25 00	.....	.....	\$25 37	\$8 00	.....	.....	\$398 26	\$453 60	\$428 49	\$4,022 77*	80	326	12 34*	52,160	\$0 077*	Charlestown.
Dorchester.....	2,309 00	440 90	.....	.....	\$5 00	.....	33 79	.....	.....	\$3 60	454 92	313 60	286 72	3,847 53*	56	453	8 49*	50,736	075*	Dorchester.
East Boston.....	1,839 50	444 40	2 70	5 10	15 00	.....	40 71	8 00	.....	.....	460 71	313 32	270 48	3,309 92*	83	422	8 06*	70,052	048*	East Boston.
North End.....	1,244 00	.....	.....	.....	.....	.....	13 88	8 00	.....	.....	78 49	216 34	116 00	1,676 71*	62	271	6 19*	33,604	049*	North End.
Roxbury.....	3,256 50	456 00	2 20	3 00	174 00	.....	21 23	16 00	\$16 30	5 00	788 62	655 20	616 59	6,010 64*	115	607	9 90*	139,610	043*	Roxbury.
South Boston.....	1,682 50	442 70	15 75	1 50	.....	.....	18 63	.....	.....	.....	395 10	442 40	229 10	3,227 68*	80	348	9 27*	55,680	057*	South Boston.
West End.....	1,479 50	.....	.....	.....	.....	.....	.....	.....	.....	15 70	224 43	345 25	174 77	2,239 65*	68	613	3 65*	83,368	026*	West End.
Totals.....	\$14,107 50	\$2,168 70	\$23 50	\$34 60	\$194 00	.....	\$153 61	\$40 00	\$16 30	\$24 30	\$2,800 53	\$2,739 71	\$2,122 15	\$24,424 90*	.....	3,040	\$8 03*	485,210	\$0 050*	Totals.

LECTURES.\*

[FOR TOTAL AND NET COSTS, SEE SHEET No. 1.]

	Services of Community Motion Picture Bureau.	Payments to Lecturers for Non-English Lectures.	Stereopticon Supplies.	Printing and Advertising.	Moving Picture Supplies.	Incidentals.	Salaries of Janitors.	Fuel.	Light.	Total.*	Total Attendance.	Per Capita Cost.*	
Lectures.....	\$299 00	\$265 00	\$4 00	\$161 50	.....	.....	\$79 92	\$57 97	\$34 10	\$901 49*	45,767	\$0 019*	Lectures.

USE OF SCHOOL ACCOMMODATIONS FOR MUNICIPAL CONCERTS, PARENTS' AND TEACHERS' MEETINGS, ALUMNI MEETINGS, ETC.\*

[FOR TOTAL AND NET COSTS, SEE SHEET No. 1.]

	Payment for Services.	Salaries of Janitors.	Fuel.	Light.	Supplies.	Printing.	Incidentals.	Total.*	Total Attendance.	Per Capita Cost.*	
Use of School Accommodations.....	\$241 00	\$1,820 92	\$574 09	\$337 70	.....	.....	.....	\$2,973 71*	52,812	\$0 056*	Use of School Accommodations.

\* EXCLUSIVE OF COSTS OF BUILDING, DEPRECIATION, REPAIRS, INTEREST AND SINKING FUND CHARGES.

LOCALITY RECORDS

No.	Date	Locality	Collector
1	1911	...	...
2	1911	...	...
3	1911	...	...
4	1911	...	...
5	1911	...	...
6	1911	...	...
7	1911	...	...
8	1911	...	...
9	1911	...	...
10	1911	...	...
11	1911	...	...
12	1911	...	...
13	1911	...	...
14	1911	...	...
15	1911	...	...
16	1911	...	...
17	1911	...	...
18	1911	...	...
19	1911	...	...
20	1911	...	...

SHEET NO. 6.

COST OF CAPITALS

Item	Rate	Weight	Weighted Rate
Debt	8%	40%	3.2%
Preferred Stock	10%	10%	1.0%
Common Equity	12%	50%	6.0%
<b>Total</b>		<b>100%</b>	<b>10.2%</b>

100  
100  
100  
100

COST OF PLAYGROUNDS, EXCLUSIVE OF ADMINISTRATION, SUPERVISION AND GENERAL CHARGES.\*

PARK PLAYGROUNDS.\*

[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

Table with columns: Play Teachers' Salaries, Janitors' Salaries, Apparatus, Labor and Teaming on Apparatus, etc., Supplies for Athletics and Games, Supplies for Quiet Play, Incidentals, Total.\*, Number of Sessions, Average Attendance, Cost per Pupil.\*, Cost per Pupil per Session.\*

SCHOOLYARD PLAYGROUNDS.\*

[FOR TOTAL AND NET COSTS, SEE SHEET NO. 1.]

Table with columns: Teachers' Salaries, Janitors' Salaries, Apparatus, Labor and Teaming on Apparatus, etc., Supplies for Athletics and Games, Supplies for Quiet Play, Incidentals, Total.\*, Number of Sessions, Average Attendance, Cost per Pupil.\*, Cost per Pupil per Session.\*

\* EXCLUSIVE OF COST OF BUILDING, DEPRECIATION, REPAIRS, INTEREST AND SINKING FUND CHARGES.

Date	Particulars	Debit	Credit
1890			
Jan 1	Balance	100.00	
Jan 5	Wages	50.00	
Jan 10	Materials	25.00	
Jan 15	Repairs	15.00	
Jan 20	Salaries	30.00	
Jan 25	Interest	10.00	
Jan 30	Profit		100.00
Feb 1	Balance	100.00	
Feb 5	Wages	50.00	
Feb 10	Materials	25.00	
Feb 15	Repairs	15.00	
Feb 20	Salaries	30.00	
Feb 25	Interest	10.00	
Feb 30	Profit		100.00
Mar 1	Balance	100.00	
Mar 5	Wages	50.00	
Mar 10	Materials	25.00	
Mar 15	Repairs	15.00	
Mar 20	Salaries	30.00	
Mar 25	Interest	10.00	
Mar 30	Profit		100.00

SCHOOL DOCUMENT NO. 2—1918  
BOSTON PUBLIC SCHOOLS

A PLAN FOR THE PROMOTION OF TEACHERS  
FROM MERIT LISTS

BULLETIN NO. XIV OF THE DEPARTMENT OF  
EDUCATIONAL INVESTIGATION AND MEASUREMENT



MARCH, 1918

BOSTON  
PRINTING DEPARTMENT  
1918

IN SCHOOL COMMITTEE, BOSTON, January 10, 1918.

*Ordered,* That four thousand (4,000) copies of "A Plan for the Promotion of Teachers from Merit Lists," a bulletin prepared by the Department of Educational Investigation and Measurement, be printed as a school document.

Attest:

THORNTON D. APOLLONIO,  
*Secretary.*



# TABLE OF CONTENTS.

	Page
Local conditions described . . . . .	6
Superintendent makes appointments . . . . .	6
Need of a Plan of Promotion from Merit Lists shown by	
1. Size of the school system . . . . .	7
2. Variety of ranks . . . . .	8
3. Number of eligible candidates . . . . .	9
4. Number of promotions annually . . . . .	11
Coöperative Methods of Procedure in Evolving a Plan . . . . .	13
With candidates themselves . . . . .	13
With masters of districts . . . . .	15
With Board of Superintendents . . . . .	16
What Constitutes General Merit in Teaching? . . . . .	18
Merit as judged by pupils . . . . .	19
Eleven factors in relation to general merit . . . . .	19
Scholarship in relation to general merit . . . . .	21
Experience in relation to general merit . . . . .	22
Forty-four qualities related to general merit . . . . .	22
Determining the Degree of Merit among Teachers . . . . .	25
General impression or personal method . . . . .	25
Analytical or fact basis method . . . . .	26
Requirements of a rating system . . . . .	27
Rating teachers not new in Boston . . . . .	28
Ratings given by assistant superintendents, 1914	29
(a) Ratings not discriminating . . . . .	29
(b) Ratings not comparable . . . . .	31
Ratings of assistant superintendents, 1916 . . . . .	33
Basis for Rating the Efficiency of Teachers . . . . .	37
Form 264. Educational Preparation and Experience . . . . .	37
Form 265. Administrative, Supervisory and Executive Work, . . . . .	38
Form 266. Evidences of Professional Interest and Growth . . . . .	40
Form 267. Personal Characteristics and Teaching Ability . . . . .	42
Promotions in the Elementary School . . . . .	45
To master (men) . . . . .	45
To master (women) . . . . .	48
To submaster (men) . . . . .	55
{ To master's assistant (women) . . . . .	56
{ To first assistant in charge (women) . . . . .	56
{ To first assistant, grammar (women) . . . . .	56
Promotions in the High and Latin Schools . . . . .	57
To head master . . . . .	57
To head of department . . . . .	57
Preparation of Merit Lists . . . . .	58
Administration of Merit Lists . . . . .	60



## INTRODUCTION.

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The importance of the subject of promotion of teachers on merit from an administrative point of view, general interest in it among the teaching staff, whether or not candidates for promotion, and the amount of space necessary to set forth in a satisfactory manner what has been done and what is contemplated, made it seem desirable to make a more comprehensive report on this subject than could appropriately find a place in the superintendent's annual report. The superintendent concurred in this view and requested the School Committee to authorize a separate publication of the report of work done during the past three years under this assignment. This report should be viewed as a report of progress rather than as a final report.

FRANK W. BALLOU,  
*Assistant Superintendent in Charge.*

## A PLAN FOR THE PROMOTION OF TEACHERS FROM MERIT LISTS.

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When the department of educational investigation and measurement was established by the School Committee, the person appointed head of that department was given the title "Director of Promotion and Educational Measurement." This was done in order to bring into prominence that part of the director's work which has to do with the organization of a plan for the promotion of teachers according to merit lists. By order of the superintendent, the director began work at once on a plan by which all appointments to higher positions in the public school system shall be placed on a city-wide merit basis.

The scope and limitations of the problem of promotion as it is considered in this study need to be defined. The study has to do with the promotion of teachers from a lower to a higher rank in the school service. Such a promotion invariably involves an increase in salary. The study has nothing to do with the regular annual automatic increase in salary within each rank. Further, the study has nothing to do with the promotional examinations which take place at the end of the second and sixth year of service. Finally, the study is in no way directly concerned with the present practice of the Board of Superintendents in granting eligibility certificates. This study is limited to ways and means of preparing merit lists of candidates who have been declared eligible by the Board of Superintendents for promotion to higher ranks in the school service.

### LOCAL CONDITIONS DESCRIBED.

#### SUPERINTENDENT MAKES APPOINTMENTS.

The rules of the School Committee of Boston provide that the superintendent "Shall, subject to the approval

of the board, appoint, reappoint and remove all members of the supervising staff and teachers; provided that in the original appointment of subordinate teachers he shall consult the principal of the school or district, the assistant superintendent in charge thereof, or the director of a special department if the appointment is in that department."<sup>1</sup>

By this rule the superintendent is clearly and rightly charged with the responsibility of appointing and dismissing teachers. As a responsible executive and professional administrator, held largely responsible for the merits and defects of the school system, the rules give the superintendent correspondingly large authority in the appointment of the teaching staff, on whose work the success of the system and his success so largely depend. This rule also covers the cases of appointment to higher positions in the service, which are largely filled by promotions from a lower to a higher rank.

The original appointment of all teachers to service in the Boston public schools is from a merit list, prepared with much care by the Board of Superintendents, and strictly followed by the superintendent in making appointments. The fact that teachers are appointed according to merit when they come into the service strongly suggests that a similar plan might properly be followed in the promotions which take place within the system from year to year.

#### NEED OF A PLAN OF PROMOTION ON MERIT.

The need of some plan for the promotion of teachers to positions of higher rank on the basis of merit will be clearly indicated by a brief survey of some phases of or conditions in the Boston school system.

1. The size of the public school system makes such a plan necessary. In 1917 there were 2,090 elementary school teachers and 566 high school teachers in the city. In this large staff of teachers vacancies are constantly

---

<sup>1</sup> Rules, 1912, chapter VI., section 105.

occurring in the higher positions, which must be filled by the superintendent. These vacancies should be filled by the appointment of the most efficient persons available. Many of these 2,600 teachers can be known to the superintendent only indirectly through the assistant superintendents, directors of departments and masters of schools. Inasmuch as the superintendent needs positive information rather than general opinions about candidates for promotion, it follows that there must be some systematic plan for gathering and recording such information.

2. The variety of ranks both in the elementary and in the high schools makes such a plan necessary. Each rank has its salary schedule, and promotion from one rank to the next means more salary and carries with it added responsibility. Promotions from one rank to another should be made not solely as a reward for faithful service, but should be made primarily with the view of providing the city with the highest possible professional service.

As supporting evidence for some of the above assertions, the following tabulation is offered, showing for the elementary and the high school the various ranks, and the minimum salary, the annual increase, and the maximum salary for each (January 1, 1918):

#### Elementary School.

RANK.	Sex.	Minimum Salary.	Annual Increase.	Maximum Salary.
Assistant.....	Men or women..	\$600	\$48	<sup>1</sup> \$1,176
First Assistant, Grammar.....	Women...	1,212	48	<sup>2</sup> 1,404
First Assistant in Charge.....	Women...	1,212	48	1,500
Master's Assistant.....	Women...	1,212	48	1,500
Submaster.....	Men.....	1,500	120	2,340
Master.....	Men or women..	2,580	120	3,420

<sup>1</sup> In boys' classes the maximum salary is \$1,224.

<sup>2</sup> Position found only in schools where the number of girls belonging in grades above the third exceeds six hundred.

High School.

RANK.	Sex.	Minimum Salary.	Annual Increase.	Maximum Salary.
Assistant.....	Men or women..	\$972	\$72	\$1,764
First Assistant, Head of Department,	Women . . .	1,332	72	1,980
Junior Master.....	Men.....	1,476	144	2,628
Master.....				<sup>1</sup> 3,060
Master, Head of Department.....	Men.....	2,340	144	3,204
Head Master.....		3,204	144	4,068

<sup>1</sup> Junior masters appointed since June 1, 1906, are no longer advanced to the rank of master unless at the same time they are made head of department.

3. The large number of teachers who hold certificates making them eligible for promotion makes necessary some plan for determining their relative professional qualifications. Many teachers who now hold eligibility certificates received them when the requirements were lower than they now are. A few of these teachers are not only not now qualified for promotion, but according to the assistant superintendent in charge are not at the present time doing satisfactory work in their present positions. A considerable number of those teachers who hold eligibility certificates have received them from the Board of Superintendents. They have been given such certificates on the basis of having attained a minimum standard of achievement defined in terms of educational experience and professional study and measured by an examination. Naturally some teachers barely meet the minimum requirement, while others could easily reach a much higher standard. One of the logical results of a generous policy of issuing eligibility certificates according to a minimum standard is to grant a large number of certificates and thereby qualify for appointment many more persons than can ever hope to be appointed. In view of these circumstances, it becomes one of the functions of a plan of promotion on merit to determine the relative professional worth of candidates who have received eligibility certificates from the Board of Superintendents.

The following tabulation shows the number of positions of different rank and the number of persons within the service who hold certificates making them eligible for appointment to those positions (January 1, 1918):

#### Elementary School.

RANK.	Sex.	Number of Positions.	Number of Eligible Candidates.
First Assistant, Grammar.....	Women....	29	846
First Assistant in Charge.....	Women....	99	846
Master's Assistant.....	Women....	70	846
Submasters.....	Men.....	81	—
<i>a.</i> In the service.....			18
<i>b.</i> Not in Boston service, but on eligible list.....			15
Masters.....	Men and Women...	65	151

#### High School.

RANK.	Sex.	Number of Positions.	Number of Eligible Candidates.
First Assistant, Head of Department.....	Women....	31	177
Master.....		26	*
Master, Head of Department.....	Men.....	48	176
Head Master.....	Men and Women...	15	47

\* There are no candidates for the rank of master, inasmuch as all masters hereafter appointed are at the same time made heads of departments.

4. The need of a systematic plan for the promotion of teachers on merit can also be judged by the number of appointments to higher positions which must be made from time to time by the superintendent. Since April, 1914, when the department began work, all appointments to higher positions have been made according to a merit list. Appointments to many of the lower positions, even though made by promotion, have not been investigated by the department, owing to the lack of time and opportunity. The following tabulation



shows the number of individual candidates visited between April 14, 1914, and December 31, 1917, together with the number of visits made by the director of promotion to such candidates.

**Number of Candidates and Visits.**

	Number of Individual Candidates.	Number of Visits.
<b>In Elementary Schools:</b>		
For Master.....	72	97
For Submaster.....	24	32
For Master's Assistant.....	32	34
For First Assistant in Charge.....	27	27
For First Assistant, Grammar.....	6	6
	— 161	— 196
<b>In High Schools:</b>		
For Head Master.....	1	1
For Master, Head of Department.....	19	26
For First Assistant, Head of Department.....	5	7
For Instructor, Physical Training.....	7	14
	— 32	— 48
<b>In Continuation School:</b>		
For Head of Division.....	2	2
	— 195	— 246
Out of Town.....	3	3
Totals.....	— 198	— 249

The work of the director of promotion in connection with the above promotions has varied considerably in amount. In some cases it was largely a matter of collecting and preparing information for the superintendent, while in other cases much visiting of candidates was done and many conferences held. Particular attention is called to the fact that, while the director has visited 198 different candidates, he has visited several of them more than once, so that his total number of visits during the period was 249.

The following tabulation shows all appointments by promotion during the school years indicated. This information was compiled from the minutes of the meet-

ings of the School Committee. As will be shown elsewhere, the director of promotion has been concerned with only a comparatively small number of these promotions.

	SCHOOL YEARS.				Total.
	1914-15.	1915-16.	1916-17.	1917-18. (To Dec. 31, 1918.)	
Normal:					
First Assistant, Head of Department.....			1	3	4
Assistant.....		1	1	1	3
High and Latin:					
Head Master.....	3	1			4
Master, Head of Department....	5	3		2	10
First Assistant, Head of Department.....	1			3	4
Industrial Instructor, Head of Department.....	1				1
Junior Master.....	3	1	4	2	10
Assistant.....	1	7	2	5	15
Head Instructor in Stenography..				1	1
Instructor in Coöperative Branches.....				1	1
Elementary:					
Master (men).....	5			1	6
Master (women).....	1			2	3
Submaster.....	4	2		1	7
Master's Assistant.....	4	2	4	2	12
First Assistant in Charge.....	7	3	3	1	14
First Assistant, Grammar.....	2	1		2	5
Instructor, Special Class.....				38	38
First Assistant, Kindergarten....	16	9	9	4	38
Continuation School:					
Principal.....		1			1
Head of Division.....				1	1
Instructor.....		2	18	2	22
Assistant.....		4			4
Trade Assistant.....				2	2
Trade School for Girls:					
First Assistant.....		2		1	3
Vocational Assistant.....				1	1
Trade Assistant.....			4	2	6
Helper.....		1			1
Boston Trade School:					
Vice Principal.....				1	1
Division Head.....			3		3
Shop Foreman.....		1		1	2
Special Departments:					
Instructor, Physical Training....	2	1		4	7
Instructor in Manual Training....	1				1
Shop Work Instructor, Manual Arts.....	3	2			5
Director.....	1		2	2	5
First Assistant Director.....	1				1
Assistant Director.....	1	4		2	7
Associate Director.....		1			1
Class for Stammerers:					
Assistant.....	1	2	2	4	9
Totals.....	63	51	53	92	259

COÖPERATIVE METHODS OF PROCEDURE IN EVOLVING  
A PLAN.

When the director of promotion began work in April, 1914, it was known that there would be four or five vacancies in the position of master in elementary schools to be filled at the close of the school year. The superintendent and director immediately took steps to fill these positions according to merit. From the beginning the department has adopted the coöperative method of carrying on its work. In all important undertakings it has sought the counsel and assistance of those concerned with the project. Brief account is here given of the method by which the plan for the promotion of teachers according to merit lists has been worked out.

## WITH CANDIDATES THEMSELVES.

In order to enlist the coöperation of those from among whom masters of elementary schools were likely to be chosen, the superintendent at once called two meetings in the Roxbury High School,—one of submasters on April 22, 1914, and another of master's assistants on the following day. At those meetings the superintendent described the difficulty of filling higher positions in the service according to merit, because there were so many candidates and also because there was no system by which the superintendent was provided with an adequate basis for judging the relative merit of candidates. The superintendent invited the submasters and master's assistants to coöperate with the director in working out a plan for appointing teachers on merit which should be just and equitable to all.

The director of promotion distributed at these meetings a "Provisional Blank on Promotion," on which candidates were asked to furnish information concerning their education, their teaching experience, and other evidences of their professional equipment for teaching and executive work. It was explained that in making

appointments this information would supplement the rating of teaching ability of candidates.

After the candidates for masterships had filled out the "Provisional Blank," another meeting of submasters was held, on April 30, 1914, at Mason street, to consider the value of the information called for on the blank and also to plan for rating the quality of service now rendered by submasters in their respective positions. Following this meeting there was a dinner at the Boston City Club, after which the same and other matters were discussed. The following questions will indicate the nature of the topics considered at these two meetings:

1. Should the submaster of a school have first consideration for appointment as principal in his own school when such principalship is vacant?
2. Would the probability of success of a new principal be increased or diminished by his appointment in the school where he has served as submaster as compared with his appointment in another school?
3. What executive duties now performed by submasters can be taken into consideration in estimating their probable success as principals?
4. If the plan for judging the present success of submasters for elementary school principalships provides for the rating of such candidates by principals,
  - a. Should such ratings be given by the principals in their respective schools, *or*
  - b. Should such ratings be given by principals of other schools?

Meetings were held with the master's assistants similar to those held with submasters. It would be repetitious to describe in detail the conferences held with both the submasters and the master's assistants. Wherever the meetings with submasters are used for illustrative purposes, it may be assumed that corresponding meetings were held with master's assistants.

Some submasters felt that a submaster in a school where a vacancy occurs should be considered as having

preferential claim to appointment as principal in that school. It was pointed out that the pursuit of such a policy would limit the possibilities of a submaster for promotion to master in his own school, and would tend to make impossible any general plan for making promotions on a city-wide basis. It was agreed, however, that the submaster in a school where a vacancy occurs should always have consideration, but that the appointment should be made by the superintendent in accordance with the merit list of candidates.

It was the feeling of submasters that the probability of success of a new principal would not be materially increased or decreased by his appointment in a school other than the one in which he had been serving as submaster. If a submaster has served with conspicuous merit in that rank in a given district, he would be likely to succeed as a principal also in that or any other district. If he has not performed his duties as submaster successfully, it is not likely that he would be seriously considered for a principalship in another district.

When one leaves the rank of submaster to become master of a district he changes from teaching and a more or less limited amount of administrative work to a supervisory, administrative, and executive position. Some submasters are given considerable opportunity by their masters to perform administrative duties. A report is on file in the superintendent's office, showing the extent of such executive duties of submasters. Obviously, it is undesirable to rate a submaster comparatively low merely because his master has not given him an opportunity to show his ability to assume executive responsibilities.

#### WITH MASTERS OF DISTRICTS.

At first some submasters indicated a desire to be rated by the master of another district rather than by their own master. Following this suggestion, the director of promotion held a conference with a com-

mittee of elementary school masters\* to discuss the feasibility of securing ratings by masters of schools other than those in which the candidate teaches. The committee felt that rating by masters of the schools in which the candidate teaches was feasible, but that the rating by masters of other schools was more difficult, particularly because of a lack of a common basis of judgment. After Form 267 had been prepared to provide such a common basis of judgment, a second conference with the committee was held. The committee agreed that ratings by masters of schools other than those in which the candidate teaches could be satisfactorily secured. The committee, however, looked upon this task as a particularly difficult one and desired it understood that they were persuaded to undertake it largely because the submasters had indicated that they desired to have them do it. After more mature consideration, the submasters themselves agreed to abandon the idea of securing ratings from masters under this proposal.

#### WITH THE BOARD OF SUPERINTENDENTS.

In working out a plan for the promotion of teachers from merit lists of candidates, the director frequently sought the advice and coöperation of the Board of Superintendents. Within two months after his appointment, the director appeared before the Board of Superintendents and discussed the plan which he was following in considering and rating candidates.

One illustration may be given of the nature of the detailed matters considered with the Board of Superintendents. At a conference with the Board of Superintendents, held April 30, 1915, it was agreed:

1. That the mark given by the assistant superintendent shall be based on the candidate's personal characteristics and

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\* The committee consisted of the following elementary school masters: Charles C. Haines, Lewis School; Seth Sears, Franklin School; Charles N. Bentley, Oliver Hazard Perry School; Arthur L. Gould, Dearborn School; Benjamin J. Hinds, Washington School; George E. Murphy, Hugh O'Brien School; Gertrude E. Bigelow, Hancock School.

teaching and executive ability, as outlined on Form 267, and shall include the further element of the assistant superintendent's estimate of the qualifications of the candidate for promotion to an elementary school principalship.

2. That a candidate may be informed of his or her rating only by either the person making the rating or the superintendent of schools.

3. That the assistant superintendent shall give such information concerning the points specified in Form 267 as seems to him or her desirable.

The director has kept the Board of Superintendents informed of every important step in the progress of the undertaking, and the Board has always given careful and helpful consideration to the matters presented. The plans as outlined to the Board have been cheerfully modified by the director as a result of suggestions by the Board and, with but one dissenting vote, the elements of the plan have been uniformly approved.

As a result of the various conferences and discussions the director undertook to secure comparable ratings of each candidate's success in teaching from three independent sources; viz., the assistant superintendent, the master of the school, and the director of promotion. It was felt that each one of these officers was in a unique position to judge of the candidate's work. Each assistant superintendent comes into supervisory relationship with each teacher in the schools under his or her supervision and thereby supervises approximately one fifth of the teachers of the city. The masters are more closely associated with teachers and come to know them more thoroughly. Their observation of teaching, however, is limited largely to the teachers of their own schools and hence masters are not necessarily in a position to compare the work of one candidate with that of another. The director of promotion has had the advantage of seeing all candidates for promotion. He secures a larger fund of recorded information than the assistant superintendent or the master. The disadvantage which the

director has found in rating teachers lies in the fact that he can see them only for an hour or so on one or possibly two occasions.

Since the director of promotion has become a member of the Board of Superintendents, the above plan has been modified by substituting for the director's rating a rating made by an assistant superintendent other than the one who supervises the candidate. After the completion of a report on a plan for rating teachers for promotion, it is not contemplated that the department of educational investigation and measurement will further consider the subject of promotion of teachers.

#### SUMMARY.

To summarize:

1. The plan for the promotion of teachers to principalships on merit has been worked out in coöperation with the candidates themselves, with the masters of districts, and with the Board of Superintendents.
2. Ratings of candidates for principalships shall be secured from the supervising assistant superintendent, the master of the district, and another assistant superintendent.
3. Appointments to principalships should be made according to the ratings of candidates, those having the highest ratings being appointed first. Ratings being equal, however, candidates who have served longest in Boston should be appointed first.
4. As far as possible or practicable, these methods and principles of procedure have been pursued in the rating and listing for appointment of candidates for other positions.

#### WHAT CONSTITUTES GENERAL MERIT IN TEACHING?

Any plan which seeks to classify candidates for promotion to higher positions into appropriate merit lists must (a) define at the outset what constitutes general merit in teaching, and (b) determine methods of meas-



uring the degree of merit possessed by candidates. The first of these topics will now be considered.

In connection with another study made by the writer\* information was gathered from seventy-three representative cities in the United States concerning their plans for the promotion of teachers. With the exception of the larger cities, most of these cities have no systematic plan for determining merit, and none of them have a plan which could be followed in Boston. This material has been of value chiefly in indicating the factors or elements which cities regard as constituting merit. Before the writer could prepare this material for publication, however, the subject was amply treated by another writer.† Some of Boyce's study is briefly summarized in the following pages.

#### MERIT AS JUDGED BY PUPILS.

The first studies ‡ designed to determine qualities of general merit undertook to determine such qualities on the basis of what children think of their best teachers. Pupils were asked questions concerning the teachers whom they felt helped them most. While valuable information was gathered as a result of these two investigations, nevertheless the discussions are, in general, qualitative terms. The problem of merit in teaching must be solved by quantitative studies of the various qualities which go to make up general merit. Fortunately, some studies of this kind have been made.

#### ELEVEN FACTORS IN RELATION TO GENERAL MERIT.

Messrs. Ruediger and Strayer made a quantitative study of eleven possible elements which go to make up general merit among teachers in twenty-six schools. The following tabulation shows the relation of these

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\* The Appointment of Teachers in Cities.

† Boyce. *Methods for Measuring Teachers' Efficiency. Part II. The Fourteenth Yearbook of the National Society for the Study of Education.*

‡ Kratz. "Studies and Observations in the Schoolroom." Chap. V. Book. *Pedagogical Seminary, Vol. XII. Pages 239-288.*

eleven factors to general merit, arranged in order, beginning with the most important:

FACTORS CONSTITUTING GENERAL MERIT.	Pearson's Coefficient of Correlation.
1. Control or ability to keep order.....	56
2. Teaching skill; method.....	54
3. Initiative or originality.....	50
4. Strength of personality.....	46
5. Progressive scholarship or studiousness.....	44
6. Ability to carry out suggestions.....	42
7. Accord between teachers and pupils.....	38
8. Experience in years.....	36
9. Social factor outside of school.....	28
10. Personal appearance.....	20
11. Health.....	4

Any correlation figure which is below 30 or 33 is considered as showing little, if any, relationship. Interpreting the above tabulation one finds that the first eight factors have a definite relationship to general merit, but that, as far as this study shows, the last three factors have not. In other words, health is shown to have practically no relationship to the general success of the teachers studied. While personal appearance shows somewhat more relationship, yet it is comparatively insignificant. On the other hand, discipline or ability to keep order is the one factor which most completely controls success in teaching. Teaching skill or method ranks second, and so on.

The qualities which constitute general merit in teaching may also be found by considering the causes of failure among teachers. Persons who fail as teachers are likely to fail because they do not possess those qualities or abilities which are most valuable in teaching. Two studies of failure have been made, one among elementary school teachers \* and the other among high school teachers.† Without going into the details of these studies the following tabulation was made by

\* Littler. Causes of Failure among Elementary School Teachers. School and Home Education, March, 1914.

† Moses. School and Home Education, January, 1914.

Littler, showing that the reasons for failure practically parallel the qualities of merit as determined by Ruediger and Strayer. (Taken from Boyce.)

QUALITIES OF MERIT. (According to Ruediger and Strayer.)	REASONS FOR FAILURE. (According to Littler.)
1. Discipline.	1. Poor Discipline.
2. Teaching Skill.	2. Weak Personality.
3. Initiative.	3. Lack of Teaching Skill.
4. Personality.	4. Lack of Interest.
5. Studiousness.	6. Lazy. No Daily Preparation.
6. Follow Suggestions.	7. Failure to Coöperate.
Last — Health.	14. Health.

From the above tabulation it appears that Ruediger and Strayer put discipline as the first essential for good teaching. Littler, likewise, indicates poor discipline as the most common reason for failure among teachers. Teaching skill is ranked second as a quality of merit in teaching, and Littler found that lack of teaching skill was the third most common reason for failure. Health was found by Ruediger and Strayer to play practically no part in the quality of teaching, and Littler found that health ranked fourteenth among the reasons for failure.

Of the many factors which bear a relation to general success of teachers, scholarship, experience, and teaching skill are most frequently indicated by superintendents. A brief sketch of the conclusions reached in studies of these topics will be instructive.

#### SCHOLARSHIP IN RELATION TO GENERAL MERIT.

A study was made of the ratings of teachers by their superintendents in relation to their scholarship marks obtained in schools which they had attended. The question was: Does high rank in scholarship indicate a probability of corresponding rank in teaching?

Clapp's \* conclusions may be summarized as follows:

1. By choosing teachers with a scholarship rank of

\* Clapp. Scholarship in Relation to Teaching Efficiency. School Review Monograph No. 6.

90 rather than 85, the chances are about two to one that a teacher above the medium in efficiency would be secured.

2. In general, the chances of securing good teachers are about two to one if we select from the good students rather than from among the poorer ones.

3. Of the three sets of marks stated, viz., general scholarship, scholarship in the special subjects taught in the high school, and scholarship in professional subjects, the first named seems to be the best index to teaching merit, and the last named the poorest.

4. One class of teachers is decidedly superior; viz., those who are graduates of both the Normal School and the university and have had experience in both elementary and high schools.

Experience is a factor most commonly taken into consideration in the original appointment and later promotion of teachers. A study\* was made of the teaching experience of 204 teachers in its relation to their general success as teachers. No teacher who was ranked first or second had taught less than five years and only four per cent of the teachers so ranked had taught more than twenty-five years. From the figures, as a whole, Ruediger says "one may infer that a teacher in the grades reaches first-class efficiency in about five years; that he maintains this efficiency for about twenty years; and that after about twenty-five years of service he begins to decline."\*

#### FORTY-FOUR QUALITIES RELATED TO GENERAL MERIT.

A study of the relation of forty-four possible qualities of merit in teaching to the general merit of teaching was made by Boyce.† His investigation was limited to 125 teachers in eleven different schools, and the conclusions, therefore, can be no more than suggestive. His method, however, indicates the way in which we may ultimately analyze the detailed qualities which determine general

\* Ruediger. "Agencies for the Improvement of Teachers in Service." Bulletin No. 3, 1911. United States Bureau of Education.

† Boyce. "A Method for Guiding and Controlling the Judging of Teaching Efficiency." School Review Monograph No. 6.

merit. The following is a tabulation of the qualities which Boyce took into consideration, classified under five heads:

**Correlations of Specific Qualities with General Merit.**

WITH.	Q.	Rank.
<b>I. Personal Equipment:</b>		
1. General appearance .....	.67	38
2. Health .....	.48	43
3. Voice .....	.56	42
4. Intellectual capacity .....	.79	32
5. Initiative and self-reliance .....	.95	5
6. Adaptability and resourcefulness .....	.94	7
7. Accuracy .....	.88	21
8. Industry .....	.86	27
9. Enthusiasm and optimism .....	.87	26
10. Integrity and sincerity .....	.78	33
11. Self-control .....	.86	25
12. Promptness .....	.78	34
13. Tact .....	.88	23
14. Sense of justice .....	.86	28
<b>II. Social and Professional Equipment:</b>		
1. Academic preparation .....	.85	30
2. Professional preparation .....	.73	36
3. Grasp of subject-matter .....	.88	22
4. Understanding of children .....	.89	19
5. School and community interest .....	.91	17
6. Ability to meet and interest parents .....	.93	13
7. Interest in lives of pupils .....	.85	31
8. Coöperation and loyalty .....	.68	37
9. Professional interest and growth .....	.90	18
10. Daily preparation .....	.94	8
11. Use of English .....	.63	39
<b>III. School Management:</b>		
1. Care of light, heat and ventilation .....	.57	41
2. Neatness of room .....	.48	44
3. Care of routine .....	.61	40
4. Discipline (governing skill) .....	.88	24
<b>IV. Technique of Teaching:</b>		
1. Definiteness and clearness of aim .....	.93	12
2. Skill in habit formation .....	.93	9
3. Skill in stimulating thought .....	.93	10
4. Skill in teaching how to study .....	1.00	1
5. Skill in questioning .....	.93	11
6. Choice of subject-matter .....	.98	3
7. Organization of subject-matter .....	.99	2
8. Skill and care in assignment .....	.91	16
9. Skill in motivating work .....	.92	14
10. Attention to individual needs .....	.86	29
<b>V. Results:</b>		
1. Attention and response of the class .....	.89	20
2. Growth of pupils in subject-matter .....	.95	6
3. Social development of pupils .....	.91	15
4. Stimulation of community .....	.98	4
5. Moral influence .....	.77	35

"Q" is the coefficient of correlation based on Yule's formula.

"Rank" means the rank which each characteristic holds based on "Q."

For our purposes a little detailed consideration may profitably be given to this comprehensive table. The twelve qualities which appear from Boyce's study to be of most fundamental importance in determining general merit in teaching are listed below. These qualities should certainly be taken into consideration in judging the merit of candidates for promotion.

1. Skill in teaching how to study.
2. Organization of subject-matter.
3. Choice of subject-matter.
4. Stimulation of community.
5. Initiative and self-reliance.
6. Growth of pupils in subject-matter.
7. Adaptability and resourcefulness.
8. Daily preparation.
9. Skill in habit formation.
10. Skill in stimulating thought.
11. Skill in questioning.
12. Definiteness and clearness of aim.

On the other hand, certain qualities which are now being considered in rating teachers in many cities do not appear by his study to have great value in determining general merit in teaching. These qualities arranged in order, beginning with the least important, are as follows:

1. Neatness of room.
2. Health.
3. Voice.
4. Care of light, heat, and ventilation.
5. Care of routine.
6. Use of English.
7. General appearance.
8. Coöperation and loyalty.
9. Professional preparation.
10. Moral influence.
11. Promptness.
12. Integrity and sincerity.

The above brief analysis of some of the studies which have been made to answer the question, "What con-

stitutes general merit in teaching?" are suggestive. No investigator on this subject feels that he has arrived at universally valid conclusions. These studies merely point the way. They indicate the kind of study which must be made before we shall have an adequate basis on which to determine the quality of instruction. They are, however, valuable in so far as they indicate those qualities which probably are dispensable or indispensable in forming a basis on which to determine merit in teaching. A review of the various forms prepared for use in Boston will show the extent to which the plan for Boston is based on the above studies and conclusions.

#### DETERMINING THE DEGREE OF MERIT AMONG TEACHERS.

Having considered in a brief way some of the studies which have been undertaken to determine what constitutes general merit, we now turn our attention to methods of determining the degree of merit among teachers.

In a study of methods of measuring teaching efficiency in 242 representative cities, Boyce found that only fourteen cities conduct examinations for that purpose, and the others follow some plan of rating. Two methods of rating teachers are to be noted, the first of which may be called the general impression or personal method, and the other the analytical or fact basis method.

##### GENERAL IMPRESSION OR PERSONAL METHOD.

According to Boyce, approximately 100 cities employ the above method. The chief characteristics of this method is its indefiniteness. There seems to be no plan of procedure except that some authorized person visits a class room and carries away a general impression of the quality of the teaching. No record is made of what was seen, of how it was regarded, or of the basis of the rating.

While this method is not recommended for use in

Boston, it is worth while to point out its defects. The method is wholly personal. The value of the rating depends entirely on the confidence imposed in the one who makes the rating. If the rating is questioned, there is no evidence available with which to substantiate it. All investigations of ratings or marking systems show that one's general impression is open to challenge. The method permits the exercise of any possible prejudice of the one making the rating. Not all those who rate teachers are experts in it or are above being biased in their judgment. General impressions are not sufficient either to determine the degree of merit which a teacher possesses or to be of service to the supervisor in his constructive work.

#### ANALYTICAL OR FACT BASIS METHOD.

This method is characterized by its analysis of the alleged factors which make up general merit. In some cities those who rate teachers make descriptive reports; in others, they answer "yes" or "no" to certain questions; in others, they indicate the teacher's rating under several heads; in still other cities they allot points of credit for the presence in the candidate's work of certain characteristics. In each of the above cases an analysis of the teacher's work is made by the one doing the rating. The rating becomes impersonal just to the extent that a fact basis is furnished. The number of qualities considered varies greatly. In Oakland, Cal., teaching and discipline are the two qualities considered; whereas, a class room instruction card prepared by the Bureau of Municipal Research in New York City contains nearly one hundred details which may be considered.

The advantages of this method over the former are noteworthy. It records the facts on which the rating is based. It more nearly assures a uniform practice among the several persons who rate teachers within a school system. It directs the attention of teachers and others to the qualities which are considered of



value. It eliminates personality and prejudice as much as possible. A method similar to this is recommended for Boston.

#### REQUIREMENTS OF A RATING SYSTEM.

Any effective system of rating teachers should involve the following considerations:

1. The basis of the ratings should be known. In most cities more than one person rates teachers. It is essential that they should take into consideration the same elements. This cannot be done unless a common basis is agreed on and used. Further, teachers who are rated have a right to know what factors are taken into consideration in determining the quality of their work.

2. The elements constituting the common basis should be carefully defined. It is important that every one who rates teachers in a given school system should understand the connotation of the factors forming the basis of judgment. Discipline, instructional skill and similar general terms should have the same meaning to each person who rates teachers. One way of accomplishing this is to analyze in detail all general topics.

3. The methods of recording observations should be as simple as possible. The amount of clerical work required to record judgments of the one who does the rating should be reduced to a minimum. No time should be wasted in unnecessary writing.

4. The scale for indicating the varying degrees of merit should be such as to indicate a small group of specially competent people. If teachers of a school system are divided into only three groups, the first group is likely to contain so many names that those most worthy of promotion would not be clearly indicated. On the other hand, the classification should not be so detailed as to appear to make unreasonably small discriminations among those who are rated. In cities where a teacher may be rated from 1 to 10, the first half of the scale is seldom used, most teachers being rated

from 7 to 10. To classify teachers into ten groups appears to be impossible with our present means of rating them.

5. An adequate method for handling the records in the office is essential. Whatever system of rating is adopted, the recorded ratings must be readily accessible to the school authorities concerned. This involves some kind of card catalogue of names of teachers which shows their ratings.

#### RATING TEACHERS NOT NEW IN BOSTON.

The idea of rating teachers in Boston is not new. For some time various supervisors and directors of departments have made ratings. The department of manual training rates teachers of manual training. The director of evening schools secures ratings of evening school teachers from principals. The department of physical training secures ratings of regular elementary school teachers from the various high school teachers of physical training who supervise physical training. A representative of the department also gives particular attention and ratings to those regular teachers in the elementary schools who serve as playground teachers. Principals of elementary schools are asked by the Board of Superintendents to rate all teachers who are taking their first or second promotional examinations on the effectiveness of their work as teachers. The ratings given by the five members of the department of practice and training are perhaps the most important ratings given in the school service, because those ratings determine the placing of the prospective teachers on the eligible list from which teachers are appointed in regular order. Finally, the assistant superintendents rate all teachers in the schools which they respectively supervise. These ratings have been given at the end of every even year since 1906. Ratings are on file in the superintendent's office for all persons serving in the public schools in 1906, 1908, 1910, 1912, 1914, 1916. These

ratings are made at the request of the superintendent of schools and are recorded in his office for such use as he cares to make of them.

#### RATINGS GIVEN BY ASSISTANT SUPERINTENDENTS, 1914.

Preliminary to the working out of a plan for rating teachers and as a means of determining the value of the ratings heretofore given by assistant superintendents, the department made a study of 2,010 ratings reported by assistant superintendents in 1912. The study was limited to the ratings of elementary school teachers of various ranks. Each assistant superintendent rated from 250 to 350 teachers according to a scale of 1-2-3-4 in which 1 is the highest rating and 4 the lowest. Any teacher reported 4 is considered unsatisfactory and the assistant superintendent must make a report indicating in what respects her work is ineffective. The practice of some members of the Board of Superintendents has been to use plus and minus signs to indicate slight variations from the above scale of rating. Several important facts were revealed in this study.

##### *a. Ratings not Discriminating.*

The study showed that 54 per cent of all the teachers in Boston have been rated 1 or 1—, the highest rating which could be given. The following tabulation shows the percentage of ratings of each possible step in the scale:

41.19 per cent	are rated 1
12.84 per cent	are rated 1—
8.65 per cent	are rated 2+
30.09 per cent	are rated 2
1.94 per cent	are rated 2—
.59 per cent	are rated 3+
4.22 per cent	are rated 3
.44 per cent	are rated 3—
.09 per cent	are rated 4 (Two teachers out of entire city.)

From the above tabulation it will be seen that pluses and minuses are used comparatively infrequently and that a large proportion of the ratings are straight 1's, 2's and 3's. It is to be noted, also, that with the conditions referred to pertaining to the fourth step, this four-step scale of rating practically consists of three steps. Disregarding the pluses and minuses and classifying all ratings into four steps, we have the following tabulation:

54.03	per cent	are rated	1
40.68	per cent	are rated	2
5.25	per cent	are rated	3
.09	per cent	are rated	4

It is worth while to note that only two teachers out of the 2,010 teachers rated were reported by assistant superintendents as unsatisfactory. Obviously, even though the ratings may be valid in other respects, they cannot be of much value to the superintendent in determining who is best qualified for promotion according to merit unless they are more discriminately given. When more than 50 per cent of the teachers of the city are given the highest possible rating, it is clear that these ratings are of little use as a basis for seeking out persons well qualified for promotion.

As a result of this finding, the department recommended, and the Board of Superintendents approved, the establishment of a scale of rating consisting of five steps as follows:

- A1 Eminently superior
- 1 Excellent
- 2 Good
- 3 Fair
- 4 Unsatisfactory

In the use of this scale the following recommendations were made to the Board of Superintendents December 4, 1914:

1. That the assumption be made that all teachers are good teachers; *i. e.*, may be rated 2.

2. That teachers be advanced to the "excellent" group or the "eminently superior" group only on demonstrated excellence or conspicuous superiority.

3. That teachers be lowered to the "3" or "4" group only as a result of demonstrated ordinary ability corresponding to the terms "fair" or "unsatisfactory."

4. That agreement be reached on some schedule showing the approximate proportion of teachers who might reasonably be given each rating.

According to the theory of the normal distribution curve the proportion of ratings of each kind might be as follows:

Rating of:

A1 from 5 to 7 per cent.

1 from 21 to 25 per cent.

2 from 48 to 36 per cent.

3 from 21 to 25 per cent.

4 from 5 to 7 per cent.

The above tabulation is merely suggestive. There can be no hard and fast rule with regard to the distribution of abilities in view of the varying qualities and capacities of individual people. Each one of the above columns of percentages indicates a suggestive distribution. Such a distribution would only be expected when large numbers of teachers were involved. Variations from it would be expected in small groups or in groups which include principals and those teachers holding higher positions. The latter represent a selected group which would tend to increase the proportion of ratings of A1 or 1.

*b. Ratings not Comparable.*

The study also revealed the fact that there had never been any formal or personal agreement among the members of the Board of Superintendents as to the basis on which ratings should be given. No directions had ever been issued by the superintendent as to what qualifications he expected a teacher to possess who

was given the highest possible rating. Neither had the Board of Superintendents considered such a question.

In explanation of this situation it may be stated that the Board of Superintendents had never been apprised of any important use which the superintendent had made of ratings of teachers, and hence had not considered them of sufficient value for promotional purposes to have given the matter serious consideration. Teachers seldom inquire about their ratings, and it is quite possible that many teachers in the service may not know that they have been rated by the assistant superintendent.

As a result of this condition of affairs, the ratings given by assistant superintendents have been quite incomparable. A rating of "2" from one assistant superintendent clearly represents as good a teacher as a rating of "1" given by another assistant superintendent. To make the ratings of still less value the method of keeping the record in the superintendent's office, until 1914, was such that it was impossible to know which assistant superintendent gave the ratings in any given year. As a result, the superintendent is unable to make any allowance for the personal characteristics of individual assistant superintendents in marking teachers. To show how differently assistant superintendents rate the teachers in their respective schools, the following tabulation is presented:

Scale of Ratings.

ASSISTANT SUPERINTENDENTS.	1	2	3	4
A.....	56.53%	38.21%	5.17%	—
B.....	24.76%	74.29%	.95%	—
C.....	63.87%	33.77%	2.36%	—
D.....	49.58%	43.75%	6.25%	.42%
E.....	55.11%	33.75%	11.14%	—
F.....	67.28%	26.18%	6.28%	.26%

Only the more obvious facts shown by the above table are here briefly noted:

1. That assistant superintendent B gives less than 25 per cent of his teachers a rating of 1; whereas, other assistant superintendents give from 50 to 67 per cent of their teachers that same rating.

2. That assistant superintendent B gives 75 per cent of his teachers the rating of 2; whereas, the other assistant superintendents give from 26 to 43 per cent of their teachers that same rating.

3. That assistant superintendent B gives less than one teacher in a thousand a rating of 3; whereas, the other assistant superintendents give from 2 to 11 teachers in every hundred that same rating.

Obviously, ratings which are so incomparable can be of little use to the superintendent in deciding those persons best qualified for promotion, and their systematic use now for that purpose would be eminently unfair to some teachers to whom they were given.

#### RATINGS GIVEN BY ASSISTANT SUPERINTENDENTS, 1916.

Because the ratings of assistant superintendents were not sufficiently discriminating to be of value as a basis for judging the past success of a teacher's work in relation to her advancement to a higher position, the department recommended to the Board of Superintendents the adoption of a scale of rating which would divide the teachers of the city into five distinct groups according to merit. This scale of rating was approved by the Board of Superintendents and the ratings reported to the superintendent in 1916 were made according to that scale. In part, as a result of the adoption of a new scale of ratings, and in part possibly as a result of the suggested distribution of such ratings, a decided change was shown in the ratings made by assistant superintendents in 1916. The department made a study of the ratings given by assistant superintendents in 1916, similar to the study of the ratings given in 1914. A comparison of these ratings will show the changes which have resulted.

## Summary of 1914-16.

SCALE OF RATINGS, 1914.	Scale of Ratings, 1916.	1914.	1916.
1.....	A1	41.1	6.8
1—.....	1	21.5	33.9
2+.....			
2.....	2	32.0	54.7
2—.....			
3+.....	3	4.8	4.2
3.....			
3—.....	4	.6	.4
4.....			

In order to make the ratings as nearly comparable as possible the pluses and minuses given in 1914 have been grouped as indicated. Instead of the 41 per cent of all teachers in the service being given straight 1's as they were in 1914, only 6.8 per cent of the teachers in the service were given the rating of A1 in 1916. The distribution of ratings in 1916 as nearly approximates the suggested distribution of such ratings as can be expected under the circumstances.

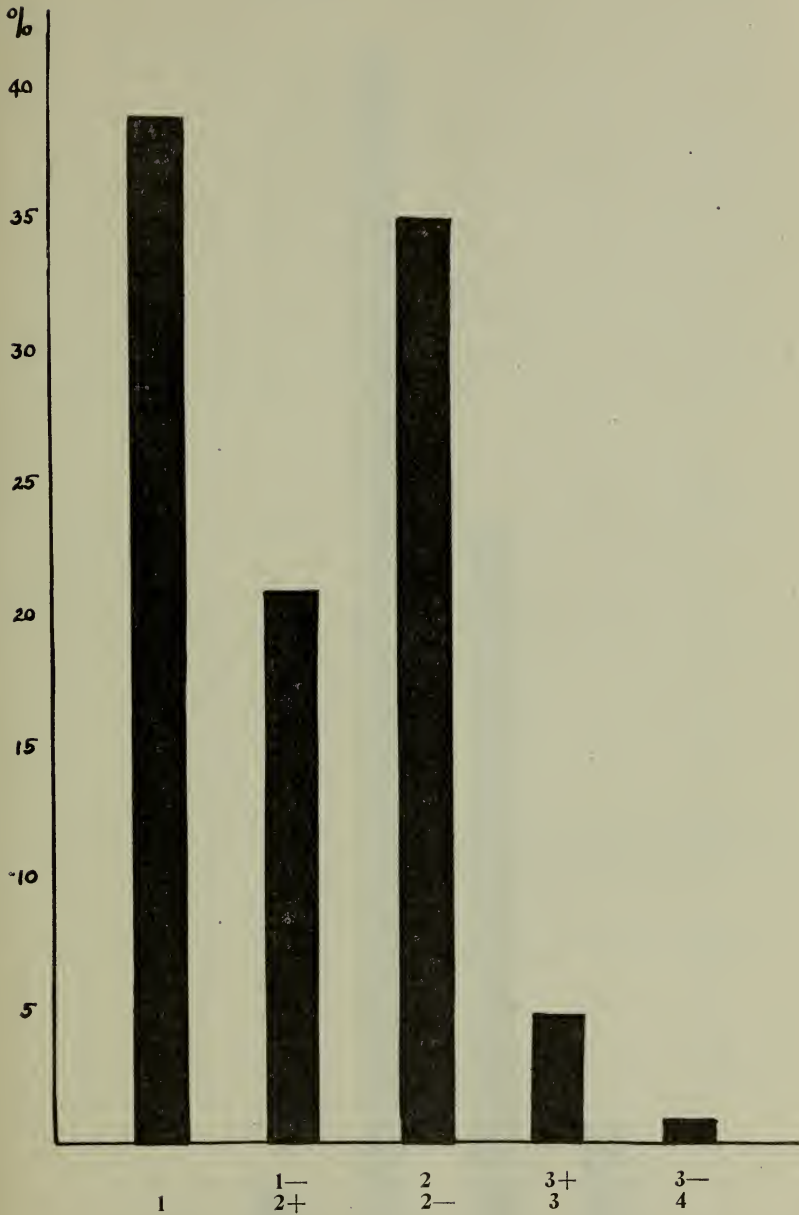
The diagrams on pages 35 and 36 show the facts of the above table in graphic form.

The above improvements are due to the whole-hearted, thoroughgoing, professional coöperation of the assistant superintendents in undertaking to further the plans of the department in putting the promotion of teachers on a fact basis. It is expected that all ratings hereafter given by assistant superintendents can be used directly in considering the qualifications of teachers for promotion.

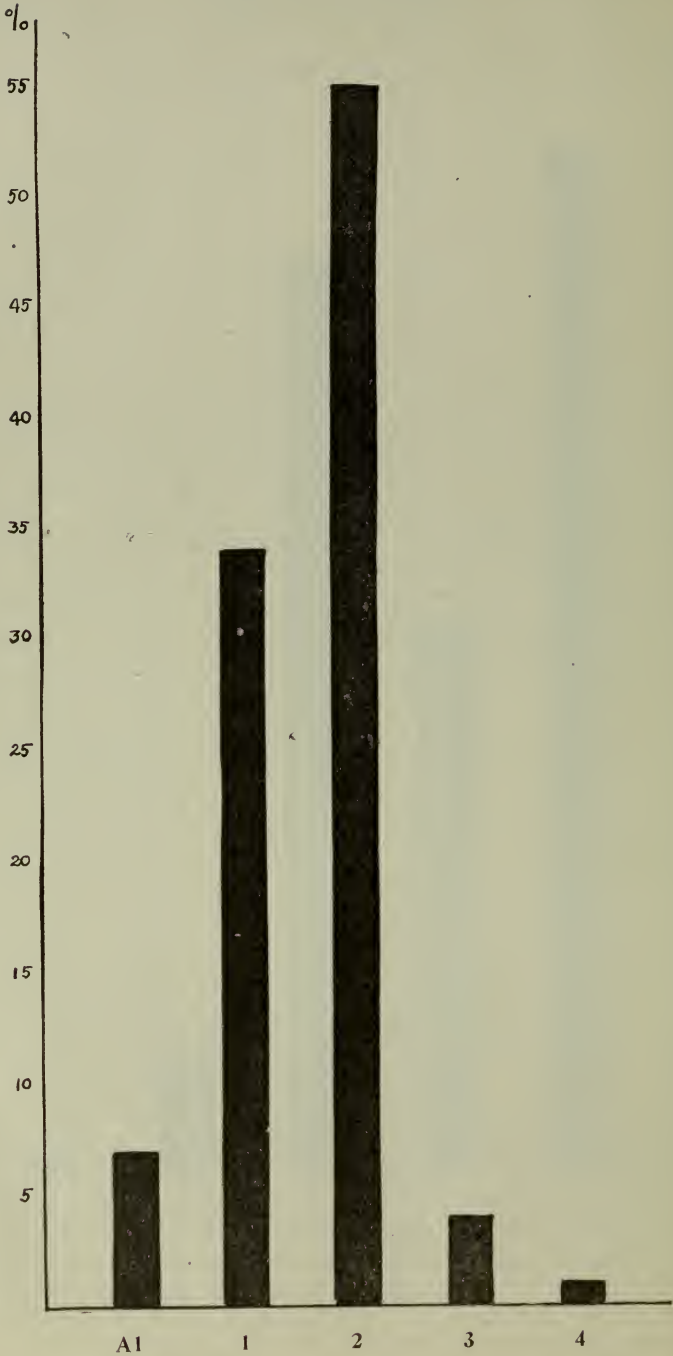
The ratings which have been given in the past can only be considered as general impressions. Teachers who have been rated 1, or excellent, are so numerous that such a rating is merely indicative of average work. Teachers who have been rated 2 or 3 in the past are, undoubtedly, among the half of the teachers of the city who were considered by assistant superintendents as doing work below the average degree of excellence.



RATINGS IN 1914.



RATINGS IN 1916.



## BASIS FOR RATING THE EFFICIENCY OF TEACHERS.

In previous pages we have discussed the factors which appear to constitute general merit in teaching. We have also shown the need of a uniform objective basis on which those who rate teachers may base their ratings. In this section of the report we turn our attention to the four official forms which have been prepared by the department, under the title "Basis for Rating the Efficiency of Teachers." In these forms the department has undertaken to indicate the factors which should be taken into consideration in rating teachers. The forms themselves may be obtained from the superintendent's office by any Boston teacher. The following pages contain only a brief, descriptive outline of the forms.

FORM 264.— EDUCATIONAL PREPARATION AND  
EXPERIENCE.

Page 1 of Form 264 contains the following explanation of its use:

1. The information called for on Form 264 forms only part of the basis for rating the efficiency of teachers.
2. This form aims to secure information from each teacher appointed to the Boston public school service covering:
  - I. Educational preparation for teaching, *before* appointment to Boston service.
  - II. Teaching and executive experience, *before* appointment to Boston service.
3. This information will be secured but once from each teacher, since it will become a permanent record in the superintendent's office. Subsequent appointments, promotions and transfers of teachers will be recorded as they occur.
4. Information concerning educational preparation for teaching *since* appointment to the Boston service may be furnished annually by teachers. (On Form 266.)

On pages 2 and 3, after recording her name, the school or district, the present rank, the grade taught, residence, and date of birth, the candidate is asked to furnish the following information:

- I. Educational preparation for teaching, before appointment to Boston public school service.
  1. Names of educational institutions attended.
    - a. Normal School.

- b. College.
- c. Graduate School.

Under each of these the candidate is asked to specify length of the course, diploma or degree received, and date of graduation or attendance.

- 2. Courses in education in collegiate or university work.
  - a. Subject of each course.
  - b. Number of hours per week.
  - c. Length of course in school years or months.
- 3. College Subjects in which candidate specialized.
 

(This information is furnished particularly by candidates for high school positions.)

  - a. Subject.
  - b. Number of hours per week.
  - c. Length of course in school years or months.

## II. Teaching and Executive Experience.

- 1. Before entering Boston service.
  - a. Name of school or schools:
    - Elementary.
    - High.
  - b. City or town.
  - c. Rank (whether teacher or principal).
  - d. Grade or subject taught.
  - e. Length and date of service.
  - f. Total experience in school years or months.
- 2. Since entering Boston service.
  - a. Grade or subject.
  - b. Approximate length of service in each grade or subject.

Some facts may be stated with regard to Form 264. The form is filled out by the candidate. The information which is called for is complete and, hence, is secured but once. A new card system has been installed in the superintendent's office for the purpose of recording the information. No rating is given the candidate on the basis of the evidence furnished on this form. It is supplementary to his rating for teaching. The candidate's professional improvement since appointment is shown on another form.

## FORM 265.— ADMINISTRATIVE, SUPERVISORY AND EXECUTIVE WORK.

Page 1 of Form 265 contains the following explanation of its use:

- 1. The information called for on Form 265 forms only part of the Basis for Rating the Efficiency of Teachers.

2. This form aims to furnish a basis for judging the character of the executive service rendered by submasters and master's assistants in their respective districts.
3. The more completely the facts are furnished, the greater will be the value of this report to the superintendent in forming his judgment of the candidate.

On pages 2, 3 and 4, after recording the name of the candidate, the school in which he or she teaches, present rank, and the grade taught, the master reports on the quantity and quality of the administrative, supervisory and executive work performed by the candidate, as follows:

I. Opportunities for and Success in Executive Work.

1. Indicate what work is assigned to your submaster other than teaching.
2. *a.* Indicate how many thirty-minute periods per week your submaster teaches.
- b.* Indicate how many thirty-minute periods per week of free time your submaster has for work other than teaching.
3. Give examples to show how original, resourceful and dependable your submaster is in performing the assigned administrative, supervisory and executive work.
4. Indicate approximately how much time your submaster must leave his class alone in order to perform his duties as submaster.

II. Evidences of Leadership.

1. Give evidence of your submaster's ability as a leader as shown by his relation to
  - a.* The teachers in your school.
  - b.* The teaching profession in the city.
2. Give evidence to show whether your submaster would be efficient or inefficient in securing
  - a.* Harmonious and effective work from teachers.
  - b.* Coöperation and support from parents.
3. Indicate what suggestions, if any, your submaster has made regarding improvement in
  - a.* Methods of teaching.
  - b.* Organization of the school.
  - c.* School management and discipline.
4. Do you feel that your submaster would show the same quality of success in an executive position that he shows in teaching?

III. Professional Attitude.

1. What lines of professional study do you know your submaster
  - a.* To have pursued?
  - b.* To be pursuing?

2. Does your submaster willingly put into practice your suggestions or is it necessary for you to give him specific directions?
  3. State any ways in which your submaster has shown professional growth during the past few years.
  4. Give evidence to show the loyalty of your submaster
    - a. To his principal.
    - b. To the superintendent and executive officers.
    - c. To the profession in the city.
- IV. Personal Characteristics.
1. Punctuality.
    - a. In arriving at school.
    - b. In arriving at teachers' meetings called in the school.
  2. Indicate how accurately and how promptly your submaster performs the following work:
    - a. Keeping the register.
    - b. Making monthly reports.
    - c. Making reports of examinations.
  3. Is your submaster still growing professionally, or do you consider he has fully reached his maximum proficiency in his present work?
- V. Additional Remarks.

This information is furnished by the master of the school in which the candidate teaches. The plan is to secure a report of this sort from time to time. Candidates are not rated for this particular phase of their work. This report is supplementary to Form 267, and the rating of the candidate has been based in part on the information found in Form 265.

FORM 266.—EVIDENCES OF PROFESSIONAL INTEREST  
AND GROWTH.

On page 1 of Form 266 the following explanation of the purpose of the form appears:

1. The information called for on Form 266 forms only part of the Basis for Rating the Efficiency of Teachers.
2. This form aims to furnish a basis for judging the teacher's professional interest and growth since appointment to the Boston service.
3. The information covered in this form will not be called for at any stated time but is to be furnished as requested.
4. The more completely the facts are furnished the greater will be the value of this report to the superintendent in forming his judgment of the candidate.

On pages 2, 3 and 4 the candidate is asked to record his name, school, present rank, grade taught and the position for which he is a candidate. Following this preliminary statement the candidate makes a report on the evidences of his professional interest and growth under the following heads:

I. Educational Associations.

1. Of what educational associations are you a member?
2. In what ways have you participated in the meetings?
  - a. As a member of what committees?
  - b. As a speaker? State date and subject of your paper.

II. Educational Literature.

1. For what educational periodicals do you subscribe?
2. What professional books have you thoroughly read during the past two years?  
 Author. Title. Publisher.
3. What articles or books have you published?  
 Title of Article or Book.  
 Where Published.  
 Date of Publication.

III. Summer School Work.

1. Indicate the summer schools you have attended for study.  
 Where. When. Teacher. Subject of Course.
2. Was the above summer school work taken to obtain "promotional credit"?
3. Indicate the summer schools in which you have taught.  
 (Not including Boston Public Schools.)  
 Where. When. Courses You Taught.

IV. Educational Courses Attended During School Year.

1. Indicate the courses, given under university extension or otherwise, which you have taken during any school year to obtain "promotional credit."  
 Where. When. Teacher. Subject of Course.
2. Give the same information concerning courses which were not for "promotional credit."  
 Where. When. Teacher. Subject of Course.

V. Leaves of Absence.

1. Indicate the leaves of absence of which you have availed yourself.
  - a. For rest or on account of illness.
  - b. For travel or study. Indicate the extent of your travel and the nature of your study.

VI. Professional Coöperation.

1. In what ways have you contributed to the solution of Boston's Educational Problems?
  - a. By serving on committees.
  - b. By making special investigations.

## VII. Outside of School Activities.

1. What playground work have you done, and when?
2. With what clubs for boys and girls or for men and women are you associated?
3. Of what clubs or social organizations (not secret societies) are you a member?

## VIII. Additional Remarks.

This form is prepared by each teacher who is a candidate for promotion. The information called for in this form is to be furnished when requested. No specific numerical value is assigned to any of the evidence presented in this form. The information is to supplement other information and forms a part of the basis of the rating.

## FORM 267.— PERSONAL CHARACTERISTICS AND TEACHING ABILITY.

Page 1 of Form 267 contains the following explanation of its purpose and use:

1. The information called for on Form 267 forms only part of the Basis for Rating the Efficiency of Teachers.
2. This form aims to furnish a basis for judging and for recording the judgment of the personal characteristics and the teaching ability of teachers.
3. This form is suggestive. While it is intended to cover the most important topics, those who use the form should not feel limited to the outline here presented. Information not here specifically requested should be freely added. On the other hand, obviously, not every question will apply or topic refer to every teacher.
4. At the left are indicated factors to be taken into consideration. For convenience, immediately to the right are listed some of the terms by which a quality or ability may be described. At the right, under "Remarks," is to be noted as far as possible the fact basis for one's judgment. For example, if a teacher's personal appearance is reported as "unsatisfactory," the basis for so characterizing it should be noted under "Remarks."
5. The more completely the fact basis for judgments is furnished, the greater will be the value of this report to the superintendent in arriving at a just estimate of the teacher.

This form is used by assistant superintendents or masters who rate teachers. Provision is made for recording the name of the candidate, the school where he or she teaches, present rank, and grade taught, together with the signature of the person rating the candidate,



and his title, the year, month and day, and the exact time of the visit during the day are also recorded. A brief outline of Form 267 follows:

**I. Personal Equipment.**

PERSONAL CHARACTERISTICS. MAY BE DESCRIBED AS: \* REMARKS.  
(Facts to be indicated here)

Stature: \_\_\_\_\_

Personal Appearance: \_\_\_\_\_

Physique: \_\_\_\_\_

Bearing or Carriage: \_\_\_\_\_

Manner: \_\_\_\_\_ Note mannerisms, if any

Voice: \_\_\_\_\_

Speech: \_\_\_\_\_

Use of English: \_\_\_\_\_ Note examples

Disposition: \_\_\_\_\_

\* A list of adjectives describing each characteristic was prepared for the convenience of those using this form.

**II. Ability as a Teacher.**

1. MANAGEMENT OF THE ROOM.	MAY BE DESCRIBED AS:	REMARKS
		(Facts to be indicated here)
Ventilation	Satisfactory Unsatisfactory	
Temperature	Satisfactory Unsatisfactory	Give reading of thermometer.....
Adjustment of Seats	Properly adjusted Not properly adjusted	
Lighting	Shades properly drawn Shades not properly drawn	
Condition of Room	Excellent      Disorderly Satisfactory    Untidy	
Educational material in evidence	Note under "Remarks" what it was and what use was made of it	
Attractiveness of the room	Note what has been done to make the room attractive or unattractive	
2. MANAGEMENT OF THE CLASS — DISCIPLINE.		
Kind of Order	Self-directive	Superimposed
Attaining Order	Successful	Unsuccessful
Methods Employed	Desirable	Undesirable
Good physical bearing of pupils	Insisted on	Disregarded
Working spirit among the pupils	Responsive Coöperative	Indifferent
Handling discipline in general	Military Strict Tactful Natural	Free Lax Blundering Constrained

3. TEACHING THE LESSON.

Lesson seen	Topic of Lesson	Method
1		
2		
3		
4		

Method of Lesson	Lecture Question and Answer Topical Developmental	
Organization and method of the Lesson	Appropriate for its kind Not appropriate for its kind	
Aim or purpose of lesson	Clear cut      Definite Obscure        Undefined	
Pupil's present knowledge and past experiences	Properly considered Not considered	
Securing attention	Through natural interests By artificial interests	
Illustrative material	Note use made of objects, pictures, maps, charts and other objective material	
Character of questions	Simple          Confusing Direct          Rambling Logical        Ambiguous Leading or      Suggestive Memory        Thought provoking	Examples
Distribution of questions	Well distributed To only a few pupils	
Participation of Teacher	By thought provoking questions By merely "quizzing" By giving information By blackboard work By using illustrative material	
Preparation for next lesson	By good ending of recitation By judicious assignment By stating aim By anticipating difficulties By suggestions or directions	

4. EFFECT ON THE PUPILS.

Did the children feel that the object of the lesson had been accomplished?

Was the main idea of each lesson clinched by proper methods before the recitation closed?

Are pupils being trained to discriminate between what is essentially important in the lesson and what is only relatively so?

Are pupils being taught to organize their ideas in proper relation and sequence?

Do the pupils attack hard work gladly or do they want help in every little difficulty?

Are the less capable pupils receiving their fair share of the instruction?

To what extent do drills and practice work carry over into the other work?

Form 267 is used by the persons who rate teachers. It aims to cover the essential qualities of good teaching and to provide an easy method of recording one's judgment. The rating given may properly cover evidence not recorded in Form 267.

In any plan of promotion of teachers on merit the teaching ability of the candidate is, undoubtedly, his or her largest asset. It is the one factor which is common to all candidates, inasmuch as practically all candidates for promotion are teachers. Teaching is likewise the one qualification concerning which all teachers who are candidates for promotion have an equal opportunity to show proficiency. Ability to teach well and to be able to supervise teaching are important qualifications of every person who holds a higher position. Every principal of a school must supervise teaching. His success as a principal will depend primarily on his knowledge of good teaching and his ability to secure good teaching from his teachers. What is true of the principal of the school is true to a lesser extent of persons in subordinate positions. Hence, in the plan of promotion which is being worked out for Boston, ability to teach is considered of fundamental importance.

#### PROMOTIONS IN THE ELEMENTARY SCHOOL.

The promotions in the elementary school may be: To master; to submaster or master's assistant; to first assistant in charge; to first assistant, grammar. Consideration will now be given to each of these classes of promotion.

##### TO MASTER (MEN).

Promotions to mastership are almost invariably from within the service. For a period of twenty-five years (since 1893) no master of an elementary district has been appointed from outside the city. Further, male masters of elementary districts are usually appointed from among the submasters. As a result, nearly every submaster in the service feels himself a prospective master, and secures the necessary certificate of eligibility

from the Board of Superintendents. The number of candidates for elementary master, therefore, is approximately the number of submasters in the service.

As already stated (see page 18), an agreement was reached with the submasters that, other things being equal, seniority should determine the order in which appointments of principals should be made. The following is a list of the submasters in the service in Boston, arranged in the order of their appointment as submaster. The memorandum also shows the year in which they secured their certificates of eligibility.

**Submasters of Elementary Districts Arranged According to Seniority of Original Appointment as Submaster.**

*[Corrected to December 31, 1917.]*

Number.	Date of Original Appointment as Submaster.	Name.	District.	Master's Certificate Granted.
1	1879 Sept. 1	Caverly, Joseph L. ....	Rice. ....	1894
2	1887 Sept. 7	Mayers, Alanson H. ....	Dearborn. ....	1885
3	1888 Nov. 19	Sheehan, John J. ....	Eliot. ....	1888
4	1889 June 12	Raub, Edgar L. ....	John A. Andrew. ....	1889
5	1895 Jan. 2	Suckling, John F. ....	Sherwin. ....	1894
6	1896 Sept. 8	Edwards, George G. ....	Quincy. ....	1893
7	1896 Sept. 8	Jackson, Melzar H. ....	Mary Hemenway. ....	1895
8	1896 Oct. 19	Burdett, James H. ....	Bennett. ....	1891
9	1897 Jan. 4	Austin, Carroll M. ....	Dwight. ....	1895
10	1898 Jan. 3	Sedley, Allan L. ....	Lewis. ....	1895
11	1898 Sept. 6	Loring, Henry E. ....	Roger Wolcott. ....	1898
12	1899 Jan. 2	Sinclair, Bremen E. ....	John Cheverus. ....	1895
13	1899 Dec. 18	Norcross, Irving M. ....	Charles Sumner. ....	1899
14	1900 Jan. 2	Burrell, Joseph T. F. ....	Christopher Gibson. ....	1891
15	1902 Feb. 17	Wetherbee, Charles G. ....	Prince. ....	1897
16	1902 Nov. 24	Davis, Charles S. ....	Frederic W. Lincoln. ....	1891
17	1903 Sept. 23	Ford, Harlan P. ....	Mary Hemenway. ....	1898
18	1903 Dec. 9	Ford, Edson L. ....	Elihu Greenwood. ....	1898
19	1904 Oct. 3	Sherman, Elmer E. ....	Dwight. ....	1901
20	1905 Jan. 16	Quirk, Charles E. ....	Frothingham. ....	1910
21	1905 Feb. 20	Wilbar, Chester H. ....	Theodore Lyman. ....	1904

Submasters of Elementary Districts Arranged According to Seniority of Original Appointment as Submaster.—*Continued.*

[Corrected to December 31, 1917.]

Number.	Date of Original Appointment as Submaster.	Name.	District.	Master's Certificate Granted.
22	1905 Oct. 11	Hulse, Edgar E. . . . .	Wendell Phillips. . . . .	1913
23	1905 Nov. 20	Starratt, Stanley A. . . . .	Elihu Greenwood. . . . .	1899
24	1906 Sept. 12	Beal, Edwin I. . . . .	Hugh O'Brien. . . . .	1890
25	1906 Sept. 25	Barry, Thomas J. . . . .	Thomas N. Hart. . . . .	1906
26	1906 Nov. 13	Reynolds, Joel W. . . . .	Wendell Phillips. . . . .	1913
27	1906 Nov. 20	Sylvester, Herbert F. . . . .	Thomas Gardner. . . . .	
28	1906 Dec. 31	Howard, Edgar C. . . . .	Oliver Hazard Perry. . . . .	1896
29	1907 Feb. 5	Getchell, Everett L. . . . .	George Putnam. . . . .	1903
30	1907 Sept. 11	Noon, Philo G. . . . .	Henry L. Pierce. . . . .	1909
31	1907 Dec. 17	Maloney, John J. . . . .	Abraham Lincoln. . . . .	1912
32	1908 Jan. 2	Wagg, Alvin P. . . . .	Eliot. . . . .	1912
33	1908 Jan. 21	Carroll, John. . . . .	Longfellow. . . . .	1901
34	1908 Nov. 3	Cummings, John J. . . . .	Oliver Wendell Holmes. . . . .	1916
35	1908 Nov. 3	Lynch, Theobald A. . . . .	Bigelow. . . . .	1912
36	1909 Jan. 19	Nickerson, Archer M. . . . .	Washington Allston. . . . .	1908
37	1909 Feb. 16	Muldoon, Edward J. . . . .	Francis Parkman. . . . .	1912
38	1909 Feb. 16	Gates, Charles I. . . . .	Edward Everett. . . . .	
39	1909 Sept. 8	Harris, Charles E. . . . .	Samuel Adams. . . . .	1895
40	1909 Sept. 8	Riley, John C. . . . .	Gilbert Stuart. . . . .	1915
41	1909 Sept. 8	Donovan, James T. . . . .	Warren. . . . .	1913
42	1909 Sept. 8	Churbuck, Alton C. . . . .	Quincy. . . . .	1912
43	1909 Sept. 8	Jones, Clarence H. . . . .	Martin. . . . .	1913
44	1909 Nov. 29	Reed, William A. . . . .	Chapman. . . . .	1908
45	1910 Sept. 14	Miller, William T. . . . .	Agassiz. . . . .	1915
46	1910 Sept. 14	Crowley, James A. . . . .	Emerson. . . . .	1913
47	1910 Sept. 14	Brooks, Harry. . . . .	John Cheverus. . . . .	1913
48	1910 Sept. 14	Kramer, William R. . . . .	Hugh O'Brien. . . . .	
49	1911 Jan. 2	Murdock, James M. . . . .	Washington. . . . .	1912
50	1911 Jan. 2	McElaney, Hugh J. . . . .	Dudley. . . . .	1917
51	1911 Jan. 2	Northcott, Sidney T. H. . . . .	William E. Russell. . . . .	
52	1911 Sept. 13	Keenan, Vincent A. . . . .	Dudley. . . . .	1913
53	1911 Sept. 13	O'Neil, Joseph A. F. . . . .	John Winthrop. . . . .	
54	1911 Sept. 13	Tyrrell, James F. . . . .	Lewis. . . . .	1913

Submasters of Elementary Districts Arranged According to Seniority of Original Appointment as Submaster.—*Concluded.*

[Corrected to December 31, 1917.]

Number.	Date of Original Appointment as Submaster.	Name.	District.	Master's Certificate Granted.
55	1911 Sept. 13	Buck, Frederick H.....	Mather.....	1915
56	1911 Oct. 17	Moran, George B.....	Eliot.....	1913
57	1911 Dec. 1	Kelley, Thomas E.....	Phillips Brooks.....	
58	1912 Jan. 1	Early, Charles H.....	Henry Grew.....	1916
59	1912 Feb. 5	Guindon, Frederic A.....	Bunker Hill.....	1913
60	1912 Feb. 12	Ames, J. Ellis.....	Sherwin.....	
61	1912 Sept. 11	O'Keefe, John A., Jr.....	Jefferson.....	
62	1912 Sept. 11	Carroll, Edward J.....	Lawrence.....	1913
63	1912 Sept. 11	Dorr, Eugene H.....	Edmund P. Tileston.....	
64	1912 Sept. 11	Powers, Roger A.....	Oliver Wendell Holmes.....	1917
65	1913 Feb. 4	Cragin, Samuel A.....	Dearborn.....	
66	1913 Sept. 23	Houghton, Leroy K.....	Robert G. Shaw.....	1917
67	1913 Nov. 4	Ryan, William H.....	Wendell Phillips.....	
68	1914 March 3	Rockett, James F.....	Oliver Wendell Holmes.....	1915
69	1914 Sept. 8	Lynch, James E.....	Washington.....	
70	1914 Sept. 8	Murphy, Frederick J.....	Ulysses S. Grant.....	1917
71	1914 Sept. 8	Weber, Charles A. A.....	Thomas N. Hart.....	
72	1914 Sept. 9	Pearce, George H.....	Harvard.....	
73	1914 Oct. 20	Lynch, Joseph E.....	Abraham Lincoln.....	
74	1914 Nov. 30	McDonnell, John M.....	Phillips Brooks.....	
75	1915 Jan. 4	Gammon, George W.....	Frederic W. Lincoln.....	
76	1915 Feb. 2	White, Louis A.....	Prescott.....	
77	1915 Mar. 2	Morrissey, Francis M.....	Bigelow.....	
78	1915 Dec. 7	Young, Raymond H.....	Mather.....	
79	1915 Dec. 7	Winston, Walter C.....	Thomas Gardner.....	
80	1917 Sept. 10	Landrigan, Peter A.....	Samuel Adams.....	
81	1917 Oct. 1	Foley, Martin J. A.....	Lowell.....	

The above information was compiled from the records in the superintendent's office. If any submaster finds any incorrect information concerning him he will confer a favor by calling the matter to the attention of Mr. Ballou.

TO MASTER (WOMEN).

Women principals are not so regularly appointed from among master's assistants as are men principals from

among submasters. This is largely because there are several positions for women in the service intermediate between that of master's assistant and master. For example, the assistant directors in the department of practice and training and the women teachers in the Normal School. It is logical to believe that the women teachers holding either of these positions would be preferred over master's assistants holding a relatively lower position. Furthermore, not nearly such a large proportion of the master's assistants hold eligibility certificates qualifying them to be elementary principals.

The following is a list of the women in the service in Boston who are eligible for elementary school principalships, arranged in the order of their appointment to service. The tabulation shows their present position and the year in which they received their master's certificate.

Number.	Date of Original Appointment to Boston Service.	Name.	School or Department.	Rank.	Master's Certificate Granted.
1	1877 Oct. 1	Thompson, Mary F.	Edward Everett	Master's assistant.	1877
2	1879 Feb. 1	O'Dowd, Honora T.	Hancock	Master's assistant.	1912
3	1879 Sept. 1	Simmons, Emma F.	West Roxbury High.	Assistant.	1908
4	1881 Feb. 1	Maguire, Alice G.	John Winthrop	Master's assistant.	1913
5	1882 April 10	Lawrence, Emma E.	Martin	Master's assistant.	1908
6	1883 Sept. 3	Mailman, Mary E.	Rice	Master's assistant.	1899
7	1883 Sept. 3	Pieper, A. Louise.	Oliver Hazard Perry	Master's assistant.	1911
8	1883 Oct. 11	Huston, Katharine W.	George Putnam	Master's assistant.	1908
9	1885 Mar. 2	Whittemore, Helen I.	Manual Training.	Master's assistant.	1899
10	1886 Feb. 1	Garland, Josephine.	Christopher Gibson	Instructor in manual training.	1901
11	1886 Sept. 14	Thompson, Abby M.	Charlestown High.	Assistant.	1895
12	1887 Oct. 10	Cunningham, Margaret.	Dorchester High.	First assistant, head of department.	1910
13	1888 Nov. 1	Carrigan, Rose A.	Practice and Training	Assistant.	1911
14	1889 May 21	Adams, Mabel E.	Horace Mann.	Assistant principal.	1909
15	1889 Sept. 9	Cushing, Edith S.	Dorchester High.	Assistant.	1885
16	1890 April 14	Poole, Caroline N.	Roxbury High.	Assistant.	1908
17	1890 Oct. 1	Bennett, Annie L.	High School of Practical Arts.	First assistant, head of department.	1913
18	1891 Feb. 16	Lyons, Sarah A.	Practice and Training	Assistant director.	1901
19	1891 Oct. 19	MacRae, Lillian J.	South Boston High.	First assistant, head of department.	1898



20	1891	Oct.	26	Travis, Ede F.	George Putnam	Assistant.	1900
21	1892	Feb.	8	Harvey, Arvilla T.	George Putnam	First assistant in charge.	1908
22	1892	Sept.	7	Clark, Lotta A.	Normal	First assistant, head of department.	1897
23	1892	Sept.	7	Keyes, Mary E.	Practice and Training	First assistant director.	1914
24	1892	Nov.	1	Green, Mary L.	South Boston High.	Assistant.	1897
25	1893	Sept.	6	O'Neill, Mary E.	Thomas Gardner.	Assistant.	1897
26	1893	Sept.	12	Black, Selma A.	Wells.	First assistant, grammar.	1916
27	1893	Oct.	2	Whiton, Priscilla.	Dorchester High.	Assistant.	1899
28	1893	Oct.	19	Dennis, Bertha E.	West Roxbury High.	Assistant.	1901
29	1894	Oct.	24	Stuart, Helen A.	Girls' Latin.	First assistant, head of department.	1892
30	1894	Oct.	24	Critchett, Eunice A.	Brighton High.	Assistant.	1893
31	1895	Sept.	4	Trask, Caroline W.	West Roxbury High.	First assistant, head of department.	1885
32	1895	Sept.	4	Ray, Isabella J.	Hancock.	Assistant.	1901
33	1895	Sept.	6	Smith, May M.	Girls' High.	First assistant, head of department.	1894
34	1895	Nov.	1	Williams, Sarah H.	Edward Everett.	First assistant, kindergarten.	1898
35	1895	Dec.	1	O'Connell, Mary.	West Roxbury High.	Assistant.	1899
36	1896	Feb.	3	Dacy, Alice E.	Roxbury High.	Assistant.	1901
37	1896	Sept.	8	Starbird, Grace G.	High School of Practical Arts.	First assistant, head of department.	1896
38	1896	Sept.	8	Cottle, Louise M.	Charles Sumner.	Assistant.	1901
39	1896	Sept.	8	Garrity, Katherine G.	William E. Russell.	Assistant.	1911
40	1896	Sept.	8	Bilfings, Flora E.	Bowdoin.	Master's assistant.	1914
41	1896	Sept.	21	Shute, Mary C.	Normal.	First assistant, head of department.	1896
42	1896	Oct.	5	Stegelmann, Olga A. F.	Girls' High.	Assistant.	1899

Number.	Date of Original Appointment to Boston Service.	Name.	School or Department.	Rank.	Master's Certificate Granted.
43	1896 Oct. 5	Dudley, E. Gertrude.....	Practice and Training.....	Assistant director.....	1913
44	1896 Oct. 19	Dyer, Ida M.....	Charles Sumner.....	Assistant.....	1899
45	1896 Dec. 8	Riley, Rebekah C.....	Dorchester High.....	Assistant.....	1901
46	1897 Jan. 4	Hutchinson, Harriet E.....	Charlestown High.....	Assistant.....	1897
47	1897 Jan. 4	McCimley, Catharine M.....	Dorchester High.....	Assistant.....	1901
48	1897 Sept. 7	Crowell, Alice M.....	Dudley.....	Master's assistant.....	1907
49	1897 Sept. 8	Read, Gracia E.....	East Boston High.....	First assistant, head of department.....	1893
50	1897 Sept. 15	Potter, Sarah E.....	Girls' High.....	Assistant.....	1896
51	1897 Sept. 15	Fraser, Matilda A.....	Girls' Latin.....	Assistant.....	1897
52	1897 Sept. 20	Aldrich, Sybil B.....	Girls' Latin.....	First assistant, head of department.....	1897
53	1897 Oct. 27	Carver, Ellen.....	Martin.....	Assistant.....	1901
54	1898 Jan. 3	Donkin, Ella M.....	Dillaway.....	First assistant, grammar.....	1913
55	1898 Sept. 6	Weeks, Gertrude.....	Normal.....	First assistant, head of department.....	1901
56	1898 Oct. 1	Foster, Anna L.....	Eliot.....	Assistant.....	1899
57	1898 Oct. 17	Shaw, Clara B.....	High School of Practical Arts.....	First assistant, head of department.....	1899
58	1898 Oct. 26	Tibbits, Mary K.....	West Roxbury High.....	Assistant.....	1898
59	1898 Dec. 1	Kite, Rebecca.....	West Roxbury High.....	Assistant.....	1898
60	1899 Sept. 27	Blake, Elsie M.....	Roxbury High.....	Assistant.....	1899
61	1899 Oct. 2	Hutchison, Elizabeth G.....	Ulysses S. Grant.....	Assistant.....	1901

62	1899	Oct. 25	Reynolds, Mary L. B.	Abraham Lincoln	Assistant	1898
63	1900	Mar. 1	Bailey, Jennie E.	High School of Practical Arts	Assistant instructor	1901
64	1900	Oct. 1	Gates, Hattie L.	South Boston High.	Assistant	1899
65	1900	Oct. 1	Druley, Bertha M.	Hancock	First assistant, kindergarten	1899
66	1900	Oct. 8	Stacy, Celia F.	Roxbury High.	Assistant	1901
67	1900	Nov. 1	Kingsley, Blanche F.	Samuel Adams	Assistant	1901
68	1901	Mar. 1	Rose, Edith	East Boston High.	Assistant	1901
69	1901	Sept. 11	Barnes, Clara A. W.	Brighton High.	Assistant	1898
70	1901	Sept. 11	Adams, Jessie L.	Dorchester High.	Assistant	1898
71	1901	Sept. 11	Tracy, Elisabeth G.	South Boston High.	First assistant, head of department	1898
72	1901	Sept. 11	Solano, Marie A.	Normal	First assistant, head of department	1901
73	1901	Sept. 11	Vogel, Bertha	South Boston High.	Assistant	1901
74	1902	Jan. 13	Montgomery, Charlotte W.	Roxbury High.	Assistant	1897
75	1902	Feb. 17	Bragdon, Lillian A.	South Boston High.	Assistant	1899
76	1902	Sept. 10	Thomas, Prudence E.	Roxbury High.	Assistant	1899
77	1902	Sept. 10	Leonard, Katherine E.	Charlestown High.	Assistant	1901
78	1902	Sept. 22	Mills, Mabel O.	West Roxbury High.	Assistant	1897
79	1902	Oct. 13	Butland, Minnie L.	South Boston High.	Assistant	1899
80	1902	Nov. 3	West, Emma F.	Agassiz	Master's assistant	1914
81	1902	Dec. 22	Driscoll, Madeline B.	Lewis	Master's assistant	1916
82	1903	Sept. 9	Manny, Frances H.	Girls' High.	Assistant	1899
83	1903	Sept. 9	McDonnell, Katharine C.	Bigelow	Master's assistant	1916
84	1903	Sept. 10	Linscott, Anna M.	East Boston High.	Assistant	1901

Number.	Date of Original Appointment to Boston Service.	Name.	School or Department.	Rank.	Master's Certificate Granted.
85	1903 Nov. 2	Luther, Martha P.	Dorchester High.	Assistant.	1901
86	1904 Sept. 14	Loughlin, Mary T.	Roxbury High.	First assistant, head of department.	1901
87	1904 Sept. 19	George, Emma M.	Girls' High.	Assistant.	1899
88	1905 May 1	Lynch, Grace V.	South Boston High.	Assistant.	1901
89	1905 Dec. 4	Rafter, Charlotte.	Lawrence.	First assistant in charge.	1913
90	1906 Nov. 20	Woodworth, Mabel E.	West Roxbury High.	Assistant.	1901
91	1907 Feb. 4	Thayer, Zelpha L.	Hyde.	Assistant.	1914
92	1907 Sept. 23	Taylor, Harriet C.	Roxbury High.	Assistant.	1899

The above information was compiled from the records in the superintendent's office and verified from the original records in the secretary's office. It may not be complete. Any person in the service whose name does not appear on this list and who holds, or thinks she holds, a certificate qualifying her to be master of an elementary district should report to Mr. Ballou.

TO SUBMASTER (MEN).

Submasters are appointed from among the men assistants in the elementary school or from an examined list of candidates who teach in other places. This is the highest rank in the elementary school which is at present recruited from outside the Boston school system.

The following is a list of men teachers in the Boston service who are eligible for appointment to submaster's positions, arranged in the order of their original appointment to service. (For a list of the examined candidates, see page 29, School Document No. 15, 1917.)

Number.	Date of Original Appointment to Boston Service.	Name.	School.	Submaster's Certificate Granted.
1	1909 Nov. 16	Murray, John J. ....	Theodore Lyman.....	1912
2	1910 Jan. 3	Renison, William J. ....	Lewis.....	1912
3	1910 Nov. 28	Whalen, Joseph I.....	Phillips Brooks.....	1912
4	1912 Nov. 19	O'Sullivan, Joseph F.....	Oliver Wendell Holmes....	1914
5	1912 Dec. 2	Kiely, Lawrence E., Jr.*...	Samuel Adams.....	1914
6	1913 Jan. 2	O'Hare, William G. ....	Lawrence.....	1914
7	1913 Feb. 18	Kelley, Vincent L.....	Sherwin.....	1912
8	1913 Feb. 18	Drey, James F.....	Prescott.....	1916
9	1913 Dec. 2	Dunfey, Frederick A.....	Frothingham.....	1915
10	1914 Feb. 2	Cannon, William F.†.....	Phillips Brooks.....	1912
11	1914 April 1	Welch, James E., Jr.*.....	Samuel Adams.....	1915
12	1914 Sept. 8	McDonough, Edward M.....	Continuation.....	1917
13	1914 Oct. 20	Lynch, John F.*.....	Ulysses S. Grant.....	1915
14	1914 Nov. 3	Connolly, John J.....	Oliver Wendell Holmes....	1915
15	1914 Nov. 17	Lenihan, William S.*.....	Sherwin.....	1915
16	1915 Jan. 11	Houghton, Robert B.*.....	Continuation.....	1917
17	1915 Dec. 7	Goulart, E. Joseph †.....	Martin.....	1912
18	1916 May 1	McDonough, William P....	Lewis.....	1916
19	1916 Dec. 11	Lally, John J.*.....	Mary Hemenway.....	1916

\* Military service. † Appointed as assistant from the examined submasters' list.

While the above information was compiled from the records in the superintendent's office, it may be incorrect or incomplete. Mr. Ballou would be glad to have anyone call his attention to errors or omissions.

TO MASTERS' ASSISTANTS (WOMEN).

TO FIRST ASSISTANTS IN CHARGE (WOMEN).

TO FIRST ASSISTANTS, GRAMMAR (WOMEN).

Masters' assistants, first assistants in charge of primary buildings, and first assistants, grammar, in the grammar school are invariably appointed from among teachers in the Boston schools. The same persons are qualified for each one of these positions. According to the records in the superintendent's office, 846 women hold certificates qualifying them to hold any of the above positions.

The presence of so many eligible candidates in the service makes some kind of a promotion plan a necessity, if the most meritorious candidates are to be promoted. Neither the superintendent, nor any individual assistant superintendent, nor a principal of a school in which a vacancy exists can reasonably be expected to know what candidates are most deserving of promotion. Only by some system of rating, extending over a period of years and uniformly operative throughout the whole school system, can the superintendent be furnished with the necessary information to make it possible for him to promote teachers according to merit.

Thus far it has been impossible to secure ratings of all candidates in this group, other than the ratings which are uniformly given by assistant superintendents at the end of every second year. At the end of the school year 1915-16 the department asked each assistant superintendent to indicate the names of those teachers in their respective schools who held eligibility certificates and who might be rated superior or excellent in their work. This was done as a preliminary basis for preparing a merit list of candidates for the position of master's assistant. The masters' assistants who have been appointed during the past three years have uniformly been rated by the director of promotion, and, in many cases, by the assistant superintendent in charge, and the master. The practice of the superintendent has

been to appoint the teacher nominated by the principal of the school for this position, provided she was rated as high as other candidates for a similar position in another school. In other words, with equal ratings, the teacher in the school where the vacancy exists has received the appointment. An eligible list of candidates for the above positions is in preparation.

Reference to the total number of appointments in the elementary school on page 12 will show that the director of promotion has been unable to visit and rate candidates for promotion in kindergartens or instructors in special classes. All other promotions in the elementary school have been appointed by the superintendent on the basis of information furnished by the director of promotion.

#### PROMOTIONS IN HIGH AND LATIN SCHOOLS.

The promotions in the high and Latin schools may be to head master; to master, head of department (men); to first assistant, head of department (women); to junior master; to assistant; or to instructor. By the rules of the School Committee, promotion to instructor, to assistant, and to junior master is automatic after a stated period of work satisfactory to the Board of Superintendents. The director has, therefore, had nothing to do with such promotions.

#### TO HEAD MASTER.

Promotions to the principalship of a high or Latin school in Boston are made on a larger basis than teaching ability. Superior teaching ability is presupposed in such appointments. The work of the director of promotion, therefore, has had to do largely with gathering information concerning candidates.

#### TO HEAD OF DEPARTMENT.

The position of head of department in a high school is second in importance only to the position of head

master. Like the head master, the head of a department should not only be a leader of teachers, but should also possess those qualifications necessary to coöperate effectively with the head master and other heads of departments in the administration of a school. In addition to considering teaching ability, therefore, those who rate candidates for head of department must take into consideration those personal qualities which make for success in coöperating with others in activities which transcend classroom teaching.

#### PREPARATION OF MERIT LISTS.

A new scale of rating having been adopted by the Board of Superintendents and the ratings of teachers according to that scale having been shown to be comparable and discriminating, the biennial ratings of teachers hereafter recorded in the superintendent's office can be used directly as evidence of a teacher's worth. This will make the future preparation of lists of candidates easy as compared with the preparation of lists under present conditions.

The plan for preparing the list of male candidates for elementary school principalships will indicate the method of preparing all lists of candidates for promotion within the service. A submaster who is a candidate for elementary schoolmaster is rated by the assistant superintendent in charge of the school in which he teaches, by another assistant superintendent assigned by the superintendent of schools, and by the master of his school.

On the basis of these three independent ratings the submaster is given a place among other submasters rated by corresponding officers. Although such ratings are not considered sufficiently valuable to give them conspicuous importance in placing the names of submasters in an eligible list, nevertheless the superintendent has considered the ratings given in the past by



assistant superintendents. Candidates for elementary masters have been listed in groups as follows:

- I. No rating lower than 1.  
Ratings of A1, A1, A1.  
Ratings of A1, A1, 1.  
Ratings of A1, 1, 1.  
Ratings of 1, 1, 1.
- II. No rating lower than 2.  
Ratings of 1, 1, 2.  
Ratings of 1, 2, 2.  
Ratings of 2, 2, 2.
- III. No rating lower than 3.  
Ratings of 2, 2, 3.  
Ratings of 2, 3, 3.  
Ratings of 3, 3, 3.

Within each group the names of candidates are arranged in the order of seniority of appointment to service as a submaster. By agreement with the submasters, among candidates with equal ratings, those longest in the service should be appointed first. Under this arrangement the superintendent would appoint the first one on the list.

Surprising unanimity is shown in the judgments of the three officials who rate teachers. It is not uncommon to find a candidate rated 1 by each person who rates him. Seldom do the judgments vary more than one step in the scale. A few exceptions to this general rule occur; for instance, a candidate was rated A1 by his master, 1 by one assistant superintendent, and 2 by another. In such a case he would be placed in the group nearest like these ratings.

Candidates are regularly re-rated every two years by the assistant superintendent in charge of the school in which they teach. They may be rated more often or less often by another assistant superintendent and the master, according to the directions of the superintendent of schools.

## ADMINISTRATION OF MERIT LISTS.

As a starting point in considering the administration of merit lists it may be assumed to be axiomatic that the most fit and meritorious candidates are the ones who should be promoted to higher positions in the educational service. Objection is seldom if ever made against the above principle. Attack on any merit system is usually made against the methods of determining who the most fit and meritorious candidates are. In view of the large number of qualified candidates and the comparatively small number of positions to be filled from year to year, it becomes apparent that the selection of these few candidates for advancement in rank and salary cannot be made according to merit, unless systematic efforts have been made to determine the relative merits of all candidates. It may be asserted, without the possibility of successful contradiction, that any system of promotion according to merit that is honestly administered, even though it may have its faults, is better than the absence of any plan whatever.

Merit in candidates consists of the character of service already rendered and the promise of equally effective or better service in the next higher position. The character of service already rendered is a more or less tangible, definite fact, depending on some administrative plan for measuring and recording it from year to year. The promise of equally effective or better service in the next position is more or less problematical, but it may be prophesied, in part at least, on the basis of the systematic preparation which the candidate has made for assuming the additional duties and responsibilities which higher positions usually impose. Promotion on merit cannot be considered solely as a reward for service already rendered. It must be considered also from the standpoint of the worthiness and fitness of the candidate to render a larger service to the city which he serves.

The plan of promotion proposed for Boston involves making a professional estimate of the work of candidates in their present positions, together with due consideration of the probability of success of such candidates in the positions which they seek. These ratings are to be secured from the assistant superintendents, whose functions are supervisory, and who may be presumed to be competent to judge the relative worth of candidates; and from masters who come into closest contact with the work of candidates. The professional standing of those who rate candidates should command respect for their judgments.

To be successful, any plan for the rating of teachers must command the respect of those who are rated. They must have confidence in the professional judgment and disinterestedness of those who do the rating. The expressions of confidence from those in the service in the plan of promotion which is being worked out reinforce the general opinion that worthy candidates would strongly indorse such a plan. A rational plan of promotion on merit means the minimizing of the chances of the less meritorious candidates, and thereby increases the chances of promotion of those who should be promoted. It may be taken for granted that the ne'er-dowells will be opposed to any plan of promotion on merit. It may be assumed, further, that any plan of promotion on merit will be attacked from time to time, however successful it may be. This is not only true of promotion after appointment to service, but it is also true of the merit lists of candidates for initial appointment to service. The Board of Superintendents and the School Committee have found it necessary from time to time to meet the objections and the attacks which have been made on the validity of merit lists. Although general testimony is strikingly otherwise, some principals of Boston schools still feel that they obtained better teachers when they were allowed freedom in making their selection than they now obtain according to the present plan.

It should be pointed out and emphasized that whenever an appointment is made there may be others in the service equally competent to fill the position. This is a healthy condition. If the situation were such that there was only one candidate qualified to fill a given position, it would represent a serious state of affairs. Those who fail of appointment on any given occasion should understand this and should rest assured that if they occupy that enviable position of being equal to the candidate appointed, they will, in due time, be rewarded by promotion.

The proposed plan does not limit or curtail the legal authority or professional responsibility of the superintendent in making appointments. Differences between candidates are not indicated in such fine distinctions as are the differences among candidates on their initial appointment to service. In the first place, such a fine distinction would hardly be possible, in view of our present means of determining general merit and measuring it. Further, the differences in the higher positions to be filled make it quite undesirable that the superintendent should be compelled to take the person standing at the head of any list of candidates for promotion. The appointment to all administrative positions depends more largely on finding just the man or the woman who can fill the position than does the original appointment of a teacher to service. In the appointment of persons to higher positions in the service, the superintendent should not be unduly restricted by regulations. He has the legal authority for making such appointments and he must assume all responsibility for them. He should be held accountable for them by the profession and the public.

It is highly desirable that merit lists of candidates for promotion should be prepared in advance of vacancies. Thus far the director of promotion has scarcely caught up with the procession. Vacancies have occurred so rapidly and the working out of a systematic plan has involved so many considerations that the director has

been unable to anticipate vacancies. The list should be prepared in advance of the vacancy, because when a vacancy occurs those in the school where it exists are by force of circumstances given altogether undue and unjust advantage. It frequently happens that under such circumstances second-rate candidates are able to bring sufficient pressure to bear on the appointing power to secure appointment, largely because they are able to capitalize unduly the fact that they are on the ground.

Assuming, first, that the City of Boston has adopted the civil service principle of promoting those teachers who have shown superiority in their present work and who give promise of continued success in a higher position; and assuming, further, that the system of determining merit among candidates is the most effective that our present professional knowledge can devise; and assuming, still further, that the system of rating candidates and appointing them on the basis of those ratings is honestly administered, the whole responsibility for promotion then rests entirely on the candidate. If he renders superior service in his present position and makes appropriate preparation for the next higher position, his promotion is assured. He need not resort to attempting to bring influence of any kind to bear on the superintendent, or others, to bring about his advancement. Such a plan as is proposed for Boston should inspire hope among the competent and deserving people in the service that their advancement in rank is certain. When such a plan is in complete operation Boston will have applied civil service principles not only to the initial appointment of teachers to service, but also to their advancement within the service after appointment.



SCHOOL DOCUMENT NO. 3—1918  
BOSTON PUBLIC SCHOOLS  
REAPPOINTMENTS OF TEACHERS AND  
MEMBERS OF SUPERVISING STAFF



BOSTON  
PRINTING DEPARTMENT  
1918





## REAPPOINTMENTS OF TEACHERS AND MEMBERS OF SUPERVISING STAFF.

IN SCHOOL COMMITTEE, June 19, 1918.

*To the School Committee:*

In accordance with section 278 of the Regulations I herewith submit a list of reappointments for the school year 1918-19, together with a statement of the number of teachers to which each school and school district is entitled, and the number of pupils upon which the quota of teachers is based. All reappointments are made subject to the provisions of the Regulations governing promotional examinations.

All reappointments of high school teachers are based upon the orders of the School Committee as passed at the meeting of June 14, 1917, which are as follows:

*Ordered,* That the Latin and day high schools be so organized in September, 1917, that they shall approximate the following standards of organization:

(a) 792 or 726 pupil hours of instruction per teacher in academic work, based on 24 or 22 periods of teaching per week, with 33 pupils in each class.

(b) 720 pupil hours of instruction per teacher in shop work, sewing or cooking, based on 30 periods of teaching per week, with 24 pupils in each class.

*Ordered,* That all classes in Latin and day high schools, except classes in hygiene, physical training and choral practice, having more than forty-five (45) pupils be organized during the school year 1917-18, and until otherwise ordered, subject to the approval of the superintendent; and that no class with fewer than fifteen (15) pupils be organized without the approval in advance of the superintendent.

The computation is based upon a report received from each head master, as of September 30, 1917, and may

show excess teachers in certain high schools, but at this time no transfer of such teachers is recommended, as beginning in September, 1918, there will be a reduction in the number of pupils per class from thirty-three to thirty-two. The computation based on this reduction next fall may not show any excesses. Some high schools appear to have several vacancies. These vacancies have been filled during the current school year by the appointment of junior assistants, or by the assignment of elementary teachers. This practice will be continued during the next school year.

All reappointments of elementary school teachers are based on the provisions of section 292, paragraph 2, of the Regulations, which provides for the appointment of grade teachers on the basis of one teacher for every forty pupils belonging in all grades, although this provision of the Regulations has not been put into effect in connection with the appointment of new teachers. The appointment of new teachers during the current school year has been made on the basis of forty pupils in the first, seventh, eighth and ninth grades, and forty-two pupils in the grades from the second to the sixth. In consequence of this difference in the basis of appointment of new teachers and the reappointments of teachers for the ensuing school year, the reports which follow indicate a considerable number of elementary school vacancies, but these are technical rather than actual vacancies,—that is, they are vacancies on the basis of forty pupils per teacher. Except as hereinafter explained, there are no teachers in excess of the Regulations.

#### EXCESS TEACHERS.

In the Mechanic Arts High School there are four teachers in excess of the number allowed under the order of June 14, 1917. The situation in this school arises from the fact that the registration in October, 1917, was considerably less than expected. There are, however, four teachers absent on leave; two for military or naval service; two for government service.

Therefore, I recommend that these teachers be reappointed for the year beginning September 1, 1918.

In the Hyde District there are two assistants in excess of the number allowed by the Regulations. This is due to a decrease in the number of pupils belonging.

I recommend that these two excess teachers be allowed to remain in the district until their transfers may be effected in the fall, or the number of pupils warrants their retention in the Hyde District.

In the Robert G. Shaw District there is one assistant, kindergarten, in excess of the number allowed by the Regulations.

I recommend that this teacher be allowed to remain in the district until her transfer may be effected in the fall.

In the Sherwin District there are two teachers in excess of the number allowed by the Regulations. One, an instructor, special class, has been appointed in place of an instructor, special class, who has been assigned to follow-up work. The other excess teacher is an assistant.

I recommend that this assistant be allowed to remain in the district until her transfer may be effected in the fall, or the number of pupils warrants her retention in the Sherwin District.

#### TEACHERS WITH EXCESSIVE RANK.

##### *Master, Head of Department.*

In the West Roxbury High School there is one master, head of department, in excess of the number allowed by the Regulations. The number of teachers of classes in commercial subjects makes it desirable that this head of department, who was originally appointed to the school to take charge of the commercial work, be continued. The need of this head of department will be as urgent during the ensuing school year as it has been during the current year.

I recommend, therefore, that the teacher of said rank be continued in the school in excess of the Regulations during the school year ending August 31, 1919.

*Submasters.*

In the following district a submaster is employed in excess of the Regulations:

*Elihu Greenwood District.*— One.

This submaster has been allowed in previous years for assignment to the Fairmount School in which there are several upper grades.

I recommend that a teacher of said rank be continued in the foregoing district during the school year ending August 31, 1919.

In each of the following districts there is an additional submaster in charge of the pupils above the third grade, as authorized by the School Committee:

*Dearborn.*— One.

*Eliot.*— One.

*Jefferson.*— One.

*Lewis.*— One.

*Mary Hemenway.*— One.

*Oliver Wendell Holmes.*— One.

*Phillips Brooks.*— One.

*Quincy.*— One.

*Roger Wolcott.*— One.

*Sherwin.*— One.

*Thomas Gardner.*— One.

*Thomas N. Hart.*— One.

*Washington.*— One.

*Wendell Phillips.*— One.

I recommend that they be continued during the school year ending August 31, 1919.

*First Assistants in Charge.*

In each of the following districts there is one additional first assistant in charge who has charge of lower grade classes:

*Eliot.*— One.

*Washington.*— One.

I recommend that teachers of said rank be continued in the Eliot and Washington Districts during the school year ending August 31, 1919.

*First Assistant, Primary School.*

In the following district the position of first assistant, primary school, has been continued from year to year by order of the Board:

*Hugh O'Brien District, Samuel W. Mason School.*— One.

I recommend that the rank be continued during the school year ending August 31, 1919.

*First Assistants, Grammar School.*

In each of the following districts the position is to be abolished on the retirement of the present incumbents:

*Charles Sumner.*— One.

*Dearborn.*— One.

*Frothingham.*— One.

*Harvard.*— One.

*Henry L. Pierce.*— One.

*John Winthrop.*— One.

*Longfellow.*— One.

*Martin.*— One.

*Mary Hemenway.*— One.

*Norcross.*— One.

*Oliver Hazard Perry.*— One.

*Rice.*— One.

*Robert G. Shaw.*— One.

*Samuel Adams.*— One.

*Ulysses S. Grant.*— One.

## TEACHERS NOT REAPPOINTED.

There is one junior master in the West Roxbury High School who was not reappointed for the term ending August 31, 1919.

## TEACHERS TAKEN FROM TENURE.

There are two teachers in the service who were once appointed to serve during the pleasure of the School Committee, but who have since been taken from tenure and are now serving for the year ending August 31,

1918. These teachers have been reappointed for the year ending August 31, 1919, as follows:

*Eliot District.*— One.

*Theodore Lyman District.*— One.

*Special Classes.*

Subject to your approval, I hereby re-establish special classes in the following districts for the year 1918-19:

*Abraham Lincoln.*— One.

*Agassiz.*— One.

*Bennett.*— One.

*Bigelow.*— Two.

*Bowdoin.*— Two.

*Bunker Hill.*— Two.

*Dearborn.*— One.

*Dillaway.*— One.

*Dudley.*— One.

*Dwight.*— Six.

*Edward Everett.*— One.

*Eliot.*— Three.

*Franklin.*— One.

*George Putnam.*— Two.

*Hancock.*— Three.

*Harvard.*— One.

*Hugh O'Brien.*— One.

*Hyde.*— One.

*Jefferson.*— One.

*John Cheverus.*— One.

*John Winthrop.*— One.

*Lawrence.*— One.

*Lewis.*— One.

*Lowell.*— Two.

*Mather.*— One.

*Oliver Hazard Perry.*— One.

*Oliver Wendell Holmes.*— Two.

*Phillips Brooks.*— One.

*Prescott.*— One.

*Quincy.*— Two.

*Samuel Adams.*— One.

*Sherwin.*— Seven.

*Theodore Lyman.*— One.

*Thomas N. Hart.*— One.

*Ulysses S. Grant.*— One.

*Washington.*— One.

*Wells.*— Two.

*Wendell Phillips.*— Six.

*William E. Russell.*— One.

#### *Rapid Advancement Classes.*

I recommend that no action concerning the re-establishment of rapid advancement classes for the year 1918-19 be taken at the present time. Action should be postponed until after the opening of the schools in September, when orders will be presented to the School Committee regarding the establishment of all such classes on the basis of the registration for the ensuing school year. I recommend that all rapid advancement classes at present authorized be discontinued at the close of the current school year, and that such classes be re-established in the future only by special orders of the School Committee.

#### *Open-air, Ungraded and Special English Classes.*

I recommend that the same policy be pursued regarding the establishment of open-air, ungraded and special English classes as in 1917-18 and that no action concerning the re-establishment of these classes for the year 1918-19 be taken at the present time. Action should be postponed until after the opening of the schools in September, when orders will be presented to the School Committee regarding the establishment of all such classes on the basis of the registration at that time. I recommend that all open-air, ungraded and special English classes at present authorized be discontinued at the close of the current school year and that such classes be re-established only by special order of the School Committee.

## PART I.

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### REAPPOINTMENTS OF PRINCIPALS AND MEMBERS OF THE SUPERVISING STAFF.

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APPOINTED: *To serve during the pleasure of the School Committee.*

*English High School.*— Head Master, William B. Snow.

*Samuel Adams District.*— Master, Paul V. Donovan.

*Continuation School.*— Principal, Owen D. Evans.

Assistant Nurses, Mary A. Cody, Ellen L. Fenton, Frances Z. Flannery,  
Anna C. Patterson, Ethel A. Young.

APPOINTED: *To serve for the term ending August 31, 1919.*

*Gaston District.*— Master, Josephine A. Powers.

*Lawrence District.*— Master, Thomas J. Sheahan.

*Norcross District.*— Master, Mary R. Thomas.

Director of Medical Inspection, William H. Devine.

Director of Music, John A. O'Shea.

Director of Salesmanship, Isabel C. Bacon.

Director of Vocational Guidance, Susan J. Ginn.

First Assistant Director of Practice and Training, Mary E. Keyes.

Assistant Director of Educational Investigation and Measurement,  
Arthur W. Kallom.

Assistant Directors of Manual Arts, Edward C. Emerson, George M.  
Morris.

Assistant Directors of Practice and Training, E. Gertrude Dudley, Sarah  
A. Lyons.

Assistant Nurses, Florence I. Bolles, Frances A. Burnham, Idabel  
Durgan, Agnes G. Kelleher, Daisy D. MacBurnie, Sara MacGillivray,  
Catherine C. Mealey, Mary B. O'Donnell, Catherine F. O'Toole,  
Roberta E. Pollard.



## PART II.

## REAPPOINTMENTS OF SUBORDINATE TEACHERS.

NOTE.—Physical training teachers in Normal, High and Latin Schools are given under Part III.

## NORMAL SCHOOL.

Largest number of pupils belonging at any time between September 10, 1917, and April 1, 1918 . . . . .	271
TEACHERS.— Entitled to 16 regular teachers . . . . .	16
<i>Now serving on tenure</i> . . . . .	8
Appointed: <i>To serve during the pleasure of the School Committee.</i> — First Assistant, Head of Department, Lotta A. Clark; Assistant, Annie P. O'Hara . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Master, Head of Department, J. Mace Andress; First Assistants, Heads of Departments, Marie A. Solano, Mary C. Shute, Gertrude Weeks; Assistants, M. Margaret Gaffey, Edith L. Smith . . . . .	6
	— 16

## PUBLIC LATIN SCHOOL.

TEACHERS.— Entitled to 29 regular teachers . . . . .	29
<i>Now serving on tenure</i> . . . . .	21
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Junior Master, Joseph W. Hobbs . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Junior Masters, Elmer R. Bowker, Ralph M. Corson, William H. J. Kennedy, Max Levine, Warren E. Robinson . . . . .	5
	— 27

## GIRLS' LATIN SCHOOL.

TEACHERS.— Entitled to 23 regular teachers . . . . .	23
<i>Now serving on tenure</i> . . . . .	19
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Grace E. Lingham . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Mary E. Greene . . . . .	1
	— 21

## BRIGHTON HIGH SCHOOL.

TEACHERS.— Entitled to 20 regular teachers . . . . .	20
<i>Now serving on tenure</i> . . . . .	9
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Ethel T. Burpee, Sylvia E. Donegan, Mildred Ivy; Instructor, Coöperative Branches, Clarence W. Goodridge; Assistant Instructor in Commercial Branches, Mary G. McEvoy; Assistant Instructor in Manual Arts, Marjorie Loring . . . . .	6 — 15

## CHARLESTOWN HIGH SCHOOL.

TEACHERS.— Entitled to 15 regular teachers . . . . .	15
<i>Now serving on tenure</i> . . . . .	8
Appointed: <i>To serve during the pleasure of the School Com- mittee.</i> — Junior Master, Hubert G. Fisher . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Master, Head of Department, Arthur S. Wells; Assistants, Maude E. Butters, Margaret J. Griffith, Elizabeth J. Martin; Instructor in Coöperative Branches, Maurice J. Moriarty . . . . .	5 — 14

## DORCHESTER HIGH SCHOOL.

TEACHERS.— Entitled to 64 regular teachers . . . . .	64
<i>Now serving on tenure</i> . . . . .	38
Appointed: <i>To serve during the pleasure of the School Com- mittee.</i> — Junior Master, Z. Carleton Staples; Assistant, Lucy G. Annable; Industrial Instructor, Elizabeth C. Menn, . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Junior Masters, Jared W. Davis, Harry F. Doe, Roy W. Hatch, Ernest M. Hunt; Assistants, Amy B. Baker, Mary L. Carty, Laura S. Clark, Katharine F. Garrity, Adelaide Haley, Helen F. Keefe, Margaret C. Kennedy, Fannie Myer- son, Elizabeth K. Nagle, Alice G. Porter, Marion A. Say- ward, Mary L. Sheehy, Edna Willis; Instructor in Coöpera- tive Branches, Francis L. Bain; Assistant Instructors in Commercial Branches, Elinor Furber, Florence L. Hamblin; Industrial Instructors, Alice M. Croke, Theresa A. Fitz- patrick . . . . .	22 — 63

## EAST BOSTON HIGH SCHOOL.

TEACHERS.— Entitled to 21 regular teachers . . . . .	21
<i>Now serving on tenure</i> . . . . .	16
Appointed: <i>To serve during the pleasure of the School Com- mittee.</i> — Assistant, Bertha C. Marshall; Instructor in Manual Arts, Isaac Goddard . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Junior Master, John J. Connelly; Assistants, Louise Adams, Grace W. Hartz, Ruth E. Thomas; Instructor in Commer- cial Branches, Lewis A. Newton; Industrial Instructor, Agnes C. Early . . . . .	6 — 24

ENGLISH HIGH SCHOOL.

TEACHERS.— Entitled to 60 regular teachers . . . . . 60

All of the time of one Master, Head of Department, in charge of an annex; and one half the time of one Master, Head of Department, in charge of an annex, is given to administrative work. No allowance has been made for these in the above computation.

*Now serving on tenure* . . . . . 43

Appointed: *To serve during the pleasure of the School Committee.*— Masters, Heads of Departments, Daniel Foley, Alva T. Southworth; Junior Masters, Arthur H. Delano, Leroy M. Rand . . . . . 4

Appointed: *To serve for the term ending August 31, 1919.*— Masters, Heads of Departments, Charles W. French, Bertram C. Richardson; Junior Masters, Earl M. Benson, J. Albert Brack, Walter I. Chapman, Merrill C. Hill, Carey P. Ladd, Walter L. Leighton, Louis A. McCoy, Daniel V. O'Flaherty, John F. Roche, Edward N. Wilson . . . . . 12

— 59

GIRLS' HIGH SCHOOL.

TEACHERS.— Entitled to 56 regular teachers . . . . . 56

*Now serving on tenure* . . . . . 44

Appointed: *To serve during the pleasure of the School Committee.*— Junior Master, C. Ross Appler; Assistants, Lilian C. Burbank, Helen L. Byrne, Rina M. Greene, Elizabeth B. Nichols; Assistant Instructor in Commercial Branches, Grace A. McGrath . . . . . 6

Appointed: *To serve for the term ending August 31, 1919.*— First Assistant, Head of Department, May M. Smith; Junior Master, Herbert B. Cole; Assistants, Margaret C. Brawley, Elizabeth Chase, Marion A. Guilford, Margaret Little; Assistant Instructor in Salesmanship, Bessie T. Goodwin . . . . . 7

— 57

HIGH SCHOOL OF COMMERCE.

TEACHERS.— Entitled to 48 regular teachers . . . . . 48

*Now serving on tenure* . . . . . 26

Appointed: *To serve during the pleasure of the School Committee.*— Junior Masters, William G. Hoffman, Jr., Samuel B. Trumbull . . . . . 2

Appointed: *To serve for the term ending August 31, 1919.*— Master, Head of Department, Maurice J. Lacey; Junior Masters, Winburn S. Cannell, John B. Casey, Harold B. Garland, Ernest J. Hall, Thomas E. Mahoney, James E. O'Neil, Edward A. Post, William F. Remmert, Max Weiss; Instructors in Commercial Branches, Robert Bitzer, George A. Fellows, Louis J. Fish, Walter E. Leidner, James R. Mahoney, Edward J. McCarthy; Instructor in Manual Arts, Frank P. Kelly . . . . . 17

— 45

HIGH SCHOOL OF PRACTICAL ARTS.

TEACHERS.— Entitled to 22 regular teachers . . . . .	22
<i>Now serving on tenure</i> . . . . .	22
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Master, Head of Department, Melville C. Freeman; First Assistant, Head of Department, Clara B. Shaw . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Jessie Moore, Laura F. Wentworth, Annabel M. Young; Industrial Instructor, Mabelle B. Rimbach . . . . .	4
—	28

HYDE PARK HIGH SCHOOL.

TEACHERS.— Entitled to 24 regular teachers . . . . .	24
<i>Now serving on tenure</i> . . . . .	14
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Mary Shute . . . . .	1
Appointed: <i>To serve for the term ending August 3, 1919.</i> — Junior Masters, William M. Edmonstone, Harold F. Stevens; Assistant, Ruby H. Cole; Instructor in Coöperative Branches, Martin L. Olson; Industrial Instructor, Marguerite S. King . . . . .	5
—	20

MECHANIC ARTS HIGH SCHOOL.

TEACHERS.— Entitled to 45 regular teachers . . . . .	45
<i>Now serving on tenure</i> . . . . .	37
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant Principal, Harriet E. Bird; Junior Masters, Henry D. Colton, Charles Jenney, Robert B. Masterson, George E. Parsons; Instructor, Mechanical Department, Dexter A. Mower . . . . .	6
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Junior Masters, James P. Farnsworth, Francis J. Horgan; Instructors, Mechanical Department, Joseph R. B. Dunn, William McRobbie, James H. Philbrick, Ernest E. Town . . . . .	6
—	49

ROXBURY HIGH SCHOOL.

TEACHERS.— Entitled to 34 regular teachers . . . . .	34
<i>Now serving on tenure</i> . . . . .	23
Appointed: <i>To serve for the term ending August 31, 1919.</i> — First Assistant, Head of Department, Mabel L. Warner; Assistants, Ellen M. Greany, Helen A. Taff; Instructor in Commercial Branches, Harold J. Smith; Assistant Instructors in Commercial Branches, Mary K. Austin, Alice H. M. Power . . . . .	6
—	29

SOUTH BOSTON HIGH SCHOOL.

TEACHERS.— Entitled to 26 regular teachers . . . . .	26
<i>Now serving on tenure</i> . . . . .	17
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Susan M. Maguire . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Master, Head of Department, John E. J. Kelley; First Assistant, Head of Department, Elisabeth G. Tracy; Junior Master, William F. Lenihan; Assistants, Mary C. Grandfield, Lucy M. Greely; Assistant Instructors in Commercial Branches, Irene H. Corkery, Anna T. Kelley, Elizabeth A. Nash; Assistant Instructor in Salesmanship, Alice M. Falvey . . . . .	9
	— 27

WEST ROXBURY HIGH SCHOOL.

TEACHERS.— Entitled to 24 regular teachers . . . . .	24
<i>Now serving on tenure</i> . . . . .	19
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Elizabeth H. Norman . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Master, Head of Department, Harold C. Spencer; Assistants, Hazel M. Purmort, Angela M. Keenan; Instructor in Commercial Branches, Thaddeus J. Keefe; Assistant Instructor in Salesmanship, half-time, Mary G. Jennings . . . . .	5
	— 25

BOSTON CLERICAL SCHOOL.

TEACHERS.— Entitled to 9 regular teachers . . . . .	9
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Head Instructor in Bookkeeping, George L. Hoffacker; Head Instructor in Stenography, Atlee L. Percy; Clerical Instructor, Charles A. Cederberg; Clerical Assistants, Annie T. Elwell, Helen J. Gilmore, Mary L. Knodell, Winifred H. Rogers, Katherine W. Ross . . . . .	8

ABRAHAM LINCOLN DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 63 in ungraded class; 18 in special class; 37 in open-air class; 1,912 in regular grades . . . . .	2,030
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	2,003
TEACHERS.— Entitled to 48 grade teachers, 2 teachers of ungraded classes, 1 teacher of special class and 1 teacher of an open-air class . . . . .	52

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

<i>Now serving on tenure</i> . . . . .	43	
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Eleanor A. McNamara . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, Joseph E. Lynch; Instructor, Special Class, Kathleen MacHugh; Assistants, Annie V. Devine, B. Hazel Kane . . . . .	4	— 48
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4	
<i>Now serving on tenure</i> . . . . .	3	

## AGASSIZ DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 16 in special class; 88 in prevocational classes; 653 in-regular grades . . . . .	757	
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	700	
TEACHERS.— Entitled to 16 grade teachers, 1 teacher of a special class and 2 teachers of prevocational classes . . . . .	19	
<i>Now serving on tenure</i> . . . . .	16	
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Instructor, special class, Martha L. Taylor . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Elsie V. Karlson, Elizabeth F. Laughlin . . . . .	2	— 19
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2	
<i>Now serving on tenure</i> . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Frances E. O'Neil . . . . .	1	— 2

## BENNETT DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 15 in special class; 1,392 in regular grades . . . . .	1,407	
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,366	
TEACHERS.— Entitled to 35 grade teachers, 1 teacher of a special class . . . . .	36	
<i>Now serving on tenure</i> . . . . .	25	
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Jennie L. Carter, Mildred M. Crook, Florence M. Tait . . . . .	3	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Katherine M. Finn, Alice G. Flynn, Edith D. Rodgers, Helen E. Rourke, Edith Stahl, Ruth V. Tobin . . . . .	6	— 34

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

KINDERGARTENS.— Teachers.— Number entitled to . . . . .	7
<i>Now serving on tenure</i> . . . . .	3
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Mildred B. Cleary . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Elizabeth M. Daley, Marion E. Jose . . . . .	2
	— 6

## BIGELOW DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918, — 31 in special classes; 57 in rapid advancement classes; 856 in regular grades . . . . .	944
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	919
TEACHERS.— Entitled to 21 grade teachers, 2 teachers of special classes and 2 teachers of rapid advancement classes, <i>Now serving on tenure</i> . . . . .	21
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, Francis M. Morrissey; Assistants, Nellie A. Condon, Lillian M. Connors, Mildred A. Hersey . . . . .	4
	— 25
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Irene B. Murray . . . . .	1
	— 2

## BOWDITCH DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 36 in open-air class; 993 in regular grades . . . . .	1,029
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,006
TEACHERS.— Entitled to 25 grade teachers, 1 teacher of an open-air class . . . . .	26
<i>Now serving on tenure</i> . . . . .	20
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Mary L. Mahoney . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Alice E. Bentley, Josephine M. Friery, Mary C. Hawkes, Helen L. Mahoney, Gladys M. Parker . . . . .	5
	— 26
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	4

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

## BOWDOIN DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 30 in special classes; 980 in regular grades . . . . .	1,010
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	988
TEACHERS.—Entitled to 24 grade teachers, 2 teachers of special classes . . . . .	26
<i>Now serving on tenure</i> . . . . .	18
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Catherine E. O'Mara . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Instructors, Special Classes, Emma A. Timberlake, Cora E. Wood; Assistants, Elsie M. Crispin, Agnes F. Kelly, Dora L. Lombard, Annie Segal . . . . .	6
	— 25
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	7
<i>Now serving on tenure</i> . . . . .	3
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Dorothy L. Glover . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Imelda S. Hagan, Leone C. Sheen . . . . .	2
	— 6

## BUNKER HILL DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 25 in special classes; 627 in regular grades . . . . .	652
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	626
TEACHERS.—Entitled to 15 grade teachers, 2 teachers of special classes . . . . .	17
<i>Now serving on tenure</i> . . . . .	14
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Instructors, Special Classes, Katherine A. McCarron, Margaret McCrillis; Assistant, Agnes L. Harrington . . . . .	3
	— 17
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	3
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — First Assistant, Agnes A. Snelling . . . . .	1
	— 2

## CHAPMAN DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918— 1,172 in regular grades . . . . .	1,172
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NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.



Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,145
TEACHERS.— Entitled to 29 grade teachers . . . . .	29
<i>Now serving on tenure</i> . . . . .	24
Appointed: <i>To serve during the pleasure of the School Committee.</i> — First Assistant in Charge, Gertrude L. Gardner . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Regina G. O'Connor, Marjorie G. Smith . . . . .	2
	— 27
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	4

CHARLES SUMNER DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 1,059 in regular grades . . . . .	1,059
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,048
TEACHERS.— Entitled to 26 grade teachers . . . . .	26
<i>Now serving on tenure</i> . . . . .	21
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Anna P. Lynch . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Grace D. Lennon, Elinor Neilon, F. Josephine Rogers . . . . .	3
	— 25
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Marion E. Kelley . . . . .	1
	— 4

CHRISTOPHER GIBSON DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 980 in regular grades . . . . .	980
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	961
TEACHERS.— Entitled to 24 grade teachers . . . . .	24
<i>Now serving on tenure</i> . . . . .	21
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Susan M. Hosmer . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Helen C. Conway . . . . .	1
	— 23

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NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	2

## DEARBORN DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 40 in ungraded class; 16 in special class; 57 in prevocational class; 1,667 in regular grades . . . . .	1,780
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,744
TEACHERS.— Entitled to 42 grade teachers, 1 teacher of an ungraded class, 1 teacher of a special class and 1 teacher of a prevocational class . . . . .	45
<i>Now serving on tenure</i> . . . . .	36
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Instructor, Special Class, Katherine M. Binkley . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Elizabeth A. Crowley, Annie F. Daniel, Anna M. Devin, Regina I. Driscoll, Laura M. Payson . . . . .	5
—	42
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — First Assistant, Mary FitzGerald; Assistants, Frances R. Kent, Margaret A. Mahoney . . . . .	3
—	4

## DILLAWAY DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 17 in special class; 22 in conservation of eyesight class; 1,186 in regular grades . . . . .	1,225
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,203
TEACHERS.— Entitled to 30 grade teachers, 1 teacher of a special class . . . . .	31
<i>Now serving on tenure</i> . . . . .	25
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Irene F. Jackson . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Instructor, Special Class, Dorothy C. Foley; Assistants, Eleanor A. Gallant, Florence M. Hawes . . . . .	3
—	29
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	3

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

DUDLEY DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 16 in special class; 126 in prevocational classes; 998 in regular grades . . . . .	1,140
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,108
TEACHERS.—Entitled to 25 grade teachers, 1 teacher of a special class, 3 teachers of prevocational classes . . . . .	29
<i>Now serving on tenure</i> . . . . .	26
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Instructor, Special Class, Lena C. Johnson . . . . .	1
	— 27
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Helen C. McLean, Margaret Townsend . . . . .	2
	— 4

DWIGHT DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 33 in ungraded class; 86 in special classes; 639 in regular grades . . . . .	758
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	723
TEACHERS.—Entitled to 16 grade teachers, 1 teacher of an ungraded class, 6 teachers of special classes . . . . .	23
<i>Now serving on tenure</i> . . . . .	16
Appointed: <i>To serve during the pleasure of the School Committee.</i> — First Assistant in Charge, Special Class, Nellie E. Powers; Instructor, Special Class, Beatrice U. Bridges . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Instructor, Special Class, Jessie M. Baker, Mary M. Bickford, Helen C. Godvin, Mabel M. Leach . . . . .	4
	— 22
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — First Assistant, Angela B. Bemis; Assistant, Dora E. Smith . . . . .	2

EDMUND P. TILESTON DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 47 in hospital classes; 766 in regular grades . . . . .	813
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	789

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

TEACHERS.— Entitled to 19 grade teachers, 3 teachers of hospital classes . . . . .	22
<i>Now serving on tenure</i> . . . . .	11
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Grace B. Turner . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Edith F. Cotton, Helen L. Cunningham, Gertrude Freiderman, Leonora P. Lordan, Mary E. Martell, Catherine G. McCool, Marguerite R. O'Neill, Madge G. Ross, Lelia P. Severy . . . . .	9
—	21
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Alma C. McKenna . . . . .	1
—	2

## EDWARD EVERETT DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 16 in special class; 1,508 in regular grades . . . . .	1,524
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,510
TEACHERS.— Entitled to 37 grade teachers, 1 teacher of a special class . . . . .	38
<i>Now serving on tenure</i> . . . . .	27
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Grace E. L. Hine, Caroline B. McLean, . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — First Assistant in Charge, Florence A. Godfellow; Instructor, Special Class, Irene Upham; Assistants, Margaret M. Giblin; Ruby E. Ladd, Josephine J. Lynch, Mary O. Nolan . . . . .	6
—	35
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	5
<i>Now serving on tenure</i> . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Mabel A. Hermance, Dorothy L. Mitchell . . . . .	2
—	4

## ELIHU GREENWOOD DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 1,234 in regular grades . . . . .	1,234
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,218
TEACHERS.— Entitled to 31 grade teachers . . . . .	31

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

<i>Now serving on tenure</i> . . . . .	21	
Appointed: <i>To serve during the pleasure of the School Committee.</i> —Assistant, Mary J. Mulcahy . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> —Assistants, Esther E. Brooks, Marie A. DeNeill, Mary M. J. Egar, Corinne M. Faxon, Margaret L. Fisher, Madeline B. Murphy, Louise J. Smith . . . . .	7	
	—	29
KINDERGARTENS.—Teachers.—Number entitled to . . . . .		6
<i>Now serving on tenure</i> . . . . .	2	
Appointed: <i>To serve during the pleasure of the School Committee.</i> —First Assistants, Henrietta C. Starke, Ruth E. York . . . . .	2	
Appointed: <i>To serve for the term ending August 31, 1919.</i> —Assistants, Grace M. Dugan, Priscilla E. White . . . . .	2	
	—	6

## ELIOT DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,—115 in ungraded classes; 40 in special classes; 60 in special English classes; 42 in prevocational class; 2,085 in regular grades . . . . .		2,342
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .		2,302
TEACHERS.—Entitled to 53 grade teachers, 3 teachers of ungraded classes, 3 teachers of special classes, 2 teachers of special English classes, 1 teacher of a prevocational class . . . . .		62
<i>Now serving on tenure</i> . . . . .	40	
Appointed: <i>To serve during the pleasure of the School Committee.</i> —Instructor, Special Class, Mary M. Dwyer; Assistants, Elizabeth E. Dacey, Annie L. Lynch, Elizabeth T. McNeil . . . . .	4	
Appointed: <i>To serve for the term ending August 31, 1919.</i> —Instructor, Special Class, Mary A. Connors; Assistants, Sheba E. Berry, Esther E. Cahill, Mary A. E. Connolly, Olive M. Crane, Margaret A. Ford, Grace F. Laughlin, Alice McNally, M. Alice Murphy, Mary M. O'Hearn, Frances S. Rodgers, Margaret T. Casey . . . . .	12	
	—	56
KINDERGARTENS.—Teachers.—Number entitled to . . . . .		4
<i>Now serving on tenure</i> . . . . .	1	
Appointed: <i>To serve during the pleasure of the School Committee.</i> —First Assistant, Esther Campbell . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> —Assistants, Sara F. Cotter, Alice M. Doran . . . . .	2	
	—	4

NOTE.—Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

## EMERSON DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,—1,410 in regular grades . . . . .	1,410
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,380
TEACHERS.—Entitled to 35 grade teachers . . . . .	35
<i>Now serving on tenure</i> . . . . .	23
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Gladys L. Kelly, Gertrude M. McBrien, . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Alice J. Barry, Mary E. Buckley, Grace M. Curry, Mary B. Flynn, Anna E. McGirr, Mary C. McMahan, Dorothy J. McNally . . . . .	7
	— 32
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	5
<i>Now serving on tenure</i> . . . . .	4
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Margaret M. Cody . . . . .	1
	— 5

## EVERETT DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,—739 in regular grades . . . . .	739
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	719
TEACHERS.—Entitled to 18 grade teachers . . . . .	18
<i>Now serving on tenure</i> . . . . .	14
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Master's Assistant, Bertha L. Mulloney; Assistant, Rose E. Segal . . . . .	2
	— 16
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	2

## FRANCIS PARKMAN DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,—670 in regular grades . . . . .	670
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	657

NOTE.—Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

TEACHERS.— Entitled to 17 grade teachers . . . . .	17
<i>Now serving on tenure</i> . . . . .	12
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistants, Nellie M. Farnsworth, Helen R. Jones, Caroline	
C. Moy . . . . .	3
	— 15
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	2

FRANKLIN DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging	
on any one day between September 1, 1917, and April 1,	
1918,— 18 in special class; 973 in regular grades . . . . .	991
Average number of pupils belonging for the period September	
1, 1917, to April 1, 1918 . . . . .	975
TEACHERS.— Entitled to 24 grade teachers, 1 teacher of a	
special class . . . . .	25
<i>Now serving on tenure</i> . . . . .	21
Appointed: <i>To serve during the pleasure of the School Com-</i>	
<i>mittee.</i> — Assistants, Edith Irving, Gertrude A. Kalmus . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistant, Mildred M. Colton . . . . .	1
	— 24
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	5
<i>Now serving on tenure</i> . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
First Assistant, Eleanor M. Osterberg; Assistant, Anna	
M. Hooke . . . . .	2
	— 4

FREDERIC W. LINCOLN DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging	
on any one day between September 1, 1917, and April 1,	
1918,— 21 in ungraded class; 717 in regular grades . . . . .	738
Average number of pupils belonging for the period September	
1, 1917, to April 1, 1918 . . . . .	716
TEACHERS.— Entitled to 18 grade teachers . . . . .	18
<i>Now serving on tenure</i> . . . . .	15
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Sub-	
master, George W. Gammon; Assistants, Lydia M. Gore,	
Maud B. Kennerson . . . . .	3
	— 18
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	3

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

<i>Now serving on tenure</i> . . . . .	1	
Appointed: <i>To serve during the pleasure of the School Committee.</i> —		
Assistant, Helen A. Melia . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> —		
Assistant, N. Medora Thorndike . . . . .	1	
	—	3

## FROTHINGHAM DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,—12 in prevocational class; 675 in regular grades . . . . .		687
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .		627
TEACHERS.—Entitled to 17 grade teachers . . . . .		17
<i>Now serving on tenure</i> . . . . .	13	
Appointed: <i>To serve during the pleasure of the School Committee.</i>		
—Master's Assistant, Mary A. Quirk; Assistant, Frederick A. Dunfey . . . . .	2	
Appointed: <i>To serve for the term ending August 31, 1919.</i> —		
Assistant, Mary C. Falvey . . . . .	1	
	—	16
KINDERGARTENS.—Teachers.—Number entitled to . . . . .		2
<i>Now serving on tenure</i> . . . . .	1	
Appointed: <i>To serve during the pleasure of the School Committee.</i>		
—Assistant, Andrea Mahan . . . . .	1	
	—	2

## GASTON DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,—999 in regular grades . . . . .		999
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .		989
TEACHERS.—Entitled to 25 grade teachers . . . . .		25
<i>Now serving on tenure</i> . . . . .	19	
Appointed: <i>To serve for the term ending August 31, 1919.</i> —		
Master's Assistant, Carrie A. Harlow; First Assistant, Grammar, Clara A. Sharp; Assistants, Katherine F. Breen, Sarah M. Dooley . . . . .	4	
	—	23
KINDERGARTENS.—Teachers.—Number entitled to . . . . .		2
<i>Now serving on tenure</i> . . . . .		2

## GEORGE PUTNAM DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,—34 in special classes; 1,872 in regular grades . . . . .		1,906
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NOTE.—Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.



REAPPOINTMENTS.

27

Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,874
TEACHERS.—Entitled to 47 grade teachers, 2 teachers of special classes . . . . .	49
<i>Now serving on tenure</i> . . . . .	31
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Instructor, Special Class, Mary A. Gove; Assistants, Myrtle A. Bacon, Beatrice C. Blanchard, Julia W. Gavin, Inez S. Laurie, Rose G. Myerson . . . . .	6
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, E. Joseph Goulart; Assistants, Sigrid B. Anderson, M. Irene Bills, Naomi M. Caldwell, Josephine M. Gately, Florence J. Keelan, John L. Mayer, Cora M. Nicoll, Marion B. Nye, A. Florence Pow, Marguerite J. Rich . . . . .	11
	— 48
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	7
<i>Now serving on tenure</i> . . . . .	5
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Loyce I. Brandt . . . . .	1
	— 6

GILBERT STUART DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 962 in regular grades . . . . .	962
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	949
TEACHERS.— Entitled to 24 grade teachers . . . . .	24
<i>Now serving on tenure</i> . . . . .	14
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Eileen E. Kennally, Mary M. O'Mara . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Mabel L. Augusta, Mary V. Driscoll, Margaret M. Hayes, Alice M. P. Lanagan, Agnes C. Lavery, Muriel L. Staples . . . . .	6
	— 22
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	2
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Marjorie H. Bent . . . . .	1
	— 3

HANCOCK DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 73 in ungraded classes; 46 in special classes; 122 in special English classes; 39 in prevocational class; 66 in open-air classes; 1,868 in regular grades . . . . .	2,214
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NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	2,171
TEACHERS.— Entitled to 47 grade teachers, 2 teachers of ungraded classes, 3 teachers of special classes, 4 teachers of special English classes, 1 teacher of a prevocational class and 2 teachers of open-air classes . . . . .	59
<i>Now serving on tenure</i> . . . . .	48
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Helena E. Casey, Mary T. Dowling, Elizabeth Drea, Loretta R. Kelley, Sarah M. Logue, Margaret M. O'Connell, Mary L. Walsh . . . . .	7
	— 55
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	15
<i>Now serving on tenure</i> . . . . .	7
Appointed: <i>To serve during the pleasure of the School Committee.</i> — First Assistant, Carolyn B. Shattuck; Assistant, Ethel R. Hagerman . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — First Assistant, Elizabeth J. Mahoney; Assistants, Marjorie G. Short, Nellie M. Sullivan, Ruth G. Sullivan, Katherine D. Warren . . . . .	5
	— 14

## HARVARD DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 17 in special class; 641 in regular grades . . . . .	658
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	644
TEACHERS.— Entitled to 16 grade teachers, 1 teacher of a special class . . . . .	17
<i>Now serving on tenure</i> . . . . .	15
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, George H. Pearce; Instructor, Special Class, Elizabeth M. Hoar . . . . .	2
	— 17
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	3
<i>Now serving on tenure</i> . . . . .	3

## HENRY GREW DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 625 in regular grades . . . . .	625
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	602

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

TEACHERS.— Entitled to 15 grade teachers . . . . .	15
<i>Now serving on tenure</i> . . . . .	10
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Matilda I. Coveney, Bessie A. Lovewell, Margaret E. O'Connor, Florence P. Saunders . . . . .	4
	— 14
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve during the pleasure of the School Committee.</i> — First Assistant, Mary L. Hersey . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Florence N. Damon, Cornelia R. Hinkley . . . . .	2
	— 4

HENRY L. PIERCE DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 1,599 in regular grades . . . . .	1,599
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,584
TEACHERS.— Entitled to 40 grade teachers . . . . .	40
<i>Now serving on tenure</i> . . . . .	27
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Cora A. Banks, Margaret M. Fleming, . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, John J. Connolly; Assistants, Helen A. Barry, Marguerite T. Brooks, Anna M. Buckley, Elizabeth M. Carten, Alice M. P. Higgins, Mary E. Kennelly, Alice C. Manning, Ida M. Ridlon, Dora Slepian . . . . .	10
	— 39
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Mary M. McEttrick . . . . .	1
	— 4

HUGH O'BRIEN DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 19 in special class; 1,409 in regular grades . . . . .	1,428
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,409
TEACHERS.— Entitled to 35 grade teachers, 1 teacher of a special class . . . . .	36

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NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

<i>Now serving on tenure</i> . . . . .	29	
Appointed: <i>To serve during the pleasure of the School Com-</i> <i>mittee.</i> — Assistant, Marion O. Little . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Josephine V. Hogan, Emma A. McDonald, Evelyn L. Murphy, Katharine M. Murphy . . . . .	4	
	—	34
KINDERGARTENS.— Teachers.— Number entitled to . . . . .		4
<i>Now serving on tenure</i> . . . . .	2	
Appointed.— <i>To serve during the pleasure of the School Com-</i> <i>mittee.</i> — First Assistant, Clare S. English . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Beatrice W. Sadler . . . . .	1	
	—	4

## HYDE DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 17 in special class; 735 in regular grades . . . . .		752
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .		722
TEACHERS.— Entitled to 18 grade teachers, 1 teacher of a special class . . . . .		19
<i>Now serving on tenure</i> . . . . .	20	
Appointed: <i>To serve during the pleasure of the School Com-</i> <i>mittee.</i> — Master's Assistant, Jane Reid . . . . .	1	
	—	21
KINDERGARTENS.— Teachers.— Number entitled to . . . . .		5
<i>Now serving on tenure</i> . . . . .	3	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Ruth A. Gillis . . . . .	1	
	—	4

## JEFFERSON DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 15 in special class; 886 in regular grades . . . . .		901
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .		875
TEACHERS.— Entitled to 22 grade teachers, 1 teacher of a special class . . . . .		23
<i>Now serving on tenure</i> . . . . .	21	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, Francis A. O'Brien . . . . .	1	
	—	22

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistants, Emma L. Campbell, Esther B. Cavanagh . . . . .	2
	— 4

## JOHN A. ANDREW DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 40 in ungraded class; 1,060 in regular grades . . . . .	1,100
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,065
TEACHERS.— Entitled to 27 grade teachers, 1 teacher of an ungraded class . . . . .	28
<i>Now serving on tenure</i> . . . . .	24
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistant, Ruth M. Drury . . . . .	1
	— 25
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistant, Marion E. Jones . . . . .	1
	— 2

## JOHN CHEVERUS DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 17 in special class; 1,386 in regular grades . . . . .	1,403
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,383
TEACHERS.— Entitled to 34 grade teachers, 1 teacher of a special class . . . . .	35
<i>Now serving on tenure</i> . . . . .	27
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Mary E. Sheehan . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Instructor, Special Class, Eleanor A. Rowen; Assistants, Marie J. Alexander, Eleanor A. Dordoni, Ellen A. Leahy, Zetta Morrison, Margaret E. O'Brien . . . . .	6
	— 34
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	6
<i>Now serving on tenure</i> . . . . .	4
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistants, Mary E. Brazil, M. Loretta Kennedy . . . . .	2
	— 6

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

## JOHN WINTHROP DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 19 in special class; 1,549 in regular grades . . . . .	1,568
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,559
TEACHERS.—Entitled to 39 grade teachers, 1 teacher of a special class . . . . .	40
<i>Now serving on tenure</i> . . . . .	33
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Marjory T. Doherty, Catherine E. Lenihan, Margherita R. Milliken, Selma S. Stern . . . . .	4
	— 37
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve during the pleasure of the School Committee.</i> — First Assistant, Katherine E. Peard; Assistant, Alice B. Crosbie . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Sally S. Allen . . . . .	1
	— 4

## LAWRENCE DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 16 in special class; 92 in prevocational classes; 817 in regular grades . . . . .	925
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	900
TEACHERS.—Entitled to 21 grade teachers, 1 teacher of a special class; 2 teachers of prevocational classes . . . . .	24
<i>Now serving on tenure</i> . . . . .	19
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Ellen B. Donohoe, Mary J. Gomes, William G. O'Hare . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Instructor, Special Class, Annie Golden; Assistant, Margaret M. Biggy . . . . .	2
	— 24
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	1
<i>Now serving on tenure</i> . . . . .	1

## LEWIS DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 15 in special class; 60 in rapid advancement classes; 30 in prevocational class; 2,220 in regular grades . . . . .	2,325
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NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	2,279
TEACHERS.— Entitled to 55 grade teachers, 1 teacher of a special class, 2 teachers of rapid advancement classes, 1 teacher of a prevocational class . . . . .	59
<i>Now serving on tenure</i> . . . . .	33
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Alice T. Clark, Marguerite U. Dean, Hilda Reinstein . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Mary M. Byrne, Mary M. Callahan, Louise J. Chambers, Marion Church, Marguerite C. Cloney, Helen T. Cullen, Marion Goldstein, Mary E. Hagerty, Helen T. Hannon, Ruth Holland, Margaret E. Maloney, Mary A. McCool, Marion E. Mellen, Helen I. Mulliken, Mary G. Murray, Lillian C. O'Neil, Katherine M. Schubarth . . . . .	17
	— 53
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	6
<i>Now serving on tenure</i> . . . . .	2
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Florence E. Crowninshield . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Ethel M. Fallon, Gertrude L. Mazur, Pearl E. Whitcomb . . . . .	3
	— 6

LONGFELLOW DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 1,275 in regular grades . . . . .	1,275
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,267
TEACHERS.— Entitled to 32 grade teachers . . . . .	32
<i>Now serving on tenure</i> . . . . .	19
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Christina W. Burnet, Marion B. Foster . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Mildred A. Bamberg, Katharine M. Copithorne, Frances B. Dodge, Agnes J. Drea, Stella M. Ives, Emma S. Libourel, Dora Lipsitz, Mary O. Mackey, Helen G. Morgan, Gladys A. Ringer . . . . .	10
	— 31
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	2

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

## LOWELL DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 31 in special classes; 30 in open-air class; 1,056 in regular grades . . . . .	1,117
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,092
TEACHERS.— Entitled to 26 grade teachers, 2 teachers of special classes, 1 teacher of an open-air class . . . . .	29
Now serving on tenure . . . . .	23
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, Martin J. A. Foley; Instructor, Special Class, Eliza B. Bigelow; Assistant, Josephine L. Broderick . . . . .	3
	— 26
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	5
Now serving on tenure . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Edith H. Newcomb . . . . .	1
	— 4

## MARTIN DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 1,176 in regular grades . . . . .	1,176
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,116
TEACHERS.— Entitled to 29 grade teachers . . . . .	29
Now serving on tenure . . . . .	23
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Rose Bloom, Laura M. Campbell, Elizabeth L. Willis . . . . .	3
	— 26
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	6
Now serving on tenure . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Frances E. Fiske, Winnifred M. McEvoy, Helen G. Pepper . . . . .	3
	— 6

## MARY HEMENWAY DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 2,033 in regular grades . . . . .	2,033
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,996

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.



TEACHERS.— Entitled to 51 grade teachers . . . . .	51
<i>Now serving on tenure</i> . . . . .	31
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Alice B. Murphy, Eleanor Z. Walsh . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Louise F. Barry, Emily A. Brady, Charlotte L. Childs, Elizabeth A. Good, Madeline T. Goodale, Ellen C. Hennessey, John J. Lally, Alice G. Mason, Grace D. O'Brien, Bridget C. Ridge, Margaret M. Riley, Ethel M. Ruth, Helen R. Shaughnessy . . . . .	13
	— 46
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	5
<i>Now serving on tenure</i> . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Elizabeth M. Laurie . . . . .	1
	— 4

MATHER DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 18 in special class; 30 in rapid advancement class; 128 in prevocational classes; 2,142 in regular grades . . . . .	2,318
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	2,293
TEACHERS.— Entitled to 54 grade teachers, 1 teacher of a special class, 1 teacher of a rapid advancement class, 3 teachers of prevocational classes . . . . .	59
<i>Now serving on tenure</i> . . . . .	42
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Master's Assistant, Jennie E. Phinney; Assistants, Margaret M. Connelly, Louise B. Horgan . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, Raymond H. Young; Instructor, Special Class, Linna M. Ferrer, Assistants, Mary M. Cronin, Inez M. Jameson, Margaret B. Lynch, Marion A. Maguire, Gertrude N. Mendell, Dorothy C. O'Connor . . . . .	8
	— 53
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	5
<i>Now serving on tenure</i> . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Elizabeth B. Elcock, Evalyn M. Martin . . . . .	2
	— 4

MINOT DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 583 in regular grades . . . . .	583
--	-----

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	570
TEACHERS.— Entitled to 14 grade teachers . . . . .	14
<i>Now serving on tenure</i> . . . . .	9
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Master's Assistant, Mary L. Merrick . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Eleanor H. Matson, Katherine Moran, Marguerite T. Roncs . . . . .	3
—	13
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	1

## NORCROSS DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 43 in ungraded classes; 85 in open-air classes; 922 in regular grades . . . . .	1,050
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,035
TEACHERS.— Entitled to 23 grade teachers, 1 teacher of an ungraded class and 2 teachers of open-air classes . . . . .	26
<i>Now serving on tenure</i> . . . . .	23
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Helen T. Noonan . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Anne D. Allard . . . . .	1
—	25
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	4

## OLIVER HAZARD PERRY DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 18 in special class; 802 in regular grades . . . . .	820
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	788
TEACHERS.— Entitled to 20 grade teachers, 1 teacher of a special class . . . . .	21
<i>Now serving on tenure</i> . . . . .	17
Appointed: <i>To serve during the pleasure of the School Committee.</i> — First Assistant in Charge, Julia G. Leary . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Anne M. Cassidy . . . . .	1
—	19

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistant, Elizabeth Pishon . . . . .	1
	— 2

OLIVER WENDELL HOLMES DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 31 in special classes; 29 in rapid advancement class; 3,739 in regular grades . . . . .	3,799
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	3,710
TEACHERS.— Entitled to 93 grade teachers, 2 teachers of special classes and 1 teacher of a rapid advancement class,	96
<i>Now serving on tenure</i> . . . . .	61
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Submaster, James F. Rockett; Instructor, Special Class, Mary A. Burkhardt; Assistants, A. Grace Emery, Nellie R. McNair, Mary B. T. Oliver . . . . .	5
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Master's Assistant, Anna A. Maguire; First Assistant, Grammar, Mary H. Brick; Assistants, Jennie F. Boles, Sarah B. Brennan, Daisy E. Cohen, Miriam Cohen, Madeline M. Daley, Dorothy L. Devine, Mary M. Facey, Anna M. Galvin, Alice L. Gannon, Grace W. Gormley, Irene L. Hines, Katherine M. Kelly, Alice E. Manning, Margaret M. J. McAndrew, Marie E. Murray, Margaret J. O'Brien, Jeanette A. Wall . . . . .	19
	— 85
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	13
<i>Now serving on tenure</i> . . . . .	6
Appointed: <i>To serve for the term ending August 31, 1919.</i> — First Assistant, Ethel M. Lane; Assistants, Winifred R. Cavanagh, Ida M. Fields, Hattie E. Fisher, Charlotte M. McMorrovv . . . . .	5
	— 11

PHILLIPS BROOKS DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 16 in special class; 29 in rapid advancement class; 1,399 in regular grades . . . . .	1,444
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,434

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

TEACHERS.— Entitled to 35 grade teachers, 1 teacher of a special class and 1 teacher of a rapid advancement class . . . . .	37
<i>Now serving on tenure</i> . . . . .	24
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Eleanor P. Brawley, William F. Cannon, Delia M. Coneys, Charlotte Fawcet . . . . .	4
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, John M. McDonnell; Master's Assistant, Eunice C. Hearn; Instructor, Special Class, Helen F. Cummings; Assistants, Adelaide R. Burke, Mary A. Donovan, Nelly G. Fannon, Anna C. Gallagher, Adeline C. Leve . . . . .	8
—	36
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	6
<i>Now serving on tenure</i> . . . . .	4
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Helen M. Sughrue, Irene H. Walsh . . . . .	2
—	6

#### PRESCOTT DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 85 in prevocational classes; 12 in special class; 600 in regular grades . . . . .	697
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	675
TEACHERS.— Entitled to 15 grade teachers, 2 teachers of prevocational classes and 1 teacher of a special class . . . . .	18
<i>Now serving on tenure</i> . . . . .	16
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, Louis A. White; Instructor, Special Class, Maria T. Cogger . . . . .	2
—	18
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	1
<i>Now serving on tenure</i> . . . . .	1

#### PRINCE DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 993 in regular grades . . . . .	993
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	942
TEACHERS.— Entitled to 25 grade teachers . . . . .	25

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

<i>Now serving on tenure</i> . . . . .	19	
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Elsie R. Gilbert . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Constance Bisbee, M. Elizabeth Gay, Vera A. Kingsford . . . . .	3	
	—	23
KINDERGARTENS.— Teachers.— Number entitled to . . . . .		2
<i>Now serving on tenure</i> . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Marion E. Godfrey . . . . .	1	
	—	2

QUINCY DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 28 in ungraded class; 29 in special classes; 20 in special English class; 76 in prevocational classes; 99 in open-air classes; 752 in regular grades . . . . .		1,004
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .		971
TEACHERS.— Entitled to 19 grade teachers, 2 teachers of special classes, 2 teachers of prevocational classes, 3 teachers of open-air classes, 1 teacher of an ungraded class and 1 teacher of a special English class . . . . .		28
<i>Now serving on tenure</i> . . . . .	20	
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Lillian E. Goodwin, Louise H. Reardon, Ella J. Sullivan . . . . .	3	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Instructor, Special Class, Mildred E. Frazier; Assistants, Crystal D. Bird, Mary J. McLaughlin, Isabel J. Mulhern . . . . .	4	
	—	27
KINDERGARTENS.— Teachers.— Number entitled to . . . . .		10
<i>Now serving on tenure</i> . . . . .	5	
Appointed: <i>To serve during the pleasure of the School Committee.</i> — First Assistant, Edna K. Lane . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Alice L. Linnehan, Dorothy V. Madden, Maud B. Moore, T. Marion Parmelee . . . . .	4	
	—	10

RICE DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 25 in ungraded class; 830 in regular grades . . . . .		855
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NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	• 843
TEACHERS.— Entitled to 21 grade teachers, 1 teacher of an ungraded class . . . . .	22
<i>Now serving on tenure</i> . . . . .	17
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Mary A. C. Doyle, Lillian E. Enos, Kathleen G. Tobin . . . . .	3
	— 20
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	1
Appointed: <i>To serve during the pleasure of the School Committee.</i> — First Assistant, Margaret M. Riley . . . . .	1

## ROBERT G. SHAW DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 1,271 in regular grades . . . . .	1,271
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,235
TEACHERS.— Entitled to 32 grade teachers . . . . .	32
<i>Now serving on tenure</i> . . . . .	17
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Submaster, Leroy K. Houghton; Assistants, Catherine T. Hunt, Helen F. Hurley, Mary E. Mulkern . . . . .	4
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Mary L. Bradley, Marion E. Curley, Eleanor P. FitzGerald, Bertha O. Ives, Mary M. Lordan, Elizabeth M. Moody, E. Priscilla Mullan, Margaret F. Murray . . . . .	8
	— 29
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Muriel E. Lowell . . . . .	1
	— 3

## ROGER WOLCOTT DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 2,601 in regular grades . . . . .	2,601
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	2,548
TEACHERS.— Entitled to 65 grade teachers . . . . .	65

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

<i>Now serving on tenure</i> . . . . .	30	
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Frances G. R. Brady, Eugenie M. Hanney . . . . .	2	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — First Assistant, Grammar, Mary G. Woodman; Assistants, Rose Arenson, Alvia A. Colton, Irene E. Cox, Esther E. Cunningham, Florence Driscoll, Marguerite Elliott, Frances A. Flynn, Regina Hearn, Dorothy Kalker, Marion R. Kanter, Lillian H. Kenney, Anna B. Klein, Mary C. Levins, Helen F. McGlinchy, Pauline E. Miley, Jessie G. Ogilvie, Gertrude M. Reilly, Eileen E. Rogers, Alice K. Rourke, Dora F. Smith, Gertrude A. Smith, Miriam G. Smith, Ellen G. Sullivan, Esther P. Thumim, Edith A. West . . . . .	26	58
	—	
KINDERGARTENS.— Teachers.— Number entitled to . . . . .		11
<i>Now serving on tenure</i> . . . . .	4	
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Frances Blumberg . . . . .	1	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — First Assistant, Mary L. Walsh; Assistants, Lillian Cherry, Louise E. Coyle, Mary A. Norton, Maria L. Whittridge . . . . .	5	
	—	10

SAMUEL ADAMS DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 15 in special class ; 21 in special English class; 2,321 in regular grades . . . . .		2,357
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .		2,300
TEACHERS.— Entitled to 58 grade teachers, 1 teacher of a special class and 1 teacher of a special English class . . . . .		60
<i>Now serving on tenure</i> . . . . .	35	
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Instructor, Special Class, Agnes F. Dillingham; Assistants, Margaret M. F. Conley, Mabel F. Dunn, Selma C. Gronquist, James E. Welch, Jr. . . . .	5	
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, Peter A. Landrigan; Assistants, Jeanette Ascillo, Luetta C. Bolan, Minnie Colitz, Adeline R. Cropper, Mary E. Driscoll, Margaret F. Duffy, Gertrude M. Finn, A. Loretta Garrity, Bessie M. Lassen, Helen C. M. Lynch, John J. Mahoney, Annie V. McGonagle, Ruth B. Sharkey, Dorothy S. Starratt . . . . .	15	
	—	55

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

KINDERGARTENS.— Teachers.— Number entitled to . . . . .	14
<i>Now serving on tenure</i> . . . . .	7
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Edith M. Anderson, Frances M. Brierly, Gladys L. Brown, Anna H. Drown, Frances M. Miley . . . . .	5
—	12

## SHERWIN DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 112 in special classes; 77 in prevocational classes; 742 in regular grades . . . . .	931
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	911
TEACHERS.— Entitled to 18 grade teachers, 7 teachers of special classes and 2 teachers of prevocational classes . . . . .	27
<i>Now serving on tenure</i> . . . . .	21
Appointed: <i>To serve during the pleasure of the School Com- mittee.</i> — Instructor, Special Class, Helen J. Roberts . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, William P. McDonough; Instructors, Special Classes, Anna C. Murdock, Anna E. Murphy, Emily A. Gunn, Grace A. Taylor; Assistants, William S. Lenihan, Mildred C. Sullivan . . . . .	7
—	29
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve during the pleasure of the School Com- mittee.</i> — Assistant, Mary D. Linnehan . . . . .	1
—	2

## SHURTLEFF DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 40 in ungraded class; 748 in regular grades . . . . .	788
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	775
TEACHERS.— Entitled to 19 grade teachers, 1 teacher of an ungraded class . . . . .	20
<i>Now serving on tenure</i> . . . . .	13
Appointed: <i>To serve during the pleasure of the School Com- mittee.</i> — Assistants, Helen T. Coholan, Olga H. Pavlick . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Sadie G. Kennedy, Agnes C. Loughlin, Marie C. Reardon, Anastasia K. White . . . . .	4
—	19

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.



KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistant, Adelaide W. Andrews . . . . .	1
	— 2

THEODORE LYMAN DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 19 in special class; 111 in prevocational classes; 1,311 in regular grades . . . . .	1,441
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,402
TEACHERS.— Entitled to 33 grade teachers, 1 teacher of a special class and 3 teachers of prevocational classes . . . . .	37
<i>Now serving on tenure</i> . . . . .	16
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Instructor, Special Class, Clara A. Burgess; Assistants, Mary G. Cropper, Margaret J. Lynch . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, E. Cecilia Bowen, Lillian R. Burk, Elizabeth O. Coffin, Bessie M. Cosgrove, Mildred M. Doyle, Louisa A. Gilbert, Kathryn M. Goff, Veronica R. Grant, Ethel M. Hiltz, Anna L. Lawler, Grace A. T. Lonergan, John J. Murray, Theresa A. Ratta, Louise W. Vaughan . . . . .	14
	— 33
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	7
<i>Now serving on tenure</i> . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — First Assistant, Celia T. Tischler; Assistants, Catherine Cohen, Helen E. Freedman, Eva A. Sanger . . . . .	4
	— 6

THOMAS GARDNER DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 1,378 in regular grades . . . . .	1,378
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,356
TEACHERS.— Entitled to 34 grade teachers . . . . .	34
<i>Now serving on tenure</i> . . . . .	25
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistants, Nellie F. Bates, Annette Campbell, Margaret C. Smith, Edith K. Smythe . . . . .	4
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, Walter C. Winston; Assistants, Alice P. George, Alice M. Smith . . . . .	3
	— 32

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

KINDERGARTENS.— Teachers.— Number entitled to . . . . .	7
<i>Now serving on tenure</i> . . . . .	3
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Nye W. Griffiths . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Flora E. Ellis . . . . .	1
	— 5

## THOMAS N. HART DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 15 in special class; 1,018 in regular grades . . . . .	1,033
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,020
TEACHERS.— Entitled to 25 grade teachers, 1 teacher of a special class . . . . .	26
<i>Now serving on tenure</i> . . . . .	23
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, Charles A. A. Weber; Assistant, Emma M. Gardner . . . . .	2
	— 25
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve during the pleasure of the School Committee.</i> — First Assistant, Lillian A. Smith . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Ruth B. Todd, Florine K. Williamson . . . . .	2
	— 4

## ULYSSES S. GRANT DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 18 in special class; 1,179 in regular grades . . . . .	1,197
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,187
TEACHERS.— Entitled to 29 grade teachers, 1 teacher of a special class . . . . .	30
<i>Now serving on tenure</i> . . . . .	18
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Sarah N. Boyce . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Submaster, Frederick J. Murphy; Instructor, Special Class, Edith M. Perry; Assistants, Catherine M. Burke, Joanna Z. Connell, Sara E. Kirwen, Esther E. Larson, Ruth I. Larson, Ethel F. Love, John F. Lynch, Katherine A. Mahoney . . . . .	10
	— 29

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

KINDERGARTENS.— Teachers.— Number entitled to . . . . .	6
<i>Now serving on tenure</i> . . . . .	4
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistant, Josephine McCarthy . . . . .	1
—	5

WARREN DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 974 in regular grades . . . . .	974
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	945
TEACHERS.— Entitled to 24 grade teachers . . . . .	24
<i>Now serving on tenure</i> . . . . .	17
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistants, Mildred F. Carroll, Elizabeth M. Hayes, Elizabeth A. Killion, Loretta I. McDonough, Beatrice M. McNally . . . . .	5
—	22
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	4
<i>Now serving on tenure</i> . . . . .	3

WASHINGTON DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 16 in special class; 28 in special English class; 38 in open-air class; 1,564 in regular grades . . . . .	1,646
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,581
TEACHERS.— Entitled to 39 grade teachers, 1 teacher of a special class, 1 teacher of an open-air class and 1 teacher of a special English class . . . . .	42
<i>Now serving on tenure</i> . . . . .	34
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Assistant, Eva M. Rogerson . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Submaster, James E. Lynch; Instructor, Special Class, Flora E. Hinman; Assistants, Alice E. Gibbons, M. Frances McNellis, Annie E. Molloy . . . . .	5
—	40
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	5
<i>Now serving on tenure</i> . . . . .	3
Appointed: <i>To serve for the term ending August 31, 1919.</i> —	
Assistant, Josephine L. Cauley . . . . .	1
—	4

NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

## WASHINGTON ALLSTON DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,—1,033 in regular grades . . . . .	1,033
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	989
TEACHERS.—Entitled to 26 grade teachers . . . . .	26
<i>Now serving on tenure</i> . . . . .	19
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Florence A. Cose, Jane V. Gearon, Mary E. Loughman, Mary F. Reagan, Edith B. Ricles . . . . .	5
	— 24
KINDERGARTENS.—Teachers.—Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistant, Florence M. Stern . . . . .	1
	— 2

## WELLS DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,—30 in ungraded class; 32 in special class; 65 in open-air class; 1,663 in regular grades . . . . .	1,790
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,770
TEACHERS.—Entitled to 42 grade teachers, 1 teacher of an ungraded class, 2 teachers of special classes and 1 teacher of an open-air class . . . . .	46
<i>Now serving on tenure</i> . . . . .	37
Appointed: <i>To serve during the pleasure of the School Committee.</i> —Assistant, Eleanor T. Cummings . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Instructor, Special Class, Odessa B. Forknall; Assistants, Margaret G. Ford, Gertrude R. Lynch, Elizabeth J. Miley, Louise K. Morss, Margaret G. Stanwood, Laura B. Tolman, . . . . .	7
	— 45
KINDERGARTENS.—Teachers.—Number entitled to . . . . .	8
<i>Now serving on tenure</i> . . . . .	5
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Assistants, Mathilde L. Hackebarth, Marie L. Hayes, Lydia W. Howes . . . . .	3
	— 8

## WENDELL PHILLIPS DISTRICT.

ELEMENTARY GRADES.—Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,—58 in ungraded class; 90 in special English class; 1,208 in regular grades . . . . .	1,356
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NOTE.—Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	1,310
TEACHERS.— Entitled to 31 grade teachers, 1 teacher of an ungraded class and 3 teachers of special English classes . . . . .	35
<i>Now serving on tenure</i> . . . . .	28
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Submaster, William H. Ryan . . . . .	1
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Instructors, Special Class, Alice Meston, Frances E. Webster; Assistants, Margaret E. Kerrigan, Mary E. Manning, Minnie Silverman, Ruth H. Soelle . . . . .	6
	— 35

WILLIAM E. RUSSELL DISTRICT.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918,— 16 in special class; 914 in regular grades . . . . .	930
Average number of pupils belonging for the period September 1, 1917, to April 1, 1918 . . . . .	909
TEACHERS.— Entitled to 23 grade teachers, 1 teacher of a special class . . . . .	24
<i>Now serving on tenure</i> . . . . .	22
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Instructor, Special Class, Catherine E. Reardon . . . . .	1
	— 23
KINDERGARTENS.— Teachers.— Number entitled to . . . . .	2
<i>Now serving on tenure</i> . . . . .	2

UNASSIGNED TEACHER.

ELEMENTARY GRADES.— Appointed: *To serve for the term ending August 31, 1919.*— Assistant, Ellen S. Bloomfield.

SPEECH IMPROVEMENT CLASSES.

*Classes for Stammerers.*

<i>Now serving on tenure</i> . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Instructors, Mary A. J. Brady, Mary L. Holland . . . . .	2
	— 4

HORACE MANN SCHOOL.

ELEMENTARY GRADES.— Largest number of pupils belonging on any one day between September 1, 1917, and April 1, 1918 . . . . .	148
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NOTE.— Number of teachers to which a district is "entitled" is given upon the basis of forty pupils per teacher. (See page 4.) For the retention of teachers in the districts to which they are now assigned the minimum ratio of pupils to a teacher is forty-two in the fall months.

TEACHERS.— Entitled to 15 grade teachers . . . . .	15
<i>Now serving on tenure</i> . . . . .	14

## MANUAL ARTS.

<i>Now serving on tenure</i> . . . . .	8
--	---

## MANUAL TRAINING.

<i>Now serving on tenure</i> . . . . .	51
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Prevocational Instructors, Edward D. Dee, Andrew J. Leahy; Assistant Instructors in Manual Training, Kate Coney, Amalia F. Grutzbach, A. Elizabeth F. Morse . . . . .	5
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Prevocational Instructors, Bertram L. Affleck, Norman P. Barker, Peter J. Eagan, Frederick L. Eames, John A. Fisher, William P. Grady, Carl E. Janson, Francis V. Kenney, John Knight, John A. Lane, Walter F. Perry, William M. Rogers, George W. Rose, Patrick J. Smith, Alden T. Stubbs, Orren R. Tarr; Shopwork Instructors, George Adamson, W. Russell Bradford, J. Maynard Cheney, Arthur G. Hamilton, Edward W. Malone, William E. O'Connor, Frederick E. Rau, Percy R. Stewart, Arvid J. Wahlstrom, Francis O. Wood, William L. Young; Assistant Instructors in Manual Training, Caroline K. Blackburn, Teresa F. Gleason, Lettie R. Moore; Prevocational Assistant, Claire A. Bulger . . . . .	31
—	87

## HOUSEHOLD SCIENCE AND ARTS.

*Cookery.*

<i>Now serving on tenure</i> . . . . .	35
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Alice G. Caine, Agnes L. Callaghan, Alice W. Clement, Ernestine Y. Cox, Mary M. Curry, Mary M. Giblin, Agnes E. Perkins, Catharine Sheehan, Alberta M. Whitney . . . . .	9
—	44

*Sewing.*

<i>Now serving on tenure</i> . . . . .	48
Appointed: <i>To serve during the pleasure of the School Committee.</i> — Mary E. Gannon, Mary J. Mullen . . . . .	2
Appointed: <i>To serve for the term ending August 31, 1919.</i> — Mary L. Bishop, Catharine C. Cogan, Clara D. Crandall, Grace V. Doherty, Ethel M. Hill, Mary B. Howard, Helen F. Kelly, Helen MacNeil, Marie L. Maguire, Mary A. F. Malloy, Catherine L. Murray, Mary A. Shane, Helen R. Smith, Margaret H. Sullivan . . . . .	14
—	64

*Music.*

<i>Now serving on tenure</i> (assistants) . . . . .	6	
<i>Appointed: To serve for the term ending August 31, 1919.—</i> Assistants, Cecelia M. Bainton, Emma C. Diehm, Ruth B. Mitchell . . . . .	3	— 9

VOCATIONAL GUIDANCE.

<i>Appointed: To serve for the term ending August 31, 1919.—</i> Vocational Assistants, Charles A. Coburn, Eleanor J. O'Brien, Irving O. Scott . . . . .	3	
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## PART III.

REAPPOINTMENTS OF TEACHERS OF PHYSICAL  
TRAINING AND MILITARY DRILL.

## PHYSICAL TRAINING.

Appointed: *To serve for the term ending August 31, 1919.*—  
Instructor in Physical Training, James H. Crowley . . . 1

## MILITARY DRILL.

*Now serving on tenure* . . . . . 3

PHYSICAL TRAINING INSTRUCTORS IN NORMAL, LATIN,  
DAY HIGH AND INDUSTRIAL SCHOOLS.

*Now serving on tenure:*

Girls' Latin School . . . . .	1
Brighton High School . . . . .	1
Girls' High School . . . . .	2
Roxbury High School . . . . .	1
West Roxbury High School . . . . .	1

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6

Appointed: *To serve during the pleasure of the School Committee.*—South Boston High School, Instructor in Physical Training, Florence M. Young . . . . . 1

Appointed: *To serve for the term ending August 31, 1919.*—  
Normal School, Instructor in Physical Training, Lulu A. Donovan.

Charlestown High School, Instructor in Physical Training,  
Mary F. Birch.

Dorchester High School, Instructor in Physical Training,  
Helen G. Dolan; Assistant Instructors in Physical Train-  
ing, Josephine U. Heffernan, Cyrilla R. Mitsch.

East Boston High School, Instructor in Physical Training,  
Pauline Bromberg.

Girls' High School, Assistant Instructor in Physical Training,  
Margaret L. McCarthy.

High School of Practical Arts, Instructor in Physical Train-  
ing, Bessie W. Howard.



Hyde Park High School, Instructor in Physical Training,  
Agnes S. Thompson.

Roxbury High School, Assistant Instructor in Physical Train-  
ing, Mary E. Johnson.

South Boston High School, Assistant Instructor in Physical  
Training, Angela C. McManus.

West Roxbury High School, Assistant Instructor in Physical  
Training, Katharine French.

12

— 19

Respectfully yours,

FRANKLIN B. DYER,  
*Superintendent of Public Schools.*



SCHOOL DOCUMENT NO. 4-1918  
BOSTON PUBLIC SCHOOLS

CANDIDATES ELIGIBLE FOR  
APPOINTMENT AS TEACHERS

JULY, 1918



CITY OF BOSTON  
PRINTING DEPARTMENT  
1918



# CONTENTS.

	PAGE
Class-room Inspection of Candidates . . . . .	5
Assistant Nurses: Regulations with Respect to <b>Appointment, Transfer</b> and Removal of Teachers Applicable to . . . . .	6
Appointments from Eligible Lists . . . . .	6
Appointments not Governed by Eligible Lists . . . . .	6
Age Limitation for Appointment . . . . .	7
Dates of Certificate Examinations . . . . .	7
Citizenship Requirements . . . . .	7
Re-examination for Certificates . . . . .	7
Removals and Restorations of Names <b>from and to Eligible Lists</b> . . . . .	8
Change in Rating by Re-examination . . . . .	9
Normal School Graduates May Obtain Ratings on <b>Examined Lists</b> . . . . .	9
Expiration and Revocation of Certificates . . . . .	9
Temporary Certificates and Licenses . . . . .	11
Eligible Lists Mailed Candidates . . . . .	11
Eligible Lists:	
<b>High School Certificates:</b>	
Ancient Languages . . . . .	12
Botany — Zoology . . . . .	12
Commercial Branches . . . . .	12
Economics . . . . .	12
English . . . . .	13
French . . . . .	13
German . . . . .	14
History . . . . .	14
Mathematics . . . . .	14
Physics — Chemistry . . . . .	15
Salesmanship . . . . .	15
Spanish . . . . .	15
High School Special Certificate . . . . .	16
<b>Special Certificates Valid in Day High Schools:</b>	
Commercial Branches . . . . .	16
Manual Arts . . . . .	17
Physical Training . . . . .	17
Salesmanship . . . . .	18
Vocational Assistant . . . . .	18
Industrial Instructors, Day High Schools Certificates . . . . .	18
Day Clerical School Certificate . . . . .	18
Junior Assistant, Day High Schools Certificate . . . . .	19
Normal School Elementary Certificate, 1918 . . . . .	21
Normal School Elementary Certificates, Prior to 1918 . . . . .	24
<b>Elementary Certificates, Examined Candidates:</b>	
Intermediate . . . . .	28
Class A (Men) . . . . .	29
Class B . . . . .	29

	PAGE
Kindergarten Certificates:	
Normal, Kindergarten — Primary, 1918 . . . . .	30
Examined Candidates . . . . .	31
Special Certificates Valid in Elementary Schools:	
Cookery . . . . .	32
Sewing . . . . .	32
Manual Training:	
Modeling . . . . .	32
Shopwork . . . . .	33
Woodworking . . . . .	33
Prevocational Academic . . . . .	33
Special Class Certificates:	
First Assistant in Charge . . . . .	33
Assistants . . . . .	33
Continuation School Certificates:	
Class A (Boys' Classes) . . . . .	33
Assistants . . . . .	33
Day and Evening Industrial Schools Certificates:	
Trade and Technical Instructors . . . . .	34
Non-Vocational Subjects . . . . .	36
Physical Training . . . . .	36
Assistant Director of Manual Arts Certificate . . . . .	36
Assistant in Manual Arts Certificate . . . . .	36
Instructor or Assistant Instructor of Military Drill . . . . .	37
Assistant Nurse Certificate . . . . .	37

BOSTON PUBLIC SCHOOLS,  
OFFICE OF BOARD OF SUPERINTENDENTS,  
MASON STREET, July, 1918.

This document comprises the thirteenth list of candidates eligible for appointment to permanent positions in the public day schools of Boston, revised and completed to date. It contains the names of all candidates included in the list issued in July, 1917, who have not yet been appointed to permanent positions in the service, and whose certificates are still valid, with the exception of those who have asked that their names be omitted from this list. It also contains the names of persons who have successfully passed examinations held since that date, including Boston Normal School graduates of June, 1918.

Graduates of the Boston Normal School prior to June, 1918, whose names are entered in this list, have been regraded by the Board of Superintendents in accordance with the rules of the School Committee (section 141, paragraph 2), and their present ratings supersede those given in the 1917 list.

CLASS-ROOM INSPECTION OF CANDIDATES FOR CERTIFI-  
CATES OF QUALIFICATION.

The plan for the class-room inspection of candidates for certificates of qualification, established in January, 1913, has been continued, and all candidates certificated this year for permanent day school service have been visited in the class room by a member of the Board of Superintendents, with the exception of those whose original examination included a demonstration lesson. The results of the class-room demonstrations are given weight in determining the credit to be allowed for "Experience in Teaching."

## ASSISTANT NURSES.

This document also contains the names of candidates for appointment as assistant nurses in the public schools. The regulations of the School Committee with respect to the appointment, reappointment, assignment, transfer, removal, tenure of office, and marriage of teachers apply in general to nurses, and their certificates cease to be valid in accordance with the regulations governing the expiration and revocation of teachers' certificates of qualification.

## APPOINTMENTS FROM THE ELIGIBLE LISTS.

Except as hereinafter provided, no person may be appointed to a permanent position as a teacher or member of the supervising staff whose name does not head the proper eligible list and who is willing to accept such appointment; provided, that if in the opinion of the Superintendent there is good reason why such person should not be appointed, he shall so certify to the Board, whereupon the same procedure shall be followed with respect to the second person on the list; but the person appointed shall be one of the first three on said list willing to accept appointment.

These restrictions do not affect the promotion of a permanent teacher to a higher rank in a school of the same class as that in which the teacher is already employed.

## APPOINTMENTS NOT GOVERNED BY ELIGIBLE LISTS.

Appointments as principal of a school or district, as director, associate director, or assistant director of a special subject or department, as supervisor or assistant supervisor of a special subject or department, as teacher in the Normal School, as instructor of military drill, as medical inspector of special classes, as supervising nurse, as temporary teacher, as substitute, as special assistant, as teacher in the evening schools, are not governed by the eligible lists.



## AGE LIMITATION.

No person may be appointed to a permanent position as teacher or member of the supervising staff in accordance with the provisions of the foregoing paragraphs to take effect later than the thirtieth day of June following the fortieth birthday of such person; provided, that this limitation shall not affect the promotion of a permanent teacher to any position in the public schools, nor the validity of certificates issued prior to January 1, 1909.

## DATES OF CERTIFICATE EXAMINATIONS.

The Board of Superintendents annually conducts examinations of candidates for appointment as members of the supervising staff and as teachers in the public schools.

The 1918 examinations for evening school certificates will be held on Friday, September 6, at the Boston Normal School-house, Huntington avenue, near Longwood avenue.

The 1919 examinations for day school certificates of qualification will be held during the week beginning Monday, January 27, at the Boston Normal School-house, Huntington avenue, near Longwood avenue.

Other examinations may be held whenever, in the opinion of the Superintendent, the needs of the schools require.

## CITIZENSHIP REQUIREMENTS.

The Board of Superintendents shall not admit to certificate examinations persons who are not citizens of the United States, or, in the case of women, unless they have filed their declaration of intention to become citizens.

## RE-EXAMINATION FOR CERTIFICATES.

A person taking more than one examination of the same class is rated on the eligible list of that class solely upon the results of the latest examination; provided, that holders of the certificate of qualification IV. High

School and the certificate XXV. Junior Assistant, Day High Schools, may, by re-examination, obtain a rating in more than one group under said certificates; and provided, further, that if a person holding a valid certificate of qualification shall be re-examined for a certificate of the same grade and shall obtain a rating lower than that held at the time of such re-examination, he may, in the discretion of the Board of Superintendents, retain his original rating, with date of expiration of certificate unchanged.

Detailed information with regard to examinations may be obtained in advance by application to the Secretary of the School Committee.

#### REMOVALS AND RESTORATIONS OF NAMES FROM AND TO ELIGIBLE LISTS.

The names of persons holding certificates which include certificates of a lower grade may, upon request, be included in the eligible list of such lower grade or grades according to the rating of such holders of certificates in their respective examinations, but they shall not be entitled to a higher rating on such lower list or lists by reason of their holding higher grade certificates.

The names of persons appointed to permanent positions in the day school service are removed from the eligible lists.

A person whose name appears upon the eligible lists may, upon request, have the same removed therefrom at any time, and may have it restored to the next eligible lists in June of any year during the life of the certificate, upon written application, with the same rating as before; or, if a graduate of the Boston Normal School, with such re-rating as the Board of Superintendents may determine; provided, that such restoration shall not operate to extend the original period for which the certificate is valid.

The names of persons appointed as substitutes, temporary teachers, special assistants, or as teachers in the

evening schools, are not removed from their respective eligible lists because of such appointment.

The name of any person who has refused three offers of permanent employment shall be dropped from the eligible list for the current school year. The name of any person who has failed of appointment on three separate occasions when another person on the same list has been selected and appointed, shall be removed therefrom and shall not be restored thereto except by another examination.

#### CHANGE IN RATING.

Persons whose names appear on any eligible list and who desire to have their ratings changed, may have this done by passing another examination.

#### NORMAL SCHOOL GRADUATES MAY OBTAIN RATING UPON OTHER LISTS.

Boston Normal School graduates may obtain positions on the regular Elementary, Class B list by passing the prescribed examination. In that event they will be rated on the "Examined List" according to the results of such examination, and their names will be removed from the list of holders of Normal School certificates.

#### EXPIRATION AND REVOCATION OF CERTIFICATES.

Certificates issued on examination after June 1, 1906, cease to be valid on the thirtieth day of June of the sixth year following the date of issue; provided, that no certificate shall remain valid after the thirtieth day of June next following the fortieth birthday of the holder thereof, except as hereinafter specified. This limitation as to age does not affect the validity of certificates which do not render the holders eligible for appointment to permanent positions as members of the supervising staff or as teachers in the public schools, nor the validity of certificates issued to permanent teachers in the public schools.

Certificates issued on examination prior to June 1, 1906, ceased to be valid on the thirtieth day of June of the second year following the date of issue, except as hereinafter provided.

\* Certificates issued to graduates of the Boston Normal School prior to June 1, 1906, ceased to be valid June 30, 1912, except as hereinafter specified.

\* Certificates issued to graduates of the Boston Normal School after June 1, 1906, cease to be valid on the thirtieth day of June of the sixth year following the date of issue, except as hereinafter provided.

Certificates issued on examination prior to June 1, 1906, and valid on that date by reason of renewal or of service in the Boston public schools, ceased to be valid June 30, 1908, except that regular high school certificates held by teachers serving during the year ending June 30, 1906, in permanent positions in the elementary day schools of Boston, ceased to be valid June 30, 1912, except as hereinafter provided.

The validity of certificates issued prior to June 1, 1906, which include positions in day schools of a different class, but which also include the position in which the holder thereof is employed, expired with respect to such day schools of a different class on June 30, 1912; nor does the validity of any certificate issued after June 1, 1906, extend beyond the thirtieth day of June of the sixth year following the date of issue by reason of the service of the holder thereof in schools of a different class than that in which the holder is employed.

All certificates under which appointments are made to permanent positions in the day school service, and certificates of a higher grade, but including the position in which the holder thereof is employed, remain valid with respect to the class of schools in which the holder thereof is employed during the term of such service.

All certificates, except those under which appoint-

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\* By action of the School Committee on April 22, 1912, the validity of Normal School certificates issued in June, 1906, and prior to that date, was extended to June 30, 1913, with the distinct understanding that under no circumstances shall the validity of other certificates as now determined by the rules be extended.

ments are made to permanent positions in the day school service, cease to be valid when the names of the holders are removed from the eligible lists.

Any certificate may be revoked by the Board of Superintendents if, in its opinion, the good of the service so demands.

TEMPORARY CERTIFICATES AND LICENSES.

All certificates are non-renewable, but the Board of Superintendents may issue instead thereof temporary certificates or licenses under such conditions as that Board may determine, which entitle the holders to serve in temporary positions of such rank and in such schools as may be specified:

Temporary certificates are valid for such length of time as the Board of Superintendents may determine, but not beyond the thirtieth day of June of the sixth year following the date of issue. Licenses may not extend beyond the thirty-first day of August of the second year following the date of issue.

ELIGIBLE LISTS MAILED CANDIDATES.

A copy of the eligible lists, as soon as printed, is mailed to persons whose names appear thereon.

THORNTON D. APOLLONIO,

*Secretary.*

## HIGH SCHOOL CERTIFICATES.

## ANCIENT LANGUAGES.

*Men.*

Rating.	Name.	Certificate Expires
912	Carroll H. May . . . . .	June 30, 1919
902	Charles Jones . . . . .	" 30, 1923
812	Wayne M. Shipman . . . . .	" 30, 1920

*Women.*

861	Anna A. Raymond . . . . .	June 30, 1920
794	Helen J. Goodspeed . . . . .	" 30, 1920
782	Mildred E. Smith . . . . .	" 30, 1921
780	Mildred E. Hastings . . . . .	" 30, 1922

## BOTANY-ZOOLOGY.

*Men.*

817	Thomas P. Dooley . . . . .	June 30, 1924
816	Walter S. Atwood . . . . .	" 30, 1921

*Women.*

786	Isabel McClare O'Connor . . . . .	June 30, 1919
760	Harriett A. Sleeper . . . . .	" 30, 1921

## COMMERCIAL BRANCHES.

## BOOKKEEPING AND COMMERCIAL ARITHMETIC.

*Men.*

743	Leo T. Foster . . . . .	June 30, 1923
723	Gregory J. Scanlon . . . . .	" 30, 1921
721	Harry C. Northrop . . . . .	" 30, 1923

*Women.*

735	Mary G. Hickey . . . . .	June 30, 1923
723	Caroline H. McCarthy . . . . .	" 30, 1924

## PHONOGRAPHY AND TYPEWRITING.

*Men.*

736	John H. Finn . . . . .	June 30, 1922
726	Thomas A. Scanlon . . . . .	" 30, 1924

*Women.*

746	Edith E. Bennett . . . . .	June 30, 1922
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## ECONOMICS.

*Men.*

783	Miah J. Falvey . . . . .	June 30, 1923
752	John A. Bergin . . . . .	" 30, 1922

## High School Certificates (Continued).

Rating.	Name.	Certificate Expires
<i>Women.</i>		
739	Mary J. Mohan . . . . .	June 30, 1922
ENGLISH.		
<i>Men.</i>		
827	William B. Corbett . . . . .	June 30, 1923
825	Carroll W. Robinson . . . . .	" 30, 1923
801	Ralph W. Taylor . . . . .	" 30, 1922
794	Maurice Ferber . . . . .	" 30, 1922
761	Alexander W. Miller . . . . .	" 30, 1922
753	Harold W. Gammans . . . . .	" 30, 1920
753	Leo H. Grueter . . . . .	" 30, 1923
710	Thomas W. Sheehan . . . . .	" 30, 1921
<i>Women.</i>		
856	Mary M. Devlin . . . . .	June 30, 1923
849	Frances Burnce . . . . .	" 30, 1923
846	Marion L. Sharp . . . . .	" 30, 1919
846	Marjorie G. Smith . . . . .	" 30, 1923
837	Flora E. Billings . . . . .	" 30, 1923
831	Elaine S. Whitman . . . . .	" 30, 1922
825	Alice L. Crockett . . . . .	" 30, 1919
825	Alice E. Murphy . . . . .	" 30, 1924
824	Miriam N. Marsh . . . . .	" 30, 1921
822	Catharine B. Beatley . . . . .	" 30, 1922
820	Alice A. Brophy . . . . .	" 30, 1921
807	Bessie H. Jaques . . . . .	" 30, 1920
804	Floralyn Cadwell . . . . .	" 30, 1921
802	May E. Gould . . . . .	" 30, 1919
798	Sophia M. Palm . . . . .	" 30, 1923
788	Ellen A. Barry . . . . .	" 30, 1923
768	Olive A. Beveridge . . . . .	" 30, 1922
767	Lillian M. Smith . . . . .	" 30, 1921
763	Margaret M. Sallaway . . . . .	" 30, 1923
762	Edna T. Wilson . . . . .	" 30, 1920
754	Marion B. Lincoln . . . . .	" 30, 1921
FRENCH.		
<i>Men.</i>		
775	Herbert F. Hartwell . . . . .	June 30, 1920
732	Albert W. Hopson . . . . .	" 30, 1919
<i>Women.</i>		
848	Julia A. Dorrington . . . . .	June 30, 1920
847	Edith M. Gartland . . . . .	" 30, 1924
824	Myra H. A. Marshall . . . . .	" 30, 1920
821	Elizabeth I. O'Neill . . . . .	" 30, 1922

**High School Certificates (Continued).**

Rating.	Name.	Certificate Expires
816	Ethel G. McElroy . . . . .	June 30, 1920
803	Gertrude Karman . . . . .	" 30, 1920
776	Mabel F. Knight . . . . .	" 30, 1919
771	Edith H. Bradford . . . . .	" 30, 1923
769	Hazel W. Ruggles . . . . .	" 30, 1924
739	Eva H. Williams . . . . .	" 30, 1919
714	Anna F. Walsh . . . . .	" 30, 1922
704	Marietta L. Kirby . . . . .	" 30, 1920

**GERMAN.**

859	Helen M. Fitzgerald . . . . .	June 30, 1923
812	Eleanor L. Cox . . . . .	" 30, 1920
774	Katharine M. Schubarth . . . . .	" 30, 1922

**HISTORY.**

*Men.*

910	Wilfred F. Kelley . . . . .	June 30, 1924
888	Warren C. Johnson . . . . .	" 30, 1923
888	Earl S. Lewis . . . . .	" 30, 1923
885	Edmund W. Foote . . . . .	" 30, 1919
872	Richard P. Bonney . . . . .	" 30, 1924
865	Lester H. Cushing . . . . .	" 30, 1923
849	William T. Morgan . . . . .	" 30, 1919
824	Albert Farnsworth . . . . .	" 30, 1919
817	Percy V. Stroud . . . . .	" 30, 1922
814	John J. Boyan . . . . .	" 30, 1922
811	Alfred W. Smith . . . . .	" 30, 1919
788	Fred H. Kierstead . . . . .	" 30, 1924
771	James H. Carroll . . . . .	" 30, 1922

*Women.*

857	Mildred E. Smith . . . . .	June 30, 1923
849	Marie R. Madden . . . . .	" 30, 1923
814	Florence E. Hutchinson . . . . .	" 30, 1919
776	Ruth J. Cummings . . . . .	" 30, 1919
771	Amy C. Farlin . . . . .	" 30, 1920
750	Geraldine B. Kennedy . . . . .	" 30, 1922

**MATHEMATICS.**

*Men.*

872	James D. Ryan . . . . .	June 30, 1923
789	Harrison G. Meserve . . . . .	" 30, 1922
786	Walter L. McLean . . . . .	" 30, 1923
785	Charles H. Mergendahl . . . . .	" 30, 1924
782	Howard B. Baker . . . . .	" 30, 1920
781	Ormon E. Bassett . . . . .	" 30, 1919
758	William E. Fay . . . . .	" 30, 1919



## High School Certificates (Continued).

Rating.	Name.	Certificate Expires
739	Clarence E. Paddock . . . . .	June 30, 1919
734	Robert E. Frink . . . . .	" 30, 1919
734	John F. Sheahan . . . . .	" 30, 1919
725	Edmund D. Styles . . . . .	" 30, 1919
708	Guy C. Blodgett . . . . .	" 30, 1922
705	Thomas J. Hoey . . . . .	" 30, 1922

## Women.

842	Marion C. Moreland . . . . .	June 30, 1923
809	Louise B. Foster . . . . .	" 30, 1922
794	Gertrude M. Greene . . . . .	" 30, 1923
785	Ella L. Townsend . . . . .	" 30, 1919
707	Eleanor M. Kyle . . . . .	" 30, 1922

## PHYSICS — CHEMISTRY.

## Men.

827	Charles L. Kelley . . . . .	June 30, 1922
821	John A. David . . . . .	" 30, 1919
816	Howard A. Newton . . . . .	" 30, 1919
810	Arthur B. Stanley . . . . .	" 30, 1923
807	Henry G. Blount . . . . .	" 30, 1920
796	John W. McCormack . . . . .	" 30, 1923
791	Thomas A. Pickett . . . . .	" 30, 1923
788	Ralph H. Bragdon . . . . .	" 30, 1923
772	Christopher A. Fitzgerald . . . . .	" 30, 1922
771	Charles A. Blatchley . . . . .	" 30, 1919
771	Raymond S. Tobey . . . . .	" 30, 1922
769	Frank V. Gordon . . . . .	" 30, 1922
765	Earl W. Battles . . . . .	" 30, 1922
747	William J. Nutter . . . . .	" 30, 1921
734	David W. Rial . . . . .	" 30, 1920
716	Clayton E. Gardner . . . . .	" 30, 1922
713	Leighton S. Thompson . . . . .	" 30, 1921

## Women.

879	Edna M. Hurlin . . . . .	June 30, 1920
774	Angie G. Allbee . . . . .	" 30, 1921
771	Helen M. Stevens . . . . .	" 30, 1920

## SALESMANSHIP.

804	Tilla McCarten . . . . .	June 30, 1922
787	Constance E. Burrage . . . . .	" 30, 1921
780	Anjennette Newton . . . . .	30, 1922

## SPANISH.

## Men.

827	James C. Corliss . . . . .	June 30, 1923
791	Edward J. Wall . . . . .	30, 1924
700	Henry A. Sasserno . . . . .	" 30, 1924

## High School Certificates (Concluded).

<i>Women.</i>		
Rating.	Name.	Certificate Expires
851	Elizabeth I. O'Neill . . . . .	June 30, 1923
841	Elizabeth W. Loughran . . . . .	" 30, 1923
810	Grace H. Kennedy . . . . .	" 30, 1923
757	Ulrika E. Benson . . . . .	" 30, 1922
709	Marietta L. Kirby . . . . .	" 30, 1922
700	Leonora C. Murray . . . . .	" 30, 1923

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## HIGH SCHOOL SPECIAL CERTIFICATE.

Rating.	Name.	Certificate Expires
844	James P. Farnsworth . . . . .	June 30, 1923
821	William McRobbie . . . . .	" 30, 1922
803	Joseph R. B. Dunn . . . . .	" 30, 1923
777	James H. Philbrick . . . . .	" 30, 1923
772	Ernest E. Town . . . . .	" 30, 1922

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## SPECIAL CERTIFICATES VALID IN DAY HIGH SCHOOLS.

## COMMERCIAL BRANCHES.

## BOOKKEEPING AND COMMERCIAL ARITHMETIC.

<i>Men.</i>		
Rating.	Name.	Certificate Expires
758	Roland V. Tracy . . . . .	June 30, 1923
743	Joseph S. Snow . . . . .	" 30, 1922
718	Arthur W. Leavitt . . . . .	" 30, 1924

*Women.*

814	Mary G. Gould . . . . .	June 30, 1924
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## PHONOGRAPHY AND TYPEWRITING.

*Men.*

701	Rema J. Henderson . . . . .	June 30, 1922
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*Women.*

776	Anna J. Dolan . . . . .	June 30, 1923
759	Gertrude L. Ward . . . . .	" 30, 1922
755	Elizabeth E. Haggerty . . . . .	" 30, 1924
750	Katharine J. Burke . . . . .	" 30, 1922
738	Marie Brewster . . . . .	" 30, 1924
702	May M. Austin . . . . .	" 30, 1924

## Special Certificates Valid in Day High Schools (Continued).

## MANUAL ARTS.

## DRAWING.

*Men.*

Rating.	Name.	Certificate Expires
745	Alden K. Dawson . . . . .	June 30, 1919
729	Robert W. Broderick . . . . .	" 30, 1919
726	Reginald S. Kidd . . . . .	" 30, 1920

*Women.*

823	Laura W. Cook . . . . .	June 30, 1923
810	Elvira T. Harvey . . . . .	" 30, 1921
801	Elizabeth M. P. Bartlett . . . . .	" 30, 1920
790	Clara E. Glover . . . . .	" 30, 1924
776	Abby W. Sullivan . . . . .	" 30, 1919
771	Evelyn Silvester . . . . .	" 30, 1924
765	Marion McIntyre Ford . . . . .	" 30, 1920
744	Dorothea Davis . . . . .	" 30, 1922
727	Alice S. Willoughby . . . . .	" 30, 1919

## MANUAL TRAINING.

740	Kenrick M. Baker . . . . .	June 30, 1924
735	William E. O'Connor . . . . .	" 30, 1921
706	William A. Courchene . . . . .	" 30, 1924

## PHYSICAL TRAINING.

853	Eleanor H. Quinlan . . . . .	June 30, 1924
846	Theresa B. Maley . . . . .	" 30, 1924
844	Laura M. West . . . . .	" 30, 1924
827	Genevieve A. Burns . . . . .	" 30, 1924
826	Gertrude M. Fossett . . . . .	" 30, 1924
825	Catherine L. McCormick . . . . .	" 30, 1924
824	Marion W. Owen . . . . .	" 30, 1924
819	Clare Eastman . . . . .	" 30, 1924
813	Dorothy Sayer . . . . .	" 30, 1924
812	Mary T. McDermott . . . . .	" 30, 1924
807	Rosamond Estabrook . . . . .	" 30, 1924
807	Virginia E. Pierce . . . . .	" 30, 1924
800	Izannah A. Lucas . . . . .	" 30, 1921
797	Alice M. Gorman . . . . .	" 30, 1924
793	Elizabeth M. Hampe . . . . .	" 30, 1924
787	Grace E. Kingsbury . . . . .	" 30, 1921
776	Josephine A. McLaughlin . . . . .	" 30, 1920
773	Joanne F. Tobin . . . . .	" 30, 1924
770	Matilda F. Ractliffe . . . . .	" 30, 1924
768	Matilda E. Cogan . . . . .	" 30, 1924
766	Grace M. Monahan . . . . .	" 30, 1922

## Special Certificates Valid in Day High Schools (Concluded).

Rating.	Name.	Certificate Expires
759	Helen P. Shepardson . . . . .	June 30, 1920
743	Rachel Rosnosky . . . . .	" 30, 1920
721	Marguerite A. Cahill . . . . .	" 30, 1920

## SALESMANSHIP.

839	Gladys C. Gilmore . . . . .	June 30, 1924
827	Helen J. Kiggen . . . . .	" 30, 1924
720	Mary G. Jennings . . . . .	" 30, 1918

## VOCATIONAL ASSISTANT CERTIFICATE.

Rating.	Name.	Certificate Expires
847	Newell W. Edson . . . . .	June 30, 1921
757	Irving O. Scott . . . . .	" 30, 1924

INDUSTRIAL INSTRUCTORS, DAY HIGH SCHOOLS  
CERTIFICATES.

## HOUSEHOLD SCIENCE.

Rating.	Name.	Certificate Expires
925	Sarah L. Cauley . . . . .	June 30, 1924
859	Agnes L. Callaghan . . . . .	" 30, 1923
826	Mary W. Cauley . . . . .	" 30, 1924
822	Marion Keeler . . . . .	" 30, 1923

## DRESSMAKING.

788	Nina G. Moore . . . . .	June 30, 1921
758	Mary L. Dermody . . . . .	" 30, 1919
758	Catherine A. Murray . . . . .	" 30, 1922
757	Annie V. Tracy . . . . .	" 30, 1920
754	Nelly Marrinan . . . . .	" 30, 1922
717	Alice H. Healy . . . . .	" 30, 1920

## MILLINERY.

807	Eileen M. Harrington . . . . .	June 30, 1921
772	Mary A. Hourihan . . . . .	" 30, 1924
745	Mary Travers . . . . .	" 30, 1921

## DAY CLERICAL SCHOOL CERTIFICATE.

## (CLERICAL ASSISTANT.)

## PHONOGRAPHY AND TYPEWRITING.

Rating.	Name.	Certificate Expires
755	Mae G. Smith . . . . .	June 30, 1924

## JUNIOR ASSISTANT, DAY HIGH SCHOOLS CERTIFICATE.

## BIOLOGY.

Rating.	Name.	Certificate Expires
773	John L. Mayer . . . . .	June 30, 1922

## CHEMISTRY.

*Men.*

831	Dennis C. Haley . . . . .	June 30, 1922
764	Solomon Schneider . . . . .	" 30, 1923

*Women.*

838	Katharine C. Collins . . . . .	June 30, 1923
775	Viola C. Owen . . . . .	" 30, 1922

## ECONOMICS.

*Men.*

740	James A. Dunbar . . . . .	June 30, 1921
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*Women.*

803	Ruth Elms . . . . .	June 30, 1923
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## ENGLISH.

*Men.*

868	Philip Marzynski . . . . .	June 30, 1922
849	John M. Grandfield . . . . .	" 30, 1923
831	James H. Nolan . . . . .	" 30, 1923
811	Francis J. Driscoll . . . . .	" 30, 1923
786	John A. Lahive . . . . .	" 30, 1922
776	William V. McKenney . . . . .	" 30, 1922
743	Joseph A. Mahoney . . . . .	" 30, 1922
713	William J. Pendergast . . . . .	" 30, 1922

*Women.*

854	Frances Burnce . . . . .	June 30, 1921
847	Sophia M. Palm . . . . .	" 30, 1922
841	Madeline M. Ellis . . . . .	" 30, 1923
825	Constance Billings . . . . .	" 30, 1923
824	Marjorie G. Smith . . . . .	" 30, 1922
810	Agnes E. Kelley . . . . .	" 30, 1924
788	Sarah G. Stowers . . . . .	" 30, 1922
778	Katherine Moran . . . . .	" 30, 1923
773	Helen T. Campbell . . . . .	" 30, 1921
761	Dorothy S. Starrett . . . . .	" 30, 1921
758	Regina Hearn . . . . .	" 30, 1922
732	Mary A. Winn . . . . .	" 30, 1923

## Junior Assistant Certificate (Continued).

## FRENCH.

Rating.	Name.	Men.	Certificate Expires
809	Leo V. Halloran . . . . .		June 30, 1923
772	Joseph G. Green . . . . .		" 30, 1924

## Women.

822	Dorothy Stanwood . . . . .		June 30, 1924
805	Margaret M. Sallaway . . . . .		" 30, 1921
783	Rena M. Jaquith . . . . .		" 30, 1922
718	Mildred A. Dacey . . . . .		" 30, 1923
717	Alice E. Mills . . . . .		" 30, 1921

## GERMAN.

## Men.

801	Philip Levy . . . . .		June 30, 1921
727	Myron Livingston . . . . .		" 30, 1922

## Women.

850	Signhild V. Gustafson . . . . .		June 30, 1922
798	Katharine M. Schubarth . . . . .		" 30, 1922
759	Mary E. Peirce . . . . .		" 30, 1921

## HISTORY.

## Men.

815	Daniel L. Daley . . . . .		June 30, 1923
809	William F. Ward . . . . .		" 30, 1922
803	Philip J. Bond . . . . .		" 30, 1922
768	Vincent L. Greene . . . . .		" 30, 1922
753	Manus J. Fish, Jr. . . . .		" 30, 1922
746	Robert E. Patterson . . . . .		" 30, 1922
735	Saul L. Seiniger . . . . .		" 30, 1924
722	William J. Murphy . . . . .		" 30, 1923
705	Charles O. Halloran . . . . .		" 30, 1922

## Women.

732	Mary C. Brogan . . . . .		June 30, 1923
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## LATIN.

## Men.

833	Edward F. McKay . . . . .		June 30, 1923
779	Richard G. Donahue . . . . .		" 30, 1923
744	George H. Sullivan . . . . .		" 30, 1922

## Women.

819	Mildred E. Hastings . . . . .		June 30, 1922
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## Junior Assistant Certificate (Concluded).

## MATHEMATICS.

Rating.	Name.	Certificate Expires
<i>Men.</i>		
900	Joseph A. Leary . . . . .	June 30, 1923
832	Charles F. Murphy . . . . .	" 30, 1923
790	Henry M. J. Halligan . . . . .	" 30, 1923
775	John F. McCarthy . . . . .	" 30, 1924
755	Ralph F. V. Quinn . . . . .	" 30, 1924
716	Herbert C. Bird . . . . .	" 30, 1922
712	Christopher A. Connor . . . . .	" 30, 1923

*Women.*

781	Gertrude M. Greene . . . . .	June 30, 1921
739	Eleanor M. Kyle . . . . .	" 30, 1921
722	Josephine M. Calderara . . . . .	" 30, 1922

## PHYSICS.

838	John B. FitzGerald . . . . .	June 30, 1922
788	William F. Greely . . . . .	" 30, 1922

## SPANISH.

*Men.*

786	Frederick J. Hurley . . . . .	June 30, 1923
768	Henry A. Sasserno . . . . .	" 30, 1922
751	Louis F. Moore . . . . .	" 30, 1923
731	James E. Fihelly . . . . .	" 30, 1923
721	William H. Glennon . . . . .	" 30, 1923

*Women.*

819	Marie Scollard . . . . .	June 30, 1924
776	Leonora C. Murray . . . . .	" 30, 1924
768	Catherine L. McKenna . . . . .	" 30, 1923

## NORMAL SCHOOL ELEMENTARY CERTIFICATES, CLASS OF 1918, AND OTHERS AS INDICATED.

(Ratings which are exactly alike are connected by a brace. In other cases of similar ratings, there is a decimal difference in favor of the name appearing first on the list.)

Rating.	Name.	Certificate Expires
837	Dorothy C. Peterson . . . . .	June 30, 1924
834	Bertha F. Gavin . . . . .	" 30, 1924
826	Mabel I. Cormack . . . . .	" 30, 1924
825	Louise M. Borrè . . . . .	" 30, 1924
825	Winifred I. Swallow . . . . .	" 30, 1924
823	Gertrude C. Mellen . . . . .	" 30, 1924
823	Jessie E. Small * . . . . .	" 30, 1924
818	Elsie M. Eckman . . . . .	" 30, 1924
818	Mary M. Tierney . . . . .	" 30, 1924

\* Holds Normal, Kindergarten-Primary Certificate.

## Normal Elementary, Class of 1918 (Continued).

Rating.	Name.	Certificate Expires
818	Lucile A. Harrington (Class of 1916)	June 30, 1922
818	Alice Pike	" 30, 1924
818	Ruth K. FitzGerald *	" 30, 1924
817	Dorothy M. Robinson *	" 30, 1924
817	Bertha A. McPherson *	" 30, 1924
816	Margaret M. Moore	" 30, 1924
813	Mary J. Boyhan	" 30, 1924
812	Dorothy L. Quinn	" 30, 1924
812	Marguerite F. Maloney	" 30, 1924
811	Annie S. Belinsky	" 30, 1924
811	Bertha Cohen	" 30, 1924
811	Mary G. Sullivan	" 30, 1924
807	Jessie L. Barth	" 30, 1924
807	Agnes C. Brennan	" 30, 1924
807	Alice C. Coleman	" 30, 1924
804	Gertrude L. Kindred (Class of 1917)	" 30, 1923
803	Pauline Miller *	" 30, 1924
802	Marguerita R. Foley *	" 30, 1924
801	Mary F. Cavanaugh	" 30, 1924
799	Elinor J. Fowles †	" 30, 1924
799	Lillian P. Levine *	" 30, 1924
798	Grace V. Lynch	" 30, 1924
797	Agnes T. Conroy (Class of 1916)	" 30, 1922
{ 796	Marguerite M. O'Brien (Class of 1916)	" 30, 1922
{ 796	Florence E. Johnson *	" 30, 1924
796	Genevieve C. Grass	" 30, 1924
796	Rose M. Hickey	" 30, 1924
794	Ruth A. Wiberg	" 30, 1924
792	George A. Cummings † (Class of 1917)	" 30, 1923
791	Edith M. O'Neil	" 30, 1924
791	Barbara E. Sheridan *	" 30, 1924
790	Ruth G. Hunt	" 30, 1924
790	Helen K. Burke	" 30, 1924
788	Mary F. Finan	" 30, 1924
788	Jane U. Barry	" 30, 1924
786	Margaret M. Welch	" 30, 1924
785	Elizabeth L. Maggioni	" 30, 1924
783	Dorothy M. Lyons	" 30, 1924
782	Josephine M. Calderara † (Class of 1916)	" 30, 1922
781	Susan B. Barker	" 30, 1924
780	Marie Scollard †	" 30, 1924
780	Grace F. Sullivan *	" 30, 1924
780	Helen G. Keefe	" 30, 1924
779	Helen L. Cronin † (Class of 1914)	" 30, 1920
779	Alice L. Sheahan	" 30, 1924
776	Consuelo Mathews	" 30, 1924

\* Holds Normal, Kindergarten-Primary Certificate.

† Holds Elementary School Special Certificate.



## Normal Elementary, Class of 1918 (Continued).

Rating.	Name.	Certificate Expires
775	Marjorie S. Horne *	June 30, 1924
775	Frances M. Holleran	" 30, 1924
775	Abbie F. Kuhn	" 30, 1924
774	Louis F. Moore † (Class of 1917)	" 30, 1923
774	Ellen A. Leahy	" 30, 1924
774	Margaret L. Collins	" 30, 1924
771	Leo V. Halloran † (Class of 1917)	" 30, 1923
771	Ellen A. Dwyer	" 30, 1924
768	Katherine E. Newell	" 30, 1924
767	Saul L. Seiniger †	" 30, 1924
767	James L. Duffy † (Class of 1917)	" 30, 1923
767	Goldie G. West *	" 30, 1924
764	Mary K. Grass	" 30, 1924
762	Katherine Moran	" 30, 1924
762	Helen M. Dooley	" 30, 1924
{ 762	Catherine F. Murphy	" 30, 1924
{ 762	Edith I. Swanson	" 30, 1924
760	Mary M. Carroll	" 30, 1924
759	Marie Mullins	" 30, 1924
758	Solomon Schneider † (Class of 1917)	" 30, 1923
756	Margaret L. McCarthy	" 30, 1924
756	William J. Murphy † (Class of 1917)	" 30, 1923
754	Anna C. Hughes	" 30, 1924
751	C. Louise Shea	" 30, 1924
750	Cecilia G. Norton	" 30, 1924
750	Mary E. Lawlor	" 30, 1924
749	Dorothy F. Coughlan	" 30, 1924
748	Margareta M. Muldoon	" 30, 1924
747	Dorothy M. Tatum *	" 30, 1924
745	Mabel O. Dolan	" 30, 1924
745	Mary L. O'Callaghan	" 30, 1924
743	Mary Miley *	" 30, 1924
743	Emma E. Dvorak	" 30, 1924
741	Mary A. Kell�y (Class of 1917)	" 30, 1923
738	Margaret V. Conway	" 30, 1924
738	Alice M. Long	" 30, 1924
738	Annie E. Mahoney	" 30, 1924
737	Kathryn V. Riley	" 30, 1924
737	Helen R. Sullivan	" 30, 1924
733	Marie C. MacGrath	" 30, 1924
733	Marion E. Puttner *	" 30, 1924
729	Dorothy M. Burnham *	" 30, 1924
729	Mary J. Sullivan	" 30, 1924
725	Mary E. D. Devereaux	" 30, 1924
724	George F. Fitzgerald † (Class of 1915)	" 30, 1921
721	Ida S. Guptill	" 30, 1924

\* Holds Normal, Kindergarten-Primary Certificate.

† Holds Elementary School Special Certificate.

## Normal Elementary, Class of 1918 (Concluded).

Rating.	Name.	Certificate Expires
719	Agnes L. McQueeney . . . . .	June 30, 1924
717	Mary G. Armstrong . . . . .	" 30, 1924
715	Catherine E. Craig (Class of 1917) . . . . .	" 30, 1923
711	Elizabeth G. Savage . . . . .	" 30, 1924
{ 709	Ruth T. Church (Class of 1913) . . . . .	" 30, 1919
{ 709	Joseph H. Gildea * (Class of 1914) . . . . .	" 30, 1920
693	Helen F. Reidy . . . . .	" 30, 1924
679	Mary E. Donovan . . . . .	" 30, 1924
	Patrick L. Geary * † (Class of 1917) . . . . .	" 30, 1923
	Thomas L. Sullivan * † (Class of 1917) . . . . .	" 30, 1923
	Joseph G. Green * ‡ . . . . .	" 30, 1924
	John F. McCarthy * ‡ . . . . .	" 30, 1924
	Ralph F. V. Quinn * ‡ . . . . .	" 30, 1924

## NORMAL SCHOOL ELEMENTARY CERTIFICATES, PRIOR TO 1918.

(Ratings which are exactly alike are connected by a brace. In other cases of similar ratings, there is a decimal difference in favor of the name appearing first on the list.)

Rating.	Name.	Certificate Expires
922	Katharine E. Barr * . . . . .	June 30, 1923
918	Agnes G. White . . . . .	" 30, 1923
908	Katherine Vernon . . . . .	" 30, 1923
901	Frances M. Murphy . . . . .	" 30, 1923
900	Philip Marzynski * . . . . .	" 30, 1922
899	Elizabeth F. Sarjeant . . . . .	" 30, 1923
897	Helen M. Nolan . . . . .	" 30, 1923
896	Agnes G. Brennan . . . . .	" 30, 1923
896	Margaret P. Sullivan . . . . .	" 30, 1923
896	Joseph A. Leary * . . . . .	" 30, 1923
896	Sophia M. Palm * . . . . .	" 30, 1921
{ 893	Mildred E. Hastings . . . . .	" 30, 1920
{ 893	Mary V. O'Neill . . . . .	" 30, 1920
893	Rose A. Brady . . . . .	" 30, 1920
893	Edward F. McKay * . . . . .	" 30, 1923
892	Madeline M. Ellis * . . . . .	" 30, 1923
891	Dorothy M. O'Brien . . . . .	" 30, 1923
891	Eileen A. Roche . . . . .	" 30, 1923
890	Mary C. Murphy . . . . .	" 30, 1920
890	Ruth I. Byrne . . . . .	" 30, 1923
{ 888	Hilda L. Anderson . . . . .	" 30, 1923
{ 888	Helen E. Maxwell . . . . .	" 30, 1923
888	Joseph A. Fitzgerald * . . . . .	" 30, 1920

\* Holds Elementary School Special Certificate.

† In United States military service; not rated.

‡ In Temporary High School Service; not rated.

## Normal Elementary, Prior to 1918 (Continued).

Rating.	Name.	Certificate Expires
887	Annie M. Ducey . . . . .	June 30, 1923
887	Margaret McDonald . . . . .	" 30, 1922
887	Julia A. Driscoll . . . . .	" 30, 1923
886	Gertrude J. Rhilinger . . . . .	" 30, 1923
886	Marion E. Rafferty . . . . .	" 30, 1923
886	Clarice H. McIntyre . . . . .	" 30, 1923
886	Helen R. Leary . . . . .	" 30, 1923
885	Gladys P. Eaton . . . . .	" 30, 1920
885	Agnes M. Golden . . . . .	" 30, 1923
884	Margaret M. McGowan . . . . .	" 30, 1923
883	Rena M. Jaquith * . . . . .	" 30, 1922
883	Mary H. Stroup . . . . .	" 30, 1920
882	Catherine L. McKenna * . . . . .	" 30, 1923
882	Daniel L. Daley * . . . . .	" 30, 1923
881	Dora Slepian . . . . .	" 30, 1921
881	Alice E. Mills * . . . . .	" 30, 1919
881	Marion L. Scannell . . . . .	" 30, 1922
881	Walter L. McLean * . . . . .	" 30, 1921
875	Helen D. McHardy * . . . . .	" 30, 1923
874	Leonora C. Murray * . . . . .	" 30, 1921
874	Marguerite L. Dockendorff . . . . .	" 30, 1922
873	John B. FitzGerald * . . . . .	" 30, 1922
873	Margaret M. Casey . . . . .	" 30, 1922
872	Joseph A. Hennessey * . . . . .	" 30, 1922
872	Constance Billings * . . . . .	" 30, 1923
871	Agnes J. Boland . . . . .	" 30, 1922
871	Mary G. Hughes . . . . .	" 30, 1923
871	Gertrude C. Roemer . . . . .	" 30, 1923
871	Sadie L. Siskind . . . . .	" 30, 1922
871	Mary Kirby . . . . .	" 30, 1923
870	Dorothy M. G. Kenney . . . . .	" 30, 1923
870	Philip J. Bond * . . . . .	" 30, 1922
870	Judith Prendergast . . . . .	" 30, 1923
869	Margaret M. Stapleton . . . . .	" 30, 1923
869	Marguerite G. Sullivan . . . . .	" 30, 1923
869	William F. Ward * . . . . .	" 30, 1922
869	Charles F. Murphy * . . . . .	" 30, 1923
868	Dorothy Rosenauer . . . . .	" 30, 1923
868	Louise E. Mooney . . . . .	" 30, 1923
868	Anna E. Scully . . . . .	" 30, 1923
867	Annie F. Barry . . . . .	" 30, 1923
867	Dennis C. Haley * . . . . .	" 30, 1922
867	Agnes P. Goggin * . . . . .	" 30, 1920
867	Francis J. Murphy * . . . . .	" 30, 1920
867	Alice C. English . . . . .	" 30, 1922
866	Frances B. Mea . . . . .	" 30, 1920

\* Holds Elementary School Special Certificate.

## Normal Elementary, Prior to 1918 (Continued).

Rating.	Name.	Certificate Expires
866	Dorothy Stanwood *	June 30, 1921
866	Katharine C. Collins *	" 30, 1923
865	James A. Dunbar *	" 30, 1921
864	Maurice Davis *	" 30, 1922
863	Esther L. Carley	" 30, 1922
863	John J. Boyan *	" 30, 1919
862	Mildred A. Dacey *	" 30, 1923
861	Frederick J. Hurley *	" 30, 1923
861	James H. Nolan *	" 30, 1923
861	Mary E. Peirce *	" 30, 1921
861	Edwina M. Goff	" 30, 1923
861	Clyde M. Broaders *	" 30, 1922
860	Bessie F. Crimmins	" 30, 1922
{ 860	Abigail F. Burke	" 30, 1923
{ 860	Ethel M. Kelly *	" 30, 1923
860	Christopher A. Connor *	" 30, 1923
859	Agnes E. Kelley *	" 30, 1923
858	Helen R. Tobin	" 30, 1923
857	Birdie O. Bird	" 30, 1920
857	Mary F. Nolan	" 30, 1921
857	Ruth Elms *	" 30, 1923
856	Gertrude M. Greene *	" 30, 1921
856	Leonore F. Davis	" 30, 1923
856	Marguerite R. Young	" 30, 1922
856	Albert F. Smith *	" 30, 1923
855	Anastasia Ford	" 30, 1923
853	Mary J. O'Day	" 30, 1922
{ 853	Grace A. Murray	" 30, 1923
{ 853	Mary E. O'Connor	" 30, 1922
{ 853	Helen M. Tanck	" 30, 1923
853	Agnes J. Martin	" 30, 1921
853	Helen E. Sullivan	" 30, 1923
852	Ann M. Williams	" 30, 1923
852	Marguerite M. Patterson	" 30, 1922
850	Ethel M. F. Schumann	" 30, 1919
849	May A. O'Brien	" 30, 1923
849	Anna G. Riordan	" 30, 1922
{ 849	Katherine M. Dullea	" 30, 1923
{ 849	John A. Lahive *	" 30, 1922
{ 849	Charlotte M. White	" 30, 1922
849	James P. Collins *	" 30, 1923
848	Marion R. Graham	" 30, 1923
{ 847	William B. Corbett *	" 30, 1921
{ 847	Blanche L. Donohoe	" 30, 1920
846	Henry A. Sasserno *	" 30, 1922
846	Marie C. Doherty	" 30, 1923

\* Holds Elementary School Special Certificate.

## Normal Elementary, Prior to 1918 (Continued).

Rating.	Name.	Certificate Expires
845	Lillian N. Galvin . . . . .	June 30, 1922
{ 845	Agnes F. McGoldrick . . . . .	" 30, 1923
{ 845	Theresa A. O'Reilly . . . . .	" 30, 1922
845	Julia E. Hegarty . . . . .	" 30, 1923
844	Laura F. Carter . . . . .	" 30, 1919
843	Grace M. May . . . . .	" 30, 1923
843	Eva Gordon . . . . .	" 30, 1923
843	Margaret E. Gallagher . . . . .	" 30, 1922
843	Mary E. Milliken . . . . .	" 30, 1923
842	Cyril C. Conroy * . . . . .	" 30, 1922
842	Sarah E. Cohen . . . . .	" 30, 1923
841	Helen A. Cole . . . . .	" 30, 1922
840	J. Bernard Flynn * . . . . .	" 30, 1922
840	William F. Fleming * . . . . .	" 30, 1923
839	Sadie M. Boles . . . . .	" 30, 1919
839	Thomas A. Ginty * . . . . .	" 30, 1921
838	Catherine F. McCabe . . . . .	" 30, 1923
837	Anna J. Corliss . . . . .	" 30, 1922
837	James L. O'Brien * . . . . .	" 30, 1923
837	William V. McKenney * . . . . .	" 30, 1922
837	Marjorie H. Outwater . . . . .	" 30, 1923
837	Frank A. Clarke * . . . . .	" 30, 1919
835	Leo H. Grueter * . . . . .	" 30, 1921
834	Harriet Ayer * . . . . .	" 30, 1919
834	Florence C. Cunningham . . . . .	" 30, 1922
833	Vincent L. Greene * . . . . .	" 30, 1922
829	William J. Pendergast * . . . . .	" 30, 1922
828	Edith C. Scanlan . . . . .	" 30, 1923
827	Francis J. Driscoll * . . . . .	" 30, 1923
827	James P. Sullivan * . . . . .	" 30, 1922
826	William H. Glennon * . . . . .	" 30, 1923
826	Herbert C. Bird * . . . . .	" 30, 1922
825	Willa M. Ashton . . . . .	" 30, 1923
825	Marjorie F. Keating . . . . .	" 30, 1923
825	Albert L. Shaughnessy * . . . . .	" 30, 1921
824	William F. Greely * . . . . .	" 30, 1922
824	Constance McBride . . . . .	" 30, 1923
823	Agnes L. Benson . . . . .	" 30, 1923
{ 823	Francis A. Duffey * . . . . .	" 30, 1923
{ 823	Lillian M. Hanson . . . . .	" 30, 1923
823	Elizabeth F. Sheehan . . . . .	" 30, 1923
822	Catherine R. Day . . . . .	" 30, 1923
822	Ruth Lorway . . . . .	" 30, 1923
821	Louise F. Carangelo . . . . .	" 30, 1923
821	Manus J. Fish, Jr. * . . . . .	" 30, 1922
821	William M. McCarthy * . . . . .	" 30, 1922

\* Holds Elementary School Special Certificate.

## Normal Elementary, Prior to 1918 (Concluded).

Rating.	Name.	Certificate Expires
818	William A. Billings *	June 30, 1919
818	Louise K. Faul . . . . .	" 30, 1923
814	William A. Fitzgerald * . . . . .	" 30, 1922
811	Robert E. Patterson * . . . . .	" 30, 1922
811	Mary E. Mulligan . . . . .	" 30, 1923
810	Frederick J. Murray * . . . . .	" 30, 1922
809	George S. McCabe * . . . . .	" 30, 1923
808	Joseph A. Mahoney * . . . . .	" 30, 1922
807	Viola C. Owen * . . . . .	" 30, 1922
803	Katherine C. Burns . . . . .	" 30, 1923
802	Myron Livingston * . . . . .	" 30, 1922
800	James E. Fihelly * . . . . .	" 30, 1920
786	George S. Hennessy * . . . . .	" 30, 1922
785	John M. Grandfield * . . . . .	" 30, 1923
780	Helen Carey . . . . .	" 30, 1923
779	Francis R. McManus * . . . . .	" 30, 1923
779	Frederick L. Mahoney * . . . . .	" 30, 1922
779	Charles P. York * . . . . .	" 30, 1922
771	Mary A. Winn * . . . . .	" 30, 1923
767	Thomas P. Burns * . . . . .	" 30, 1922
766	Marie P. Denihan . . . . .	" 30, 1922
761	George H. Sullivan * . . . . .	" 30, 1921
757	Everett C. Yates * . . . . .	" 30, 1923
749	Helen B. Morse * . . . . .	" 30, 1921
712	Maurice F. Murphy * . . . . .	" 30, 1922
690	Charles O. Halloran * . . . . .	" 30, 1922
527	Edith Sonnabend . . . . .	" 30, 1919

DAY ELEMENTARY CERTIFICATES, EXAMINED  
CANDIDATES.

## INTERMEDIATE CERTIFICATE.†

Rating.	Name.	Certificate Expires
	DRAWING.	
887	Florence A. Dunbar (1) . . . . .	June 30, 1924
827	Bessie E. Kennedy (2) . . . . .	" 30, 1924
810	Edith M. Snow (3) . . . . .	" 30, 1924

## ENGLISH.

*Men.*

741	Ernest W. Anderson † † (4) . . . . .	June 30, 1924
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*Women.*

904	Winifred H. Nash † † (5) . . . . .	June 30, 1924
764	Clara E. Oakman † † (6) . . . . .	" 30, 1924

\* Holds Elementary School Special Certificate.

† Holds Elementary School, Class A Certificate.

‡ Minor subjects — (1) English, History-Geography. (2) English, Music.  
 (3) History-Geography, Music. (4) History-Geography, Latin.  
 (5) German, Music. (6) French, Music.

Day Elementary Certificates, Examined Candidates (*Continued*).INTERMEDIATE CERTIFICATE (*Continued*).†

## HISTORY — GEOGRAPHY.

783	Ona I. Nolan * † (7) . . . . .	June 30, 1924
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## MATHEMATICS.

780	Helen G. McKenna * † (8) . . . . .	June 30, 1924
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## SCIENCE.

*Men.*

827	John L. Mayer † (9) . . . . .	June 30, 1924
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*Women.*

708	Bertha C. Quinam * † (10) . . . . .	June 30, 1924
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## ELEMENTARY SCHOOL, CLASS A CERTIFICATE.

*(Issued Prior to 1918.)**Men.*

820	James E. Dolan . . . . .	June 30, 1922
818	Valentine F. Dunn . . . . .	" 30, 1922
814	Richard T. Tobin . . . . .	" 30, 1919
796	Thomas L. Mea . . . . .	" 30, 1922
790	George L. McKinnon . . . . .	" 30, 1923
790	A. Irvin Studley . . . . .	" 30, 1922
774	Thomas F. McHugh . . . . .	" 30, 1921
772	James L. Early . . . . .	" 30, 1922
768	Robert B. Houghton . . . . .	" 30, 1923
755	Isaiah A. Whorf . . . . .	" 30, 1919
738	William L. MacDonald . . . . .	" 30, 1922
723	John O. H. Shields . . . . .	" 30, 1922

## ELEMENTARY SCHOOL, CLASS B CERTIFICATE.

843	Alice E. Donoghue . . . . .	June 30, 1924
827	Ida E. Penell . . . . .	" 30, 1922
823	Marion E. Hines . . . . .	" 30, 1924
793	C. Frances Doherty . . . . .	" 30, 1924
786	Lucy A. B. Grady . . . . .	" 30, 1920
785	Maud B. Hubley . . . . .	" 30, 1919
774	Olive W. Taylor * . . . . .	" 30, 1920
772	Clara H. Franke . . . . .	" 30, 1921
770	Katherine G. O'Brion . . . . .	" 30, 1919
770	Helen M. O'Rourke . . . . .	" 30, 1919
768	Nora A. O'Connell . . . . .	" 30, 1919

\* Holds Elementary School, Class A Certificate.

† Minor subjects — (7) English, Science.

(8) Drawing, Music.

(9) History-Geography, German.

(10) French, Drawing.

Day Elementary Certificates, Examined Candidates (*Concluded*).

Rating.	Name.	Certificate Expires
767	Hilda F. Russell . . . . .	June 30, 1920
761	Martha Reid French . . . . .	" 30, 1922
760	Marion A. Fields . . . . .	" 30, 1924
756	May B. Clutterbuck * . . . . .	" 30, 1919
755	Ellen L. Welch . . . . .	" 30, 1920
750	Mary R. Mansfield . . . . .	" 30, 1924
747	Ruth E. Clarke . . . . .	" 30, 1924
741	Susan Casey . . . . .	" 30, 1919
740	Gladys L. Flieger . . . . .	" 30, 1919
739	Dorothy W. Farnham . . . . .	" 30, 1923
738	Louise Macdonald . . . . .	" 30, 1922
735	Elinor G. Cowan . . . . .	" 30, 1921
735	Viola W. Hume . . . . .	" 30, 1923
734	Lena Seitlin . . . . .	" 30, 1922
732	Mary O. Duvall . . . . .	" 30, 1923
732	Mary E. McLean . . . . .	" 30, 1923
731	J. Irene E. Kelley . . . . .	" 30, 1924
726	Kate E. Coggin . . . . .	" 30, 1920
726	Anna G. MacMahon . . . . .	" 30, 1922
724	Gladys P. Douglas * . . . . .	" 30, 1922
724	Josephine B. Gilson . . . . .	" 30, 1921
719	Mary M. Hurley . . . . .	" 30, 1919
718	Bessie I. Breslasky . . . . .	" 30, 1924
718	Helen G. Moran . . . . .	" 30, 1919
716	Catherine A. Grealis . . . . .	" 30, 1923
715	Margaret M. Joyce . . . . .	" 30, 1924
713	Mary St. A. Casey . . . . .	" 30, 1922
711	Mary J. Deegan . . . . .	" 30, 1923
710	Gladys F. Burnham . . . . .	" 30, 1920
708	Helen H. Wollahan . . . . .	" 30, 1919
707	Marion L. Downey . . . . .	" 30, 1922
705	Isabel F. Sullivan . . . . .	" 30, 1924
701	Nellie K. Bishop . . . . .	" 30, 1922
701	Alice M. Sullivan . . . . .	" 30, 1923
700	Mary A. Hartigan . . . . .	" 30, 1922
700	George F. Hopkins . . . . .	" 30, 1920

## KINDERGARTEN CERTIFICATES.

## NORMAL, KINDERGARTEN-PRIMARY CERTIFICATE, CLASS OF 1918.

Rating.	Name.	Certificate Expires
823	Jessie E. Small . . . . .	June 30, 1924
818	Ruth K. FitzGerald . . . . .	" 30, 1924
817	Dorothy M. Robinson . . . . .	" 30, 1924
817	Bertha A. McPherson . . . . .	" 30, 1924

\* Holds Elementary School, Class A Certificate.



Kindergarten Certificates (*Continued*).

Rating.	Name.	Certificate Expires
803	Pauline Miller . . . . .	June 30, 1924
802	Marguerita R. Foley . . . . .	" 30, 1924
799	Lillian P. Levine . . . . .	" 30, 1924
796	Florence E. Johnson . . . . .	" 30, 1924
791	Barbara E. Sheridan . . . . .	" 30, 1924
780	Grace F. Sullivan . . . . .	" 30, 1924
775	Marjorie S. Horne . . . . .	" 30, 1924
767	Goldie G. West . . . . .	" 30, 1924
747	Dorothy M. Tatum . . . . .	" 30, 1924
743	Mary Miley . . . . .	" 30, 1924
733	Marion E. Puttner . . . . .	" 30, 1924
729	Dorothy M. Burnham . . . . .	" 30, 1924

## KINDERGARTEN CERTIFICATES.

*(Examined Candidates.)*

Rating.	Name.	Certificate Expires
864	Lucy C. Washburn . . . . .	June 30, 1924
863	Catherine M. McCance . . . . .	" 30, 1924
862	Helen G. Herron . . . . .	" 30, 1924
852	Ellen P. Colleran . . . . .	" 30, 1924
849	Olivia F. O'Donnell . . . . .	" 30, 1924
830	Lucy E. McCarthy . . . . .	" 30, 1924
820	Clare Conklin . . . . .	" 30, 1924
818	Marietta Nute . . . . .	" 30, 1919
805	Catherine E. Miley . . . . .	" 30, 1924
804	Helen R. Dyer . . . . .	" 30, 1924
795	Leah R. Sheen . . . . .	" 30, 1924
783	Mary L. Giblin . . . . .	" 30, 1924
776	Mary R. Gray . . . . .	" 30, 1924
770	Christine Chapin . . . . .	" 30, 1924
769	Anna E. Minihan . . . . .	" 30, 1924
762	Minerva A. Hegamyer . . . . .	" 30, 1924
759	Mildred W. Keith . . . . .	" 30, 1922
758	Eleanor G. McGrath . . . . .	" 30, 1923
757	Helen M. Coleman . . . . .	" 30, 1924
757	Mildred J. Hannon . . . . .	" 30, 1923
755	Sarah G. Maguire . . . . .	" 30, 1923
753	Ethel E. Strout . . . . .	" 30, 1922
751	M. Isabel Sullivan . . . . .	" 30, 1924
750	Euphemia D. Christie . . . . .	" 30, 1922
744	Irene H. Norris . . . . .	" 30, 1924
735	Elizabeth Cashman . . . . .	" 30, 1924
735	Anastasia C. McCarthy . . . . .	" 30, 1922
734	Helen Mahoney . . . . .	" 30, 1922
725	Mildred C. Goode . . . . .	" 30, 1924
723	Louise V. Tivnan . . . . .	" 30, 1922

## Kindergarten Certificates (Concluded).

Rating.	Name.	Certificate Expires
720	Bertha K. Rice . . . . .	June 30, 1922
715	Emily F. McLaughlin . . . . .	" 30, 1924
710	Katherine A. Jackson . . . . .	" 30, 1922
703	Alice G. Muldoon . . . . .	" 30, 1924
702	Isabel E. Olney . . . . .	" 30, 1924
700	Madeleine C. Hayes . . . . .	" 30, 1924

## SPECIAL CERTIFICATES VALID IN DAY ELEMENTARY SCHOOLS.

## COOKERY.

Rating.	Name.	Certificate Expires
871	Fannie C. Bacon . . . . .	June 30, 1922
813	Miriam E. Priest . . . . .	" 30, 1922
809	Ruth Sinnett . . . . .	" 30, 1919
794	Harriet B. Davis . . . . .	" 30, 1922
776	Teresa B. Killilea . . . . .	" 30, 1919
774	Mabel A. Leighton . . . . .	" 30, 1919
770	Charlotte E. Leary . . . . .	" 30, 1919
768	Elizabeth A. Marsh . . . . .	" 30, 1922

## SEWING.

848	Adeline H. McCormick . . . . .	June 30, 1924
813	Odette M. Lloyd . . . . .	" 30, 1924
796	Josephine G. Stephens . . . . .	" 30, 1922
795	Margaret F. Tivnan . . . . .	" 30, 1924
793	Eva R. Cavanagh . . . . .	" 30, 1920
791	Agnes L. Anderson . . . . .	" 30, 1924
780	Madelon F. Lawrence . . . . .	" 30, 1924
771	Marion H. Pratt . . . . .	" 30, 1919
767	Leila E. Hunton . . . . .	" 30, 1922
766	Gertrude P. Gordon . . . . .	" 30, 1921
764	Genevieve M. Conroy . . . . .	" 30, 1922
742	Marion Shepherd . . . . .	" 30, 1919
739	Annie V. Tracy . . . . .	" 30, 1920
727	Beatrice G. Coyle . . . . .	" 30, 1922
726	Martha B. Mason . . . . .	" 30, 1919
723	Margaret E. Minton . . . . .	" 30, 1922
715	Margaret M. Casey . . . . .	" 30, 1922
708	Mary A. Griffin . . . . .	" 30, 1921

## MANUAL TRAINING.

## MODELING.

816	L. Reginald Chandler . . . . .	June 30, 1922
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Special Certificates Valid in Day Elementary Schools (*Concluded*).

## SHOP WORK.

Rating.	Name.	Certificate Expires
796	Clarence H. Garland . . . . .	June 30, 1924

## WOODWORKING.

780	John Black, Jr. . . . .	June 30, 1920
750	Fred E. Fossett . . . . .	" 30, 1920
712	Myldred Moore . . . . .	" 30, 1921

## PREVOCATIONAL ACADEMIC.

896	Louise Macdonald . . . . .	June 30, 1924
812	I. Virginia Lyons . . . . .	" 30, 1924
812	Sarah E. McMenamen . . . . .	" 30, 1919
802	Sadie M. Knight . . . . .	" 30, 1924

## SPECIAL CLASS CERTIFICATES.

## FIRST ASSISTANT IN CHARGE.

Rating.	Name.	Certificate Expires
726	Florence E. Hosmer . . . . .	June 30, 1924

## ASSISTANTS.

884	Helen L. Burnham . . . . .	June 30, 1924
817	Anna G. Cauley . . . . .	" 30, 1922
787	Lucy A. FitzGerald . . . . .	" 30, 1924
762	Mary A. Hartigan . . . . .	" 30, 1924
745	Lillian Ginsburg . . . . .	" 30, 1924

## CONTINUATION SCHOOL CERTIFICATES.

## CLASS A.

## (INSTRUCTORS, BOYS' CLASSES.)

Rating.	Name.	Certificate Expires
824	William G. O'Hare . . . . .	June 30, 1924
817	Cornelius G. Cotter . . . . .	" 30, 1924
791	Frederick A. Dunfey . . . . .	" 30, 1924
742	John J. Murray . . . . .	" 30, 1924
720	James P. Sullivan . . . . .	" 30, 1924
703	Thomas P. Burns . . . . .	" 30, 1924
699	James F. Crotty . . . . .	" 30, 1924
696	James M. Nelligan . . . . .	" 30, 1919

## CONTINUATION SCHOOL.

## (ASSISTANTS.)

*Men.*

893	William V. McKenney . . . . .	June 30, 1924
839	Joseph A. Mahoney . . . . .	" 30, 1924

## Continuation School Certificates (Concluded).

Rating.	Name.	Certificate Expires
833	James P. Sullivan . . . . .	June 30, 1924
827	John P. Shea . . . . .	" 30, 1924
822	Cornelius G. Cotter . . . . .	" 30, 1924
815	Thomas P. Burns . . . . .	" 30, 1924
805	Thomas A. Ginty . . . . .	" 30, 1924
758	John J. Lally . . . . .	" 30, 1922
719	Irving O. Scott . . . . .	" 30, 1921
<i>Women.</i>		
885	Elizabeth C. Flynn . . . . .	June 30, 1924
855	Grace D. Fisher . . . . .	" 30, 1924
854	Dorothy C. O'Connor . . . . .	" 30, 1924
823	M. Theresa O'Hare . . . . .	" 30, 1924
820	Mary C. Murphy . . . . .	" 30, 1923
816	Emma A. Sellew . . . . .	" 30, 1923
814	Anastasia K. White . . . . .	" 30, 1924
809	Edith E. Bennett . . . . .	" 30, 1921
808	Margaret M. Casey . . . . .	" 30, 1924
803	Austina B. Raymond* . . . . .	" 30, 1923
755	Agnes C. Lavery . . . . .	" 30, 1922
740	Anna M. Bagley . . . . .	" 30, 1921
720	Josephine F. Hagarty . . . . .	" 30, 1923
711	Mary C. Hawkes . . . . .	" 30, 1921

## DAY AND EVENING INDUSTRIAL SCHOOL CERTIFICATES.

## (XXX) TRADE INSTRUCTORS AND (XXXI) TECHNICAL INSTRUCTORS.

BOOKBINDING.		
Rating.	Name.	Certificate Expires
727	Arthur L. Haverty . . . . .	June 30, 1921
CABINETMAKING.		
833	Frederick C. Ritchie . . . . .	June 30, 1922
781	Fred J. Thorburn . . . . .	" 30, 1921
767	Charles J. Rodgers . . . . .	" 30, 1924
CARPENTRY.		
792	Gustaf A. Johnson . . . . .	June 30, 1921
786	Alfred M. Borden, Jr. . . . .	" 30, 1921
784	George F. Pushee . . . . .	" 30, 1922
780	Jesse J. Maguire . . . . .	" 30, 1921
DRAFTING.		
822	Percy R. Finer . . . . .	June 30, 1921
787	Harold J. Miller† . . . . .	" 30, 1922
786	Arthur E. Spencer . . . . .	" 30, 1921

\* Also qualified in commercial subjects.

† Holds XXXI. (Technical Instructor) Certificate only.

## Day and Evening Industrial School Certificates (Continued).

DRESSMAKING.		
Rating.	Name.	Certificate Expires
839	Helen F. Morton . . . . .	June 30, 1921
833	Grace Gould O'Brien . . . . .	" 30, 1920
804	Gwendolyn A. Summers . . . . .	" 30, 1922
790	Mary A. O'Brien* . . . . .	" 30, 1923
744	Edith A. Sikora . . . . .	" 30, 1922
ELECTRICITY.		
903	Edwin R. Pitt . . . . .	June 30, 1919
852	M. Alonzo Eason* . . . . .	" 30, 1922
824	Ernest F. Lawrence . . . . .	" 30, 1922
819	Nils Engstrom . . . . .	" 30, 1923
802	Charles W. Donovan . . . . .	" 30, 1919
751	W. Russell Parker . . . . .	" 30, 1921
724	J. Paul Dallas . . . . .	" 30, 1924
700	Emil W. Zepp . . . . .	" 30, 1924
MACHINE SHOP PRACTICE.		
876	Charles E. Dawson . . . . .	June 30, 1923
876	Grover C. Russell . . . . .	" 30, 1923
872	Abraham S. Bernstein . . . . .	" 30, 1923
843	Hugh Wilton . . . . .	" 30, 1922
824	Henry S. Crosby . . . . .	" 30, 1921
801	Frank Mullen . . . . .	" 30, 1921
782	William Buxbaum . . . . .	" 30, 1921
771	Charles A. T. Kerr . . . . .	" 30, 1921
740	Arthur H. Farrell . . . . .	" 30, 1921
715	Royal R. Eglinton . . . . .	" 30, 1921
MILLINERY.		
875	Alice A. Alden . . . . .	June 30, 1923
701	Annie J. Herring . . . . .	" 30, 1921
PATTERN MAKING.		
923	Harry H. Tukey . . . . .	June 30, 1922
829	George S. Clarkson . . . . .	" 30, 1921
827	James B. Cummings . . . . .	" 30, 1922
785	John Black, Jr. . . . .	" 30, 1922
752	Clarence R. Rees . . . . .	" 30, 1924
PLUMBING.		
879	James A. Sullivan . . . . .	June 30, 1921
813	John J. Downey . . . . .	" 30, 1921
PRINTING.		
887	Frederick A. Coates . . . . .	June 30, 1924
885	Charles R. Forbes . . . . .	" 30, 1923

\* Holds XXXI. (Technical Instructor) Certificate only.

Day and Evening Industrial School Certificates (*Concluded*).

Rating.	Name.	Certificate Expires
841	Ralph L. Boudreau . . . . .	June 30, 1923
831	John B. Martell . . . . .	" 30, 1923
824	James Robinson . . . . .	" 30, 1920
738	Thomas F. Woods . . . . .	" 30, 1924
729	Charles M. Doherty . . . . .	" 30, 1924

## SHEET METAL WORK.

940	Andrew J. Leahy . . . . .	June 30, 1924
754	James A. Linney . . . . .	" 30, 1922

## XXXII. TEACHERS OF RELATED AND ACADEMIC CLASSES.

## (NON-VOCATIONAL SUBJECTS.)

*Men.*

Rating.	Name.	Certificate Expires
806	Russell B. Leonard . . . . .	June 30, 1921
745	John A. Bergin . . . . .	" 30, 1924
704	Edward M. McDonough . . . . .	" 30, 1924

*Women.*

896	Eva L. Morley . . . . .	June 30, 1921
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XXXIV. DAY AND EVENING INDUSTRIAL SCHOOL  
CERTIFICATE.

## (PHYSICAL TRAINING).

Rating.	Name.	Certificate Expires
859	Grace F. Johnson . . . . .	June 30, 1924
821	Alice B. Felton . . . . .	" 30, 1924

## ASSISTANT DIRECTOR OF MANUAL ARTS (GARDENING).

Rating.	Name.	Certificate Expires
773	Daniel W. O'Brien . . . . .	June 30, 1924

## ASSISTANT IN MANUAL ARTS CERTIFICATE.

## DRAWING.

Rating.	Name.	Certificate Expires
819	Margaret Lovell . . . . .	June 30, 1920
814	Annette M. LaVoie . . . . .	" 30, 1924
814	Laura W. Cook . . . . .	" 30, 1924
780	Amy E. Adams . . . . .	" 30, 1924
755	Charlotte I. Lewis . . . . .	" 30, 1920
740	Josephine G. Malone . . . . .	" 30, 1924

INSTRUCTOR OR ASSISTANT INSTRUCTOR OF MILITARY  
DRILL.

Rating.	Name.	Certificate Expires
813	Daniel J. Canty . . . . .	June 30, 1921

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ASSISTANT NURSE CERTIFICATE.

Rating.	Name.	Certificate Expires
893	Marion C. Sullivan . . . . .	June 30, 1924
862	Margaret C. Murphy . . . . .	" 30, 1921
860	Zilla M. Wallace . . . . .	" 30, 1919
856	Margaret A. Packard . . . . .	" 30, 1921
852	Mary E. Hines . . . . .	" 30, 1921
840	Inez W. Nichols . . . . .	" 30, 1921
824	Eunice S. Carter . . . . .	" 30, 1920
824	Annie K. Gillies . . . . .	" 30, 1921
820	Ruth E. Hawkins . . . . .	" 30, 1921
808	Evelyn F. McLaughlin . . . . .	" 30, 1924
807	Barbara R. Zimmerman . . . . .	" 30, 1921
805	Alice E. Hughes . . . . .	" 30, 1921
795	Mary E. Murray . . . . .	" 30, 1921
786	Christine E. Sweeney . . . . .	" 30, 1924
783	Mary F. Johnson . . . . .	" 30, 1921
778	Sarah M. Waterman . . . . .	" 30, 1920
763	Margaret E. Crockstad . . . . .	" 30, 1923
750	Dorothy E. Ripley . . . . .	" 30, 1924
734	Olive M. Houghton . . . . .	" 30, 1923
727	Theresa V. Kelley . . . . .	" 30, 1919
727	Anna E. Ray . . . . .	" 30, 1919
727	Helen C. Riley . . . . .	" 30, 1922
722	Genevieve E. Hiney . . . . .	" 30, 1922
719	Margaret E. Cullen . . . . .	" 30, 1922
713	Helena M. Howard . . . . .	" 30, 1922
711	Esther I. Cooper . . . . .	" 30, 1920
679	Adaline Tucker Bradley . . . . .	" 30, 1920

## ALPHABETIC LIST OF CANDIDATES.

(Unless otherwise indicated, all addresses are in Massachusetts.)

## A.

	PAGE
Adams, Amy E.....	5 Jefferson street, Newton 36
Alden, Alice A.....	22 Freeman street, Arlington 35
Allbee, Angie G.....	162 Gregory avenue, Passaic, N. J. 15
Anderson, Agnes L.....	288 Bunker Hill street, Charlestown 32
Ernest W.....	64 Fulton street, Medford 28
Hilda L.....	117 L street, South Boston 24
Armstrong, Mary G.....	561 East Fifth street, South Boston 24
Ashton, Willa M.....	71 Glendale street, Everett 27
Atwood, Walter S.....	Box 41, Hyannis 12
Austin, May M.....	Portland, Conn. 16
Ayer, Harriet.....	30 Agassiz street, Cambridge 27

## B.

Bacon, Fannie C.....	3 Bacon place, Newton Upper Falls 32
Bagley, Anna M.....	89 Robbins street, Waltham 34
Baker, Howard B.....	93 Comstock avenue, Providence, R. I. 14
Kenrick M.....	53 Wendell avenue, Brockton 17
Barker, Susan B.....	66 Capen street, Dorchester 22
Barr, Katharine E.....	139 Highland street, Roxbury 24
Barry, Annie F.....	36 Carson street, Dorchester 25
Ellen A.....	813 Beacon street 13
Jane U.....	23 Medford street, Charlestown 22
Barth, Jessie L.....	24 Nottingham street, Dorchester 22
Bartlett, Elizabeth M. P.....	9 Jefferson Hall, Trinity Court 17
Bassett, Ormon E.....	171 Tremont street, Taunton 14
Battles, Earl W.....	4 Story terrace, Marblehead 15
Beatley, Catharine B.....	11 Wabon street, Roxbury 13
Belinsky, Annie S.....	12 Lorne street, Dorchester 22
Bennett, Edith E.....	9 Nottingham street, Dorchester 12, 34
Benson, Agnes L.....	72 Tremont street, Brighton 27
Ulrika E.....	24 Oliver street, Everett 16
Bergin, John A.....	16 Upland road, North Cambridge 12, 36
Bernstein, Abraham S.....	43 Chambers street 35
Beveridge, Olive A.....	16 Nixon street, Dorchester 13
Billings, Constance.....	22 Burroughs street, Jamaica Plain 19, 25
Flora E.....	887 Washington street, Canton 13
William A.....	322 Dorchester street, South Boston 28
Bird, Birdie O.....	Agricultural and Mechanical College, Normal, Ala. 26
Herbert C.....	29 Monmouth street, East Boston 21, 27
Bishop, Nellie K.....	56 Seaver street, Wellesley Hills 30
Black, John, Jr.....	Box 311, Cohasset 33, 35
Blatchley, Charles A.....	219 Blatchley avenue, New Haven, Conn. 15
Blodgett, Guy C.....	92 Belmont street, Somerville 15
Blount, Henry G.....	Charleston, Me. 15
Boland, Agnes J.....	21 Cheney street, Roxbury 25
Boles, Sadie M.....	1862 Beacon street, Brookline 27
Bond, Philip J.....	104 Geneva avenue, Dorchester 20, 25
Bonney, Richard P.....	1295 Commonwealth avenue, Allston 14
Borden, Alfred M., Jr.....	50 Coral street, Fall River 34
Borrè, Louise M.....	10 Humphreys street, Dorchester 21



	PAGE
Boudreau, Ralph L. . . . .	32 Bayfield road, Atlantic 36
Boyan, John J. . . . .	175 Princeton street, East Boston 14, 26
Boyhan, Mary J. . . . .	52 Bennington street, Newton 22
Bradford, Edith H. . . . .	272 Summer street, West Somerville 14
Bradley, Adaline Tucker. . . . .	788 Broadway, South Boston 37
Brady, Rose A. . . . .	97 Morton street, Jamaica Plain 24
Bragdon, Ralph H. . . . .	123 North avenue, North Abington 15
Brennan, Agnes C. . . . .	12 Knoll street, Roslindale 22
Agnes G. . . . .	20 Willis street, Dorchester 24
Breslasky, Bessie I. . . . .	32 Thane street, Dorchester 30
Brewster, Marie. . . . .	692 Washington street, South Braintree 16
Broaders, Clyde M. . . . .	35 Florence street, Medford 26
Broderick, Robert W. . . . .	1 Pentucket street, Haverhill 17
Brogan, Mary C. . . . .	192 Grant avenue, Medford 20
Brophy, Alice A. . . . .	58 Eliot street, Jamaica Plain 13
Burke, Abigail F. . . . .	14 Mark street, Roxbury 26
Helen K. . . . .	11 Auburn street, Roxbury 22
Katharine J. . . . .	61 East Concord street 16
Burnce, Frances. . . . .	76 Allen street 13, 19
Burnham, Dorothy M. . . . .	185 Poplar street, Roslindale 23, 31
Gladys F. . . . .	Washington street, Topsfield 30
Helen L. . . . .	221 Broadway, Revere 33
Burns, Genevieve A. . . . .	194 Walnut avenue, Roxbury 17
Katherine C. . . . .	30 Whiting street, Roxbury 28
Thomas P. . . . .	32 Callender street, Dorchester, 28, 33, 34
Burrage, Constance E. . . . .	Weston 15
Buxbaum, William. . . . .	1139 Commonwealth avenue, Allston 35
Byrne, Ruth I. . . . .	31 Sherman street, Roxbury 24

## C.

Cadwell, Floralyn. . . . .	11 East Newton street 13
Cabill, Marguerite A. . . . .	19 Greenwood avenue, Jamaica Plain 18
Calderara, Josephine M. . . . .	11 East Newton street, 21, 22
Callaghan, Agnes L. . . . .	122 Main street, Haverhill 18
Campbell, Helen T. . . . .	66 Bowdoin avenue, Dorchester 19
Canty, Daniel J. . . . .	28 Highland street, Roxbury 37
Carangelo, Louise F. . . . .	7 Hull street 27
Carey, Helen. . . . .	15 Allen street 28
Carley, Esther L. . . . .	224 North Harvard street, Allston 26
Carroll, James H. . . . .	Ware Hall, Cambridge 14
Mary M. . . . .	18 Devens street, Charlestown 23
Carter, Eunice S. . . . .	21 Russell terrace, Arlington 37
Laura F. . . . .	14 Newbury street 27
Casey, Margaret M. . . . .	89 Cedar street, Roxbury 25, 34
Margaret M. . . . .	79 Howland street, Roxbury 32
Mary St. A. . . . .	15 Wales street, Dorchester 30
Susan. . . . .	59 Hersey street, Hingham 30
Cashman, Elizabeth. . . . .	33 Woodland street, Newburyport 31
Cauley, Anna G. . . . .	21 Athelwold street, Dorchester 33
Mary W. . . . .	21 Athelwold street, Dorchester 18
Sarah L. . . . .	21 Athelwold street, Dorchester 18
Cavanagh, Eva R. . . . .	10 Elm Lawn, Dorchester 32
Cavanaugh, Mary F. . . . .	27 Parkland street, Brighton 22
Chandler, L. Reginald. . . . .	489 Common street, Belmont 32
Chapin, Christine. . . . .	6 Arundel park, Dorchester Centre 31
Christie, Euphemia D. . . . .	374A Centre street, Jamaica Plain 31
Church, Ruth T. . . . .	21 Alaska street, Roxbury 24
Clarke, Frank A. . . . .	826 East Seventh street, South Boston 27
Ruth E. . . . .	35 Montrose street, Somerville 30
Clarkson, George S. . . . .	53 Stark road, Worcester 35
Clutterbuck, May B. . . . .	North Scituate 30

	PAGE
Coates, Frederick A.....	114 Central avenue, Milton 35
Cogan, Matilda E.....	61 Farragut road, South Boston 17
Coggin, Kate E.....	37 Wilfred street, West Lynn 30
Cohen, Bertha.....	108 Howland street, Roxbury 22
Sarah E.....	9 Garden street, Roxbury 27
Cole, Helen A.....	28 Magnolia street, Arlington 27
Coleman, Alice C.....	96 Norfolk street, Dorchester 22
Helen M.....	59 Esmond street, Dorchester 31
Colleran, Ellen P.....	207 Fisher avenue, Roxbury 31
Collins, James P.....	22 Eleanor street, Chelsea 26
Katharine C.....	10 G street, South Boston 19, 26
Margaret L.....	160 I street, South Boston 23
Conklin, Clare.....	39 Hastings street, West Roxbury 31
Connor, Christopher A.....	322 Hyde Park avenue, Jamaica Plain 21, 26
Conroy, Agnes T.....	475 East Fifth street, South Boston 22
Cyril C.....	83 Minot street, Neponset 27
Genevieve M.....	182 Blue Hill avenue, Roxbury 32
Conway, Margaret V.....	1 Sachem street, Roxbury 23
Cook, Laura W.....	1298 Commonwealth avenue, Allston 17, 36
Cooper, Esther I.....	29 Magnolia street, Dorchester 37
Corbett, William B.....	7 Pinckney road, Dorchester 13, 26
Corliss, Anna J.....	40 Dudley street, Roxbury 27
James C.....	40 Dudley street, Roxbury 15
Cornack, Mabel I.....	197 Bunker Hill street, Charlestown 21
Cotter, Cornelius G.....	19 Deering road, Mattapan 33, 34
Coughlin, Dorothy F.....	30 Belfort street, Dorchester 23
Courchene, William A.....	44 Central avenue, Hyde Park 17
Cowan, Elinor G.....	9 Greenheys street, Dorchester 30
Cox, Eleanor L.....	67 Brooks avenue, Newtonville 14
Coyle, Beatrice G.....	18 Edwin street, Dorchester 32
Craig, Catherine E.....	35 Bayard street, Allston 24
Crimmins, Bessie F.....	111 Call street, Jamaica Plain 26
Crockett, Alice L.....	48 Babcock street, Brookline 13
Crockstad, Margaret E.....	33 Bullard street, Dorchester 37
Cronin, Helen L.....	65 Winthrop street, Charlestown 22
Crosby, Henry S.....	90 Vernon street, Waltham 35
Crotty, James F.....	42 Milton street, Worcester 33
Cullen, Margaret E.....	10 Hill street, Winchester 37
Cummings, George A.....	8 Howes street, Dorchester 22
James B.....	3 Lamson court, East Boston 35
Ruth J.....	West Tisbury 14
Cunningham, Florence C.....	99 H street, South Boston 27
Cushing, Lester H.....	495 Wilder street, Lowell 14

## D.

Dacey, Mildred A.....	18 Muzzey street, Lexington 20, 26
Daley, Daniel L.....	92 Savin Hill avenue, Dorchester 20, 25
Dallas, J. Paul.....	101 Highland street, Roxbury 35
David, John A.....	Carnegie Institute Technology, Schenley park, Pittsburgh, Pa. 15
Davis, Dorothea.....	382 Longwood avenue 17
Harriet B.....	12 Hampshire street, Everett 32
Leonore F.....	89 Walk Hill street, Forest Hills 26
Maurice.....	25 McLean street 26
Dawson, Alden K.....	111 Lake View avenue, Cambridge 17
Charles E.....	6 Orchard street, Holyoke 35
Day, Catherine R.....	140 Elmo street, Dorchester 27
Deegan, Mary J.....	30 Sycamore street, Somerville 30
Denihan, Marie P.....	160 Dorchester street, South Boston 28
Dermody, Mary L.....	94 Charles street 18
Devereaux, Mary E. D.....	129 Paul Gore street, Jamaica Plain 23
Devlin, Mary M.....	53 Bernard street, Dorchester Centre 13
Dockendorff, Marguerite L.....	280 Dudley street, Roxbury 25

	PAGE
Doherty, C. Frances.....	824 Main street, Winchester 29
Charles M.....	62 Allen street 36
Marie C.....	27 Eastburn street, Brighton 26
Dolan, Anna J.....	27 Hancock street, Dorchester 16
James E.....	Arctic, R. I. 29
Mabel O.....	16 Tyndale street, Roslindale 23
Donshue, Richard G.....	11 Central avenue, Dorchester 20
Donoghue, Alice E.....	33 Dunster road, Jamaica Plain 29
Donohoe, Blanche L.....	28 Johnson street, Lynn 26
Donovan, Charles W.....	73 Rutland street 35
Mary E.....	446 Second street, South Boston 24
Dooley, Helen M.....	485 Hyde Park avenue, Roslindale 23
Thomas P.....	14 Spaulding street, Dorchester 12
Dorrington, Julia A.....	Blackstone 13
Douglas, Gladys P.....	64 Union street, Methuen 30
Downey, John J.....	121 Sycamore street, Roslindale 35
Marion L.....	119 Squantum street, Atlantic 30
Driscoll, Francis J.....	7 Sherman square, Charlestown 19, 27
Julia A.....	73 Walter street, Roslindale 25
Ducey, Annie M.....	24 Washburn street, Dorchester 25
Duffey, Francis A.....	23 Rowell street, Dorchester 27
Duffy, James L.....	22 Knoll street, Roslindale 23
Dullea, Katherine M.....	160 Third street, South Boston 26
Dunbar, Florence A.....	194 Washington street, Canton 28
James A.....	27 Jefferson avenue, Charlestown 19, 26
Dunfey, Frederick A.....	47 Claybourne street, Dorchester 33
Dunn, Joseph R. B.....	7 Mt. Vernon street, Dorchester 16
Valentine F.....	138 Myrtle street, Rockland 29
Duvall, Mary O.....	37 Champa avenue, Newton Upper Falls 30
Dvorak, Emma E.....	2 Mark street, Jamaica Plain 23
Dwyer, Ellen A.....	15 Corey street, Charlestown 23
Dyer, Helen R.....	47 Appleton road, Brighton 31

**E.**

Early, James L.....	123 Riverview street, Campello 29
Eason, M. Alonzo.....	Stantonsburg, N. C. 35
Eastman, Clare.....	25 Wheatland avenue, Dorchester 17
Eaton, Gladys P.....	79 Thetford avenue, Dorchester Centre 25
Eckman, Elsie M.....	83 Thornton street, Roxbury 21
Edson, Newell W.....	71 Highland road, Brookline 18
Eglinton, Royal R.....	1356 Lake avenue, Whalon, Fitchburg 35
Ellis, Madeline M.....	116 Thorndike street, Brookline 19, 24
Elms, Ruth.....	42 St. Stephen street 19, 26
English, Alice C.....	32 Clive street, Jamaica Plain 25
Engstrom, Nils.....	10 Euclid avenue, Worcester 35
Estabrook, Rosamond.....	88 Corey street, West Roxbury 17

**F.**

Falvey, Miah J.....	101 Parsons street, Brighton 12
Farlin, Amy C.....	56 Central avenue, Hyde Park 14
Farnham, Dorothy W.....	Edgewood street, Needham 30
Farnsworth, Albert.....	48 Eddy street, West Newton 14
James P.....	126 Auburn street, Medford 16
Farrell, Arthur H.....	333 Neponset avenue, Neponset 35
Faul, Louise K.....	10 Mechanic street, Roxbury 28
Fay, William E.....	217 Crafts street, Newtonville 14
Felton, Alice B.....	20 Woodford street, Dorchester 36
Ferber, Maurice.....	1872 Commonwealth avenue, Allston 13
Fields, Marion A.....	9 Maybrook street, Dorchester 30
Fihelly, James E.....	38 Woodville street, Roxbury 21, 28
Finan, Mary F.....	1 Parker Hill terrace, Roxbury 22

	PAGE
Finer, Percy R. ....	28 Wolcott street, Everett 34
Finn, John H. ....	Nutley, N. J. 12
Fish, Manus J., Jr. ....	43 Brent street, Dorchester 20, 27
Fisher, Grace D. ....	58 Wyman street, Woburn 34
FitzGerald, Christopher A. ....	15 Sargent street, Dorchester 15
John B. ....	71 Farragut road, South Boston 21, 25
Lucy A. ....	251 Bunker Hill street, Charlestown 33
Ruth K. ....	6 Haley street, Roxbury 22, 30
Fitzgerald, George F. ....	108 Holworthy street, Cambridge 23
Helen M. ....	44 Chester street, Wollaston 14
Joseph A. ....	113 Sheffield avenue, New Haven, Conn. 24
William A. ....	28 Lexington street, Charlestown 28
Fleming, William F. ....	254 Washington street, Brighton 27
Flieger, Gladys L. ....	162 Arlington street, Wollaston 30
Flynn, Elizabeth C. ....	25 Forest street, Malden 34
J. Bernard. ....	21 Neptune road, East Boston 27
Foley, Marguerita R. ....	10 Gayland avenue, Dorchester 22, 31
Foote, Edmund W. ....	92 Lincoln street, Montclair, N. J. 14
Forbes, Charles R. ....	18 Ashton street, Worcester 35
Ford, Anastasia. ....	36 Brainerd road, Allston 26
Marion McIntyre. ....	29 Congreve street, Roslindale 17
Fossett, Fred E. ....	8 Batavia street 33
Gertrude M. ....	36 Brent street, Dorchester 17
Foster, Leo T. ....	12 Fort Hill terrace, Northampton 12
Louise B. ....	259 Essex street, Beverly 15
Fowles, Elinor J. ....	28 Lindsay street, Dorchester 22
Franke, Clara H. ....	8 Arborway Court, Jamaica Plain 29
Freneh, Martha Reid. ....	5 Green street, Jamaica Plain 30
Frink, Robert E. ....	Stony Point, N. Y. 15

## G.

Gallagher, Margaret E. ....	8 Bellflower street, Dorchester 27
Galvin, Lillian N. ....	31 Oakland street, Malden 27
Gammans, Harold W. ....	48 Monument avenue, Charlestown 13
Gardner, Clayton E. ....	9 Batavia street 15
Garland, Clarence H. ....	28 West Walnut park, Roxbury 33
Gartland, Edith M. ....	9 Merlin street, Dorchester Centre 13
Gavin, Bertha F. ....	15 Holden street, Dorchester 21
Geary, Patrick L. ....	121 Florida street, Ashmont 24
Giblin, Mary L. ....	17 Mt. Vernon street, Dorchester 31
Gildea, Joseph H. ....	28 Chase street, Lynn 24
Gillies, Annie K. ....	77 Richardson street, Newton 37
Gilmore, Gladys C. ....	80 Madison avenue, Newtonville 18
Gilson, Josephine B. ....	4 Marion street, Natick 30
Ginsburg, Lillian. ....	35 Forest street, Winthrop 33
Ginty, Thomas A. ....	153 Huntington avenue 27, 34
Glennon, William H. ....	167 Brookline street, Cambridge 21, 27
Glover, Clara E. ....	22 Brown avenue, Roslindale 17
Goff, Edwina M. ....	37 High street, Charlestown 26
Goggin, Agnes P. ....	2 George street, North Cambridge 25
Golden, Agnes M. ....	1790 Columbia road, South Boston 25
Goode, Mildred C. ....	56 Russell street, Brookline 31
Goodspeed, Helen J. ....	150 Main street, Franklin 12
Gordon, Eva. ....	330 Harrison avenue 27
Frank V. ....	404 Massachusetts avenue, Arlington 15
Gertrude P. ....	8 Clifford street, Readville 32
Gorman, Aliee M. ....	74 H street, South Boston 17
Gould, Mary G. ....	42 Poplar street, Danvers 16
May E. ....	18 Horton street, Lewiston, Me. 13
Grady, Lucy A. B. ....	85 Heath street, Somerville 29

	PAGE
Graham, Marion R.....	6 Woodville street, Roxbury 26
Grandfield, John M.....	46 Sagamore street, Dorchester 19, 28
Grass, Genevieve C.....	15 Millmont street, Roxbury 22
Mary K.....	15 Millmont street, Roxbury 23
Gray, Mary R.....	43 Pleasant street, Dorchester 31
Grealis, Catherine A.....	235 Woodlawn street, Clinton 30
Greely, William F.....	533 Bennington street, East Boston 21, 27
Green, Joseph G.....	53 Creighton street, Roxbury 20, 24
Greene, Gertrude M.....	50 Thomas park, South Boston, 15, 21, 26
Vincent L.....	50 Thomas park, South Boston 20, 27
Griffin, Mary A.....	237 Second street, Chelsea 32
Grueter, Leo H.....	41 Holiday street, Dorchester 13, 27
Guptill, Ida S.....	21 Saunders street, Allston 23
Gustafson, Signhild V.....	18 Donald street, Springfield 20

## H.

Hagarty, Josephine F.....	27 Richards street, Worcester 34
Haggerty, Elizabeth E.....	12 Port Norfolk street, Dorchester 16
Haley, Dennis C.....	25 Seymour street, Roslindale 19, 25
Halligan, Henry M. J.....	927 East Fourth street, South Boston 21
Halloran, Charles O.....	900 East Broadway, South Boston 20, 28
Leo V.....	23 Edison Green, Dorchester 20, 23
Hampe, Elizabeth M.....	37 Dunster road, Jamaica Plain 17
Hannon, Mildred J.....	579 Broadway, South Boston 31
Hanson, Lillian M.....	6 Carson street, Dorchester 27
Harrington, Eileen M.....	32 Pearl street, Medford 18
Lucile A.....	14 Van Winkle street, Dorchester 22
Hartigan, Mary A.....	80 Brown avenue, Roslindale 30, 33
Hartwell, Herbert F.....	116 Washington road, Springfield 13
Harvey, Elvira T.....	51 Hyde street, Newton Highlands 17
Hastings, Mildred E.....	29 Wellington street 12, 20, 24
Haverty, Arthur L.....	91½ Inman street, Cambridge 34
Hawkes, Mary C.....	15 Durham street 34
Hawkins, Ruth E.....	85 Cedar street, Fitchburg 37
Hayes, Madeleine C.....	268 Bowdoin street, Dorchester 32
Healy, Alice H.....	56 Thomas park, South Boston 18
Hearn, Regina.....	57 Pleasant street, Dorchester 19
Hegamyer, Minerva A.....	96 Neponset avenue, Dorchester 31
Hegarty, Julia E.....	85 Pearl street, Charlestown 27
Henderson, Rema J.....	107 Jackson street, Holyoke 16
Hennessey, Joseph A.....	333 Geneva avenue, Dorchester 25
Hennessey, George S.....	17 Park street, Newton 28
Herring, Annie J.....	39 Austin street, Hyde Park 35
Herron, Helen G.....	188 Larch road, Cambridge 31
Hickey, Mary G.....	39 Emerson street, Wakefield 12
Rose M.....	42 Fayette street, Cambridge 22
Hines, Marion E.....	155 Newton street, Waltham 29
Mary E.....	50 Aetna street, Worcester 37
Hiney, Genevieve E.....	118 Arlington street, Hyde Park 37
Hoey, Thomas J.....	184 Waverly street, Framingham 15
Holleran, Frances M.....	9 Heathcote street, Roslindale 23
Hopkins, George F.....	478 Main street, South Weymouth 30
Hopson, Albert W.....	Box 15, Norton 13
Horne, Marjorie S.....	18 Harold park, Roxbury 23, 31
Hosmer, Florence E.....	34 Noble avenue, Westfield 33
Houghton, Olive M.....	173 Bellevue avenue, Melrose 37
Robert B.....	16 Glade avenue, Jamaica Plain 29
Hourihan, Mary A.....	26 Mather street, Dorchester 18
Howard, Helena M.....	95 Moreland street, Roxbury 37
Hubleby, Maud B.....	20 Duxbury road, Worcester 29

	PAGE
Hughes, Alice E.....	111 Pearson road, West Somerville 37
Anna C.....	9 Walker street, Charlestown 23
Mary G.....	124 Longwood avenue, Roxbury 25
Hume, Viola W.....	539 Talbot avenue, Dorchester 30
Hunt, Ruth G.....	25 Harvard avenue, Allston 22
Hunton, Leila E.....	Newport, N. H. 32
Hurley, Frederick J.....	7 Rosemont road, Dorchester 21, 26
Mary M.....	70 Bolton street, Marlboro 30
Hurlin, Edna M.....	77 Mayfield street, Dorchester 15
Hutchinson, Florence E.....	4 Worcester street, Framingham 14

### J.

Jackson, Katherine A.....	152 Lincoln avenue, Newark, N. J. 32
Jaques, Bessie H.....	South Berwick, Me. 13
Jaquith, Rena M.....	553 Columbus avenue 20, 25
Jennings, Mary G.....	61 Stratford street, West Roxbury 18
Johnson, Florence E.....	13 Mansfield street, Allston 22, 31
Grace F.....	205 Davis avenue, Brookline. 36
Gustaf A.....	221 Greenwood street, Worcester 34
Mary F.....	11 Grant street, Natick 37
Warren C.....	132 Mt. Vernon street, Winchester 14
Jones, Charles.....	Worcester Academy, Worcester 12
Joyce, Margaret M.....	New Ipswich, N. H. 30

### K.

Karman, Gertrude.....	38 Arlington street, Hyde Park 14
Keating, Marjorie F.....	34 Church street, Dorchester 27
Keefe, Helen G.....	52 Round Hill street, Jamaica Plain 22
Keeler, Marion.....	24 Judson street, Roxbury 18
Keith, Mildred W.....	72 South street, Campello 31
Kelley, Agnes E.....	42 Highland street, Roxbury 19, 26
Charles L.....	292 Jefferson avenue, Brooklyn, N. Y. 15
J. Irene E.....	65 Bynner street, Jamaica Plain 30
Mary A.....	485 East Seventh street, South Boston 23
Theresa V.....	199 Union street, South Natick 37
Wilfred F.....	103 Aldrich street, Roslindale 14
Kelly, Ethel M.....	15 Wayne street, Roxbury 26
Kennedy, Bessie E.....	12 Thomas park, South Boston 28
Geraldine B.....	South Main street, Randolph 14
Grace H.....	43 Dartmouth street, Somerville 16
Kenney, Dorothy M. G.....	3145 Washington street, Jamaica Plain 25
Kerr, Charles A. T.....	67 Prospect street, Waltham 35
Kidd, Reginald S.....	23 Dalton street 17
Kierstead, Fred H.....	Box 423, Holbrook 14
Kiggen, Helen J.....	54 Austin street, Hyde Park 18
Killilea, Teresa B.....	44 King street, Worcester 32
Kindred, Gertrude L.....	421 Geneva avenue, Dorchester 22
Kingsbury, Grace E.....	Otis street, Needham 17
Kirby, Marietta L.....	32 Vesta road, Dorchester 14, 16
Mary.....	79 East Canton street 25
Knight, Mabel F.....	18 Hazel park, Everett 14
Sadie M.....	3 Rosemere court, Roslindale 33
Kuhn, Abbie F.....	23 Allston street, Charlestown 23
Kyle, Eleanor M.....	50A Harvard street, Charlestown 15, 21

### L.

Lahive, John A.....	6 Dorset street, Dorchester 19, 26
Lally, John J.....	9 Mather street, Dorchester 34
Lavery, Agnes C.....	551 Saratoga street, East Boston 34
LaVoie, Annette M.....	Oak Bluffs, Martha's Vineyard 36

	PAGE
Lawlor, Mary E.....	34 Edgemere road, West Roxbury 23
Lawrence, Ernest F.....	111 George street, Medford 35
Madelon F.....	South Gardiner, Me. 32
Leahy, Andrew J.....	207 Eighth street, South Boston 36
Ellen A.....	91 Baldwin street, Charlestown 23
Leary, Charlotte E.....	Box 113, West Upton 32
Helen R.....	53 Leonard street, Dorchester 25
Joseph A.....	726 Columbia road, Dorchester 21, 24
Leavitt, Arthur W.....	Foxboro 16
Leighton, Mabel A.....	70 Chestnut street, Marlboro 32
Leonard, Russell B.....	Industrial School, New Bedford 36
Levine, Lillian P.....	47 Hewins street, Dorchester 22, 31
Levy, Philip.....	17 Decatur street 20
Lewis, Charlotte I.....	45 Highland avenue, Haverhill 36
Earl S.....	59 Davis avenue, Auburn, Me. 14
Lincoln, Marion B.....	583 Orange street, New Haven, Conn. 13
Linney, James A.....	300 Boylston street, Brookline 36
Livingston, Myron.....	22 Michaels place, Chelsea 20, 28
Lloyd, Odette M.....	568 Eliot street, Mattapan 32
Long, Alice M.....	505 Geneva avenue, Dorchester 23
Lorway, Ruth.....	8 Pratt street, Allston 27
Loughran, Elizabeth W.....	Warren, R. I. 16
Lovell, Margaret.....	8 State street, Worcester 36
Lucas, Izannah A.....	48 Chestnut street, Wakefield 17
Lynch, Grace V.....	277 Walnut avenue, Roxbury 22
Lyons, Dorothy M.....	403 High street, Dedham 22
I. Virginia.....	20 Queensberry street 33

**M.**

Macdonald, Louise.....	538 Newbury street 30, 33
MacDonald, William L.....	East Jaffrey, N. H. 29
MacGrath, Marie C.....	96 G street, South Boston 23
MacMahon, Anna G.....	20 Bowen court, Newton Centre 30
Madden, Marie R.....	42 Johnson street, Ansonia, Conn. 14
Maggioni, Elizabeth L.....	57 Batchelder street, Roxbury 22
Maguire, Jesse J.....	39 Centre street, Springfield 34
Sarah G.....	491 Broadway, South Boston 31
Mahoney, Annie E.....	50 Moseley street, Dorchester 23
Frederick L.....	27 Thornley street, Dorchester 28
Helen.....	90 Lowell road, Winthrop 31
Joseph A.....	65 Bowdoin avenue, Dorchester, 19, 28, 33
Maley, Theresa B.....	59 Griggs road, Brookline 17
Malone, Josephine G.....	27 Clarkwood street, Mattapan 36
Maloney, Marguerite F.....	5 Dayton avenue, Roxbury 22
Mansfield, Mary R.....	46 Schafer street, Lowell 30
Marrinan, Nelly.....	30 Rockland street, Roxbury 18
Marsh, Elizabeth A.....	6 Staten street, Gloucester 32
Miriam N.....	41 Irving place, Quincy 13
Marshall, Myra H. A.....	11 Bay State avenue, West Somerville 13
Martell, John B.....	127 London street, East Boston 36
Martin, Agnes J.....	8 Sachem street, Roxbury 26
Marzynski, Philip.....	476 Geneva avenue, Dorchester 19, 24
Mason, Martha B.....	16 Gregory street, Marblehead 32
Mathews, Consuelo.....	15 Wigglesworth street, Roxbury 22
Maxwell, Helen E.....	18 Cedar street, Charlestown 24
May, Carroll H.....	317 West Reynolds street, Urbana, O. 12
Grace M.....	17 Edgewood street, Roxbury 27
Mayer, John L.....	258 Gold street, South Boston 19, 29
McBride, Constance.....	17 Temple street, Mattapan 27
McCabe, Catherine F.....	7 Sharon street 27
George S.....	East Walpole 28

	PAGE
McCance, Catherine M.....	29 Wabon street, Roxbury 31
McCarten, Tilla.....	111 Gainsborough street 15
McCarthy, Anastasia C.....	Willow street, Scituate 31
Caroline H.....	777 Broadway, South Boston 12
John F.....	8 Magnolia street, Dorchester 21, 24
Lucy E.....	58 Magnolia street, Dorchester 31
Margaret L.....	31 Polk street, Charlestown 23
William M.....	25 Sudan street, Dorchester 28
McCormack, John W.....	Rouses Point, N. Y. 15
McCormick, Adeline H.....	77 Brington road, Brookline 32
Catherine L.....	11 Robinwood avenue, Jamaica Plain 17
McDermott, Mary T.....	74 Williams street, Jamaica Plain 17
McDonald, Margaret.....	17 Waldeck street, Dorchester 25
McDonough, Edward M.....	12 Concord square 36
McElroy, Ethel G.....	31 Gray street, Cambridge 14
McGoldrick, Agnes F.....	361 Dudley street, Roxbury 27
McGowan, Margaret M.....	9 Albion place, Charlestown 25
McGrath, Eleanor G.....	35 Nightingale street, Dorchester 31
McHardy, Helen D.....	463 Pleasant street, East Milton 25
McHugh, Thomas F.....	56 Eckert avenue, Newark, N. J. 29
McIntyre, Clarice H.....	2 Estcy street, Roxbury 25
McKay, Edward F.....	118 Woodrow avenue, Dorchester 20, 24
McKenna, Catherine L.....	2 Everett street, Dorchester 21, 25
Helen G.....	1304 Hyde Park avenue, Hyde Park 29
McKenney, William V.....	130 North Harvard street, Allston, 19, 27, 33
McKinnon, George L.....	80 Stetson street, Whitman 29
McLaughlin, Emily F.....	27 Willis street, Dorchester 32
Evelyn F.....	South Franklin street, Holbrook 37
Josephine A.....	428 Broadway, Cambridge 17
McLean, Mary E.....	61 Northfield street 30
Walter L.....	59 Dracut street, Dorchester 14, 25
McManus, Francis R.....	5 Victoria street, Dorchester 28
McMenamen, Sarah E.....	179 Hawthorne street, Malden 33
McPherson, Bertha A.....	53 Greenbrier street, Dorchester 22, 30
McQueeney, Agnes L.....	48 Magnolia street, Dorchester 24
McRobbie, William.....	124 Tyndale street, Roslindale 16
Mea, Frances B.....	23 Morse street, Dorchester 25
Thomas L.....	10 Oliver street, Framingham 29
Mellen, Gertrude C.....	485 East Sixth street, South Boston 21
Mergendahl, Charles H.....	112 Johnson street, Lynn 14
Meserve, Harrison G.....	87 Linden street, Allston 14
Miley, Catherine E.....	22 Morrill street, Dorchester 31
Mary.....	22 Morrill street, Dorchester 23, 31
Miller, Alexander W.....	6 Prince street, Marblehead 13
Harold J.....	27 Cabot street, Everett 34
Pauline.....	64 Wayland street, Dorchester 22, 31
Milliken, Mary E.....	11 Carmen street, Dorchester 27
Mills, Alice E.....	11 East Newton street 20, 25
Minihan, Anna E.....	219 L street, South Boston 31
Minton, Margaret E.....	13 Sargent street, Dorchester 32
Mohan, Mary J.....	42 Carson street, Dorchester 13
Monahan, Grace M.....	35 South street, Waltham 17
Mooney, Louise E.....	230 Olmstead street, Jamaica Plain 25
Moore, Louis F.....	12 Montello street, Dorchester 21, 23
Margaret M.....	749 Morton street, Mattapan 22
Myldred.....	41 Norwood avenue, Norwood, R. I. 33
Nina G.....	39 St. Stephen street 18
Moran, Helen G.....	West Boylston 30
Katherine.....	25 South Russell street 19
Katherine.....	52 Carver street 23
Moreland, Marion C.....	159 Princeton street, East Boston 15



CANDIDATES ELIGIBLE AS TEACHERS.

47

	PAGE
Morgan, William T. ....	42 College House, Cambridge 14
Morley, Eva L. ....	403 Meridian street, East Boston 36
Morse, Helen B. ....	32 Aspinwall road, Dorchester Centre 28
Morton, Helen F. ....	13 Merlin street, Dorchester 35
Muldoon, Alice G. ....	38 Wales street, Dorchester 32
Margareta M. ....	49 Mapleton street, Brighton 23
Mullen, Frank. ....	52 Etna street, Brighton 35
Mulligan, Mary E. ....	31 Tower street, Forest Hills 28
Mullins, Marie. ....	82 East Newton street 23
Murphy, Alice E. ....	706 Washington street, Dorchester 13
Catherine F. ....	11 Prospect street, Charlestown 23
Charles F. ....	28 Harbor View street, Dorchester 21, 25
Frances M. ....	48 Manthorne road, West Roxbury 24
Francis J. ....	5 Mather street, Dorchester 25
Margaret C. ....	88 Chestnut street 37
Mary C. ....	50 Cohasset street, Roslindale 24, 34
Maurice F. ....	1019 Blue Hill avenue, Dorchester 28
William J. ....	58 Shepard street, Brighton, 20, 23
Murray, Catherine A. ....	26 Pleasant street, Milton 18
Frederick J. ....	32 Mallet street, Dorchester 28
Grace A. ....	79 Hillside street, Roxbury 26
John J. ....	6 Hosmer street, Mattapan 33
Leonora C. ....	6 Elgin street, West Roxbury, 16, 21, 25
Mary E. ....	70 West Cedar street 37

N.

Nash, Winifred H. ....	75 Mayfield street, Dorchester 28
Nelligan, James M. ....	37 Gurney street, Cambridge 33
Newell, Katherine E. ....	10 Paisley park, Dorchester 23
Newton, Anjennette. ....	211 Winthrop street, Winthrop 15
Howard A. ....	51 Irving street, New Haven, Conn. 15
Nichols, Inez W. ....	32 Village street, Reading 37
Nolan, Helen M. ....	73 Hillside street, Roxbury 24
James H. ....	109 Ellery street, Cambridge 19, 26
Mary F. ....	74 Topliff street, Dorchester 26
Ona I. ....	458 Main street, South Weymouth 29
Norris, Irene H. ....	23 Orkney road, Brookline 31
Northrop, Harry C. ....	58 Harwood street, Lynn 12
Norton, Cecilia G. ....	99 King street, Dorchester 23
Nute, Marietta. ....	461 Washington street, Dorchester Centre 31
Nutter, William J. ....	Box 496, East Bridgewater 15

O.

Oakman, Clara E. ....	616 Norfolk street, Mattapan 28
O'Brien, Daniel W. ....	34 Harvard street, Natick 36
Dorothy M. ....	10 Edison Green, Dorchester 24
Grace Gould. ....	98 Josephine avenue, West Somerville 35
James L. ....	7 Edge Hill street, Jamaica Plain 27
Marguerite M. ....	9 Hinckley street, Dorchester 22
Mary A. ....	4 Dewey road, Momoguin, East Haven, Conn. 35
May A. ....	2207 Dorchester avenue, Dorchester 26
O'Brion, Katherine G. ....	34 Savin street, Roxbury 29
O'Callaghan, Mary L. ....	39 Etna street, Brighton 23
O'Connell, Nora A. ....	183 Vernon street, Wakefield 29
O'Connor, Dorothy C. ....	161 Ashland street, Roslindale 34
Isabel McClare. ....	723 East Third street, South Boston 12
Mary E. ....	538 East Fourth street, South Boston 26
William E. ....	23 Maywood street, Roxbury 17
O'Day, Mary J. ....	9 Bellflower street, Dorchester 26
O'Donnell, Olivia F. ....	95 Milton avenue, Dorchester 31

	PAGE
O'Hare, M. Theresa.....	105 Mt. Pleasant avenue, Roxbury 34
William G.....	59 Monument avenue, Charlestown 33
Olney, Isabel E.....	16 Howland street, Cambridge 32
O'Neil, Edith M.....	86 Medford street, Charlestown 22
O'Neill, Elizabeth I.....	430 Harvard street, Brookline 13, 16
Mary V.....	12 Roseland street, Dorchester 24
O'Reilly, Theresa A.....	112 Amory street, Roxbury 27
O'Rourke, Helen M.....	33 North Central street, Peabody 29
Outwater, Marjorie H.....	rear 243 Parker Hill avenue, Roxbury 27
Owen, Marion W.....	39 Kenwood street, Dorchester 17
Viola C.....	251 Princeton street, East Boston 19, 28

## P.

Packard, Margaret A.....	34 South avenue, Melrose Highlands 37
Paddock, Clarence E.....	13 Northampton avenue, Springfield 15
Palm, Sophia M.....	1419 Commonwealth avenue, Brighton, 13, 19, 24
Parker, W. Russell.....	15 Hancock court, Quincy 35
Patterson, Marguerite M.....	15 Custer street, Jamaica Plain 26
Robert E.....	69 Burt street, Dorchester 20, 28
Peirce, Mary E.....	36 Carey avenue, Chelsea 20, 26
Pendergast, William J.....	2 Pearl street, Dorchester 19, 27
Penell, Ida E.....	2 Grove street, Natick 29
Peterson, Dorothy C.....	54 Hobson street, Brighton 21
Philbrick, James H.....	163 Pauline street, Winthrop 16
Pickett, Thomas A.....	67 Exchange street, Rockland 15
Pierce, Virginia E.....	119 Highland street, Brockton 17
Pike, Alice.....	165 Glenway street, Dorchester 22
Pitt, Edwin R.....	397 Highland avenue, Wollaston 35
Pratt, Marion H.....	54 Centre street, Dorchester 32
Prendergast, Judith.....	108 Parker Hill avenue, Roxbury 25
Priest, Miriam E.....	9 Willoughby street, Somerville 32
Pushee, George F.....	21 Maple avenue, Northampton 34
Puttner, Marion E.....	83 Dix street, Dorchester 23, 31

## Q.

Quinlan, Eleanor H.....	15 Dunster road, Jamaica Plain 17
Quinn, Dorothy L.....	66 Washington street, Charlestown 22
Ralph F. V.....	43 Hawkins street 21, 24
Quinnam, Bertha C.....	15 Wilmore street, Mattapan 29

## R.

Raeliffe, Matilda F.....	1 Mt. Vernon square 17
Rafferty, Marion E.....	36 Holiday street, Dorchester 25
Ray, Anna E.....	204 Lexington street, East Boston 37
Raymond, Anna A.....	Lasell Seminary, Auburndale 12
Austina B.....	1010 Massachusetts avenue, Cambridge 34
Rees, Clarence R.....	15 Exeter street, Belmont 35
Reidy, Helen F.....	4 Harvest terrace, Dorchester 24
Rhlinger, Gertrude J.....	11 Dorset street, Dorchester 25
Rial, David W.....	Bates College, Lewiston, Me. 15
Rice, Bertha K.....	7 Monument street, West Medford 32
Riley, Helen C.....	St. Mary's Infant Asylum, Dorchester 37
Kathryn V.....	11 Raymond street, Allston 23
Riordan, Anna G.....	1 Pleasant street, Charlestown 26
Ripley, Dorothy E.....	4 Lincoln street, Natick 37
Ritchie, Frederick C.....	94 Welles avenue, Dorchester 34
Robinson, Carroll W.....	77 Beech avenue, Melrose 13
Dorothy M.....	24 Fayston street, Roxbury 22, 30
James.....	78 Hillside avenue, Revere 36
Roche, Eileen A.....	235 Heath street, Roxbury 24

Rodgers, Charles J. ....	65 Butterfield street, Lowell	34
Rosner, Gertrude C. ....	169 Boylston street, Jamaica Plain	25
Rosenauer, Dorothy. ....	18 Wheatland avenue, Dorchester	25
Rosnosky, Rachel. ....	29 Richfield street, Dorchester	18
Ruggles, Hazel W. ....	20 Hawthorne street, Roxbury	14
Russell, Grover C. ....	20 Glenwood way, Quincy	35
Hilda F. ....	1654 Massachusetts avenue, Cambridge	30
Ryan, James D. ....	27 Coolidge road, Allston	14

## S.

Sallaway, Margaret M. ....	125 Cushing avenue, Dorchester	13, 20
Sarjeant, Elizabeth F. ....	649 East Seventh street, South Boston	24
Sasserno, Henry A. ....	116 Adams street, Dorchester	15, 21, 26
Savage, Elizabeth G. ....	25 Child street, Jamaica Plain	24
Sayer, Dorothy. ....	23 Dakota street, Dorchester	17
Scanlan, Edith C. ....	14 Ashfield street, Roslindale	27
Scanlon, Gregory J. ....	59 Waterville street, Waterbury, Conn.	12
Thomas A. ....	18 Spaulding street, Dorchester	12
Scannell, Marion L. ....	741 Norfolk street, Mattapan	25
Schneider, Solomon. ....	1430 Columbus avenue, Roxbury	19, 23
Schubarth, Katharine M. ....	20 Mayfair street, Roxbury	14, 20
Schumann, Ethel M. F. ....	1 Glenvale terrace, Jamaica Plain	26
Scollard, Marie. ....	11 Sawyer avenue, Dorchester	21, 22
Scott, Irving O. ....	101 Greaton road, West Roxbury	18, 34
Scully, Anna E. ....	58 Dorset street, Dorchester	25
Seiniger, Saul L. ....	193 Chambers street	20, 23
Seitlin, Lena. ....	572 Blue Hill avenue, Roxbury	30
Sellew, Emma A. ....	38 Worcester street, Natick	34
Sharp, Marion L. ....	12 Fairbanks street, Brookline	13
Shaughnessy, Albert L. ....	18 Southern avenue, Dorchester	27
Shea, C. Louise. ....	742 Centre street, Jamaica Plain	23
John P. ....	16 Bluff street, Worcester	34
Sheahan, Alice L. ....	129 Minden street, Roxbury	22
John F. ....	129 Minden street, Roxbury	15
Sheehan, Elizabeth F. ....	213 Walnut avenue, Roxbury	27
Thomas W. ....	University Club, State College, Pa.	13
Sheen, Leah R. ....	10 Houston street, West Roxbury	31
Shepardson, Helen P. ....	18 Maple avenue, Newton	18
Shepherd, Marion. ....	33 Garfield street, Cambridge	32
Sheridan, Barbara E. ....	336 Centre street, Jamaica Plain	22, 31
Shields, John O. H. ....	South Quinsigamond avenue, Shrewsbury	29
Shipman, Wayne M. ....	51 Warren avenue, Mattapan	12
Sikora, Edith A. ....	25 Denton terrace, Roslindale	35
Silvester, Evelyn. ....	982 Main street, Worcester	17
Sinnett, Ruth. ....	624 Asylum avenue, Hartford, Conn.	32
Siskind, Sadie L. ....	3 Kensington street, Roxbury	25
Sleeper, Harriett A. ....	132 Main street, Haverhill	12
Slepian, Dora. ....	39 North Russell street	25
Small, Jessie E. ....	20 Clifford street, Roxbury	21, 30
Smith, Albert F. ....	117 Prospect street, Somerville	26
Alfred W. ....	Box 55, Newmarket, N. H.	14
Lillian M. ....	428 Meridian street, East Boston	13
Mae G. ....	96 Oxford street, Somerville	18
Marjorie G. ....	32 Crescent street, Wakefield	13, 19
Mildred E. ....	175 Washington street, Weymouth	12, 14
Snow, Edith M. ....	32 Rockview street, Jamaica Plain	28
Joseph S. ....	46 Peterborough street	16
Sonnabend, Edith. ....	189 Grampian way, Dorchester	28
Spencer, Arthur E. ....	61 Winslow avenue, Norwood	34
Stanley, Arthur B. ....	12 Kimball terrace, Newtonville	15
Stanwood, Dorothy. ....	590 Centre street, Jamaica Plain	20, 26
Stapleton, Margaret M. ....	596 Third street, South Boston	25

	PAGE
Starrett, Dorothy S. ....	407 Huntington avenue 19
Stephens, Josephine G. ....	127 River street, Mattapan 32
Stevens, Helen M. ....	5 Rogers street, Nashua, N. H. 15
Stowers, Sarah G. ....	388 Medford street, Somerville 19
Stroud, Percy V. ....	154 Munroe street, Dedham 14
Stroup, Mary H. ....	8 Haley street, Roxbury 25
Strout, Ethel E. ....	Box 214, Cohasset 31
Studley, A. Irvin. ....	6 Sturdy street, Attleboro 29
Styles, Edmund D. ....	17 Longwood avenue, Fitchburg 15
Sullivan, Abby W. ....	23 Winthrop street, Roxbury 17
Alice M. ....	15 Edison Green, Dorchester 30
George H. ....	128 M street, South Boston 20, 28
Grace F. ....	70 Peter Parley road, Jamaica Plain 22, 31
Helen E. ....	669 Hyde Park avenue, Roslindale 26
Helen R. ....	119 Charles street 23
Isabel F. ....	87 North avenue, Natick 30
James A. ....	39 Crescent avenue, Dorchester 35
James P. ....	49 Stoughton street, Dorchester, 27, 33, 34
M. Isabel. ....	37 Kingsdale street, Dorchester 31
Margaret P. ....	87 West Selden street, Mattapan 24
Marguerite G. ....	69 Lonsdale street, Ashmont 25
Marion C. ....	485 East Sixth street, South Boston 37
Mary G. ....	8 Otis place, Roslindale 22
Mary J. ....	89 Surrey street, Brighton 23
Thomas L. ....	509 Broadway, South Boston 24
Summers, Gwendolyn A. ....	79 Robert street, Roslindale 35
Swallow, Winifred I. ....	27 Salcombe street, Dorchester 21
Swanson, Edith I. ....	11 Oakwood street, Mattapan 23
Sweeney, Christine E. ....	20 Charlesgate West 37

## T.

Tanck, Helen M. ....	13 Rockland avenue, Roxbury 26
Tatum, Dorothy M. ....	37 Humboldt avenue, Roxbury 23, 31
Taylor, Olive W. ....	Lynnfield 29
Ralph W. ....	8 Adams street, Medfield 13
Thompson, Leighton S. ....	178 Florence street, Melrose 15
Thorburn, Fred J. ....	187 Winthrop avenue, Revere 34
Tierney, Mary M. ....	42 Round Hill street, Jamaica Plain 21
Tivnan, Louise V. ....	74 Linden street, Dorchester 31
Margaret F. ....	74 Linden street, Dorchester 32
Tobey, Raymond S. ....	15 Forest avenue, Medford 15
Tobin, Helen R. ....	43 Fenwood road, Roxbury 26
Joanne F. ....	43 Fenwood road, Roxbury 17
Richard T. ....	23 Sacramento street, Cambridge 29
Town, Ernest E. ....	17 Linden avenue, Somerville 16
Townsend, Ella L. ....	243 Massasoit street, Springfield 15
Tracy, Annie V. ....	38 Winthrop street, Charlestown 18, 32
Roland V. ....	53 Stanton street, Charlestown 16
Travers, Mary. ....	637 Dudley street, Dorchester 18
Tukey, Harry H. ....	16 Evergreen street, Jamaica Plain 35

## V.

Vernon, Katherine. ....	5 Morris street, East Boston 24
-------------------------	---------------------------------

## W.

Wallace, Zilla M. ....	839 Boylston street 37
Walsh, Anna F. ....	8 Wood street, Lewiston, Me. 14
Ward, Gertrude L. ....	10 Howes street, Dorchester 16

	PAGE
Ward, William F.....18 St. Stephen street	20, 25
Washburn, Lucy C.....Medfield	31
Waterman, Sarah M.....R. F. D. No. 2, Box 95, Attleboro	37
Welch, Ellen L.....61 Gardner street, West Roxbury	30
Margaret M.....595 Sixth street, Squth Boston	22
West, Goldie G.....11 Coleman street, Dorchester	23, 31
Laura M.....410 Baldwin street, Elmira, N. Y.	17
White, Agnes G.....56 Richfield street, Dorchester	24
Anastasia K.....314 K street, South Boston	34
Charlotte M.....21 Aberdeen street	26
Whitman, Elaine S.....109 Walnut avenue, Roxbury	13
Whorf, Isaiah A.....Norwood	29
Wiberg, Ruth A.....8 Tip Top street, Brighton	22
Williams, Ann M.....114 Haven avenue, Mattapan	26
Eva H.....Baldwinville	14
Willoughby, Alice S.....291 School street, Watertown	17
Wilson, Edna T.....152 William street, New Bedford	13
Wilton, Hugh.....Putnam, Conn.	35
Winn, Mary A.....1474 Tremont street, Roxbury	19, 28
Wollahan, Helen H.....164 Sylvan street, Danvers	30
Woods, Thomas F.....93 Harvard street, Medford	36

**Y.**

Yates, Everett C.....129 Warwick street, Roxbury	28
York, Charles P.....10 Chapel street, Newton	28
Young, Marguerite R.....89 Draper street, Dorchester	26

**Z.**

Zepp, Emil W.....177 Metropolitan avenue, Roslindale	35
Zimmerman, Barbara R.....Wayland	37



SCHOOL DOCUMENT NO. 5—1918  
BOSTON PUBLIC SCHOOLS

ARITHMETIC

DETERMINING THE ACHIEVEMENT OF PUPILS IN  
COMMON FRACTIONS

BULLETIN NO. XV. OF THE DEPARTMENT OF  
EDUCATIONAL INVESTIGATION AND MEASUREMENT



JUNE, 1918

BOSTON  
PRINTING DEPARTMENT  
1918

IN SCHOOL COMMITTEE, BOSTON, JUNE 26, 1918.

*Ordered*, That four thousand (4,000) copies of a bulletin on "Determining the Achievement of Pupils in Common Fractions," prepared by the Department of Educational Investigation and Measurement and approved for publication by the Board of Superintendents at its meeting on June 19, 1918, be printed as a school document.

Attest:

THORNTON D. APOLLONIO,  
*Secretary.*



# CONTENTS.

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	PAGE
Introduction . . . . .	5
I. Previous Work in Fractions in Boston . . . . .	6
Summary of Results in Addition of Fractions,	7
Summary of Results in Subtraction of Fractions . . . . .	9
II. Multiplication and Division of Fractions . . . . .	11
Extent of Tests . . . . .	11
Types of Fractions . . . . .	12
Construction of Tests . . . . .	13
Giving Tests and Correction of Results . . . . .	14
III. Analysis of Results . . . . .	16
Achievement . . . . .	16
Analysis of Results in Grades VII and VIII,	17
Diagnosis of Results in Each Test . . . . .	21
Test 1 . . . . .	21
Test 2 . . . . .	22
Test 3 . . . . .	25
Test 4 . . . . .	26
Test 5 . . . . .	29
Test 6 . . . . .	31
Test 7 . . . . .	32
Analysis of Results in Grade VI . . . . .	34
IV. Plan of Diagnosis for Teacher . . . . .	36
V. Summary and Conclusions . . . . .	38



## INTRODUCTION.

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As fast as practicable the Department of Educational Investigation and Measurement has undertaken to extend educational measurement in arithmetic beyond the four fundamental operations covered by the Courtis Tests. To that end from time to time the department has given tests in the four processes of common fractions, and in a more limited way in problem work. This bulletin, prepared by the Assistant Director, Mr. Arthur W. Kallom, covers the work done thus far with the addition, subtraction, multiplication, and division of common fractions. Particular attention is directed to Mr. Kallom's discussion of the various types of problems involved in computation with fractions, and also to the suggestions offered of ways and means of improving unsatisfactory achievements of pupils.

It is frequently argued in educational discussions that command over the tools of an education should be acquired by the end of the sixth grade. Obviously, ability to compute with common fractions is merely a means to a desired end and not an education in itself. This study shows that either (a) not as much ability to use common fractions is being developed before the end of the sixth grade as should be, or (b) the period of the first six years in the elementary school is too short to furnish pupils with all the tools of an education.

The manuscript for this bulletin was approved for publication by the Board of Superintendents at its meeting on June 19, 1918.

FRANK W. BALLOU,  
*Assistant Superintendent in Charge.*

## DETERMINING THE ACHIEVEMENT OF PUPILS IN COMMON FRACTIONS.

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### I. RESULTS OF PREVIOUS TESTS IN FRACTIONS.

Tests in the four fundamental operations have been given in the City of Boston during the past five years. During this time the gain in the amount of work done has been from 12 per cent to 17 per cent. This gain in amount of work done has been accompanied by an actual increase in the accuracy with which the work was completed. This increase by which pupils are being graduated or are being promoted into the next grade with varying degrees of superiority up to 17.7 per cent over the results which were being obtained previous to the giving of the Curtis standard tests, is due directly or indirectly to the system of educational measurement as established in Boston.

The ability to handle integers does not constitute, however, the sum total of the tools necessary for the child in order that he may do arithmetic. Fractions, in one form or another, play a large part in the arithmetical work of the pupil. That we might know how well the pupils are doing their work in common fractions, a plan was organized in 1915 to give tests in addition, subtraction, multiplication, and division of fractions in successive years to a group of approximately 1,000 children in Grades VI, VII, and VIII in an experimental way. The tests were organized by the department in such a way as to determine not only what the ability was to do the various operations, but also if the pupils failed, in what type of examples in any given operation the pupil failed. Of the two phases of the work, the latter is of the greater importance. It is not enough to say pupils fail to do addition of fractions with a speed or an

accuracy which seems desirable. One must go further and show the types of examples in which pupils fail.

Further, if a single test be given in a certain operation and a pupil fails, it becomes the work of the teacher to determine in what particular the pupil fails. This enables the teacher to place the emphasis upon the work where it belongs and not waste her efforts and those of the pupils in drilling on matter which needs no drilling.

Addition of fractions may be divided into fourteen types; \* subtraction of fractions may be divided into nine types similar to those in addition, the difference in number being due to the fact that it is impossible to reduce any answer in subtraction to a mixed number. The types in multiplication and division will be analyzed in the succeeding pages of this bulletin.

*Summary of Results in Addition of Fractions.*

The results of the tests in addition of fractions were published in School Document No. 3, 1916. The data upon which the conclusions were drawn are shown in the following tables. Table I shows the type of examples used in the six tests together with the time allowance.

TABLE I.

Showing Examples Used in Tests in Addition of Fractions,  
December, 1915.

*Addition of Fractions.— Test 1.— Time, 2 Minutes.*

(1) $\frac{1}{4}$	(2). $\frac{3}{14}$	(3) $\frac{5}{16}$	(4) $\frac{1}{10}$
$\frac{1}{4}$	$\frac{1}{14}$	$\frac{7}{16}$	$\frac{7}{10}$
<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>

*Addition of Fractions.— Test 2.— Time, 2 Minutes.*

(1) $\frac{1}{3}$	(2) $\frac{2}{7}$	(3) $\frac{2}{3}$	(4) $\frac{1}{3}$
$\frac{1}{6}$	$\frac{3}{14}$	$\frac{1}{12}$	$\frac{7}{15}$
<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>

\* See School Document No. 3, 1916. "Determining the Achievement of Pupils in Addition of Fractions."

*Addition of Fractions.— Test 3.— Time, 2 Minutes.*

$$\begin{array}{cccc}
 (1) \quad \frac{3}{5} & (2) \quad \frac{5}{6} & (3) \quad \frac{5}{7} & (4) \quad \frac{14}{15} \\
 \frac{11}{15} & \frac{1}{2} & \frac{11}{14} & \frac{2}{3} \\
 \hline & \hline & \hline & \hline
 \end{array}$$

*Addition of Fractions.— Test 4.— Time, 2 Minutes.*

$$\begin{array}{cccc}
 (1) \quad \frac{1}{7} & (2) \quad \frac{7}{9} & (3) \quad \frac{3}{4} & (4) \quad \frac{4}{9} \\
 \frac{9}{10} & \frac{1}{4} & \frac{3}{7} & \frac{5}{8} \\
 \hline & \hline & \hline & \hline
 \end{array}$$

*Addition of Fractions.— Test 5.— Time, 2 Minutes.*

$$\begin{array}{cccc}
 (1) \quad \frac{1}{10} & (2) \quad \frac{4}{9} & (3) \quad \frac{1}{6} & (4) \quad \frac{1}{12} \\
 \frac{1}{6} & \frac{5}{12} & \frac{3}{8} & \frac{1}{10} \\
 \hline & \hline & \hline & \hline
 \end{array}$$

*Addition of Fractions.— Test 6.— Time, 2 Minutes.*

$$\begin{array}{cccc}
 (1) \quad \frac{1}{6} & (2) \quad \frac{5}{6} & (3) \quad \frac{1}{8} & (4) \quad \frac{7}{12} \\
 \frac{9}{10} & \frac{3}{8} & \frac{9}{10} & \frac{7}{10} \\
 \hline & \hline & \hline & \hline
 \end{array}$$

Table II shows the medians obtained as a result of the tests.

TABLE II.

Summary Sheet — City Medians.

*Addition of Fractions, December, 1915.*

GRADE.	Pupils Tested.	TEST 1.		TEST 2.		TEST 3.		TEST 4.		TEST 5.		TEST 6.	
		Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.
VIII.....	1,130	20.7	88.0	11.6	74.0	8.4	47.0	6.0	68.0	6.9	52.0	6.4	47.0
VII.....	1,243	16.5	87.0	10.1	73.0	7.3	46.0	5.3	69.0	6.3	55.0	5.7	48.0
VI.....	1,265	10.7	80.0	7.7	66.0	5.5	42.0	4.0	70.0	4.6	51.0	4.4	49.0

The following conclusions were drawn as a result of the analysis of the tests.\*

1. The factors that enter into the problem of adding fractions are much more complex than those that enter into the problem of adding integers.

2. The errors were largely due to the failure of pupils to reduce consistently either to lowest terms or to mixed numbers. This failing on the part of many children to use the principle of reduction would seem to indicate that the method, now largely in use, of teaching such reductions by themselves, has failed to produce satisfactory results. In view of this fact, would it not be well to teach reductions as such, in connection with the subject of addition of fractions? This would at least make a closer connection between the two operations, and thereby tend to form the habit of writing the answer in its best form.

3. Eight per cent of the pupils in Grade VI, 11 per cent in Grade VII, and 5 per cent in Grade VIII were unable to do the simplest problems in the addition of fractions.

4. Drill and individual work given the children in Grade V of selected schools in the spring at the suggestion of the department showed its effect in the work of Grade VI in the late fall. This was evidenced by an increase in both speed and accuracy over that obtained in the entire city and in two cases over that shown by the whole number of pupils in the grade in which the selected groups were enrolled.

#### *Summary of Results in Subtraction of Fractions.*

The results of the tests in subtraction of fractions were not published because they were not materially different from the results of the tests in addition. The following table shows the types of examples used in the five tests together with the time allowance.

TABLE III.

Showing Examples Used in Tests in Subtraction of Fractions,  
December, 1916.

*Subtraction of Fractions.— Test 1.— Time, 2 Minutes.*

$$\begin{array}{cccc} (1) & \frac{1}{4} & (2) & \frac{3}{4} & (3) & \frac{5}{6} & (4) & \frac{9}{16} \\ & \frac{1}{4} & & \frac{1}{4} & & \frac{1}{6} & & \frac{3}{16} \\ \hline & & & & & & & \end{array}$$

*Subtraction of Fractions.— Test 2.— Time, 2 Minutes.*

$$\begin{array}{cccc} (1) & \frac{1}{2} & (2) & \frac{6}{7} & (3) & \frac{2}{3} & (4) & \frac{3}{4} \\ & \frac{1}{9} & & \frac{3}{5} & & \frac{3}{11} & & \frac{5}{9} \\ \hline & & & & & & & \end{array}$$

*Subtraction of Fractions.— Test 3.— Time, 2 Minutes.*

$$\begin{array}{cccc} (1) & \frac{5}{6} & (2) & \frac{3}{4} & (3) & \frac{7}{9} & (4) & \frac{7}{10} \\ & \frac{1}{10} & & \frac{3}{10} & & \frac{1}{12} & & \frac{8}{15} \\ \hline & & & & & & & \end{array}$$

*Subtraction of Fractions.— Test 4.— Time, 2 Minutes.*

$$\begin{array}{cccc} (1) & 4 & (2) & 6 & (3) & 6 & (4) & 6 \\ & 2\frac{1}{2} & & 5\frac{3}{5} & & 2\frac{3}{5} & & 3\frac{1}{6} \\ \hline & & & & & & & \end{array}$$

*Subtraction of Fractions.— Test 5.— Time, 2 Minutes.*

$$\begin{array}{cccc} (1) & 9\frac{1}{6} & (2) & 7\frac{3}{14} & (3) & 7\frac{1}{12} & (4) & 7\frac{1}{3} \\ & 1\frac{1}{3} & & 6\frac{2}{7} & & 4\frac{2}{3} & & 2\frac{7}{15} \\ \hline & & & & & & & \end{array}$$

In the tests in addition the addition of mixed numbers was not included although it is very probable that there would have been some difficulty in disposing of the sum of the fractions, especially if the sum were more than an integer. This same phase occurs in the multiplication of mixed numbers by an integer and will be pointed out in its proper place. The subtraction of mixed numbers, however, is a vital problem especially when the fraction in the subtrahend is larger than the fraction in the minuend. Because of this, Tests 4 and 5 were given upon this type of example. Table IV shows the medians in speed and accuracy in the subtraction of fractions.



TABLE IV.  
 Summary Sheet — City Medians.  
 Subtraction of Fractions, December, 1916.

GRADE.	Pupils.	TEST 1.		TEST 2.		TEST 3.		TEST 4.		TEST 5.	
		Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.
VIII.....	1,239	22.5	91.0	7.3	86.0	6.1	65.0	18.0	99.0	6.4	81.0
VII.....	1,283	19.7	84.0	6.0	85.0	5.6	61.0	14.2	97.0	5.2	66.0
VI.....	1,499	15.1	73.0	4.9	76.0	4.6	51.0	11.9	85.0	4.6	64.0

The following summary shows the number of districts, the number of grade classes, the grades tested, and the total number of pupils included in the test in addition and subtraction of fractions.

ADDITION OF FRACTIONS.

*December, 1915.*

Number of elementary districts . . . . .	12
Number of grade classes . . . . .	91
Given in grades . . . . .	VIII, VII, VI
Number of pupils . . . . .	3,638

SUBTRACTION OF FRACTIONS.

*December, 1916.*

Number of elementary districts . . . . .	10
Number of grade classes . . . . .	102
Given in grades . . . . .	VIII, VII, VI
Number of pupils . . . . .	4,021

II. MULTIPLICATION AND DIVISION OF FRACTIONS.

*Extent of Tests.*

The following summary shows the number of districts, the number of grade classes, the grades tested, and the number of pupils included in the test in multiplication and division of fractions, given in December, 1917.

Number of elementary districts . . . . .	10
Number of grade classes . . . . .	95
Given in grades . . . . .	VIII, VII, VI
Number of pupils . . . . .	3,513

### *Types of Fractions.*

An extended analysis was made in addition and subtraction of fractions to determine the various types with which the pupil came in contact. An analysis on a similar basis of the processes of multiplication and division of fractions was not believed necessary. In these two processes the separation into types depended upon the character of the multiplier and multiplicand or the dividend and divisor.

The process of division in fractions is either one of two procedures. In one case one proceeds to find how many times one number of a certain denomination is contained in a larger number of the same denomination. This is to determine how many measures of a certain length there are in a measure of a different length. This type of procedure has been called *division by measuring*. In the other case one proceeds to separate a number into a certain number of parts. This type of division is called *division by parting*. These two types, measuring and parting, became the basis upon which the three tests in division of fractions were formulated. In view of these conditions the following types were selected:

#### *Multiplication.*

- Integer multiplied by fraction.
- Fraction multiplied by integer.
- Mixed number multiplied by integer.
- Integer multiplied by mixed number.
- Mixed number multiplied by fraction.
- Fraction multiplied by mixed number.
- Mixed number multiplied by mixed number.
- Fraction multiplied by fraction.

#### *Division.*

- Integer divided by fraction (measuring).
- Fraction divided by integer (parting).
- Mixed number divided by integer (parting).
- Integer divided by mixed number (measuring).
- Fraction divided by fraction (measuring).
- Mixed number divided by fraction (measuring).

The two types, fraction divided by mixed number and mixed number divided by mixed number, are not included because they do not conform to either the *parting* or *measuring* criterion. In practical work we neither have to perform such examples as dividing a fraction into  $3\frac{1}{2}$  parts nor finding how many  $3\frac{1}{2}$  inches there are in  $\frac{1}{4}$  of an inch. Neither are we required to perform such examples as dividing a mixed number into  $3\frac{1}{2}$  parts nor finding how many  $3\frac{1}{2}$  inches there are in  $4\frac{1}{4}$  inches.

Of course, it is recognized that common fractions are taking less and less place in our practical life, the process giving way more and more to the use of the decimal fraction. However, there is still use for the common fraction having a small denominator, and it is still a part of the required work in our courses of study. This being true, it is pertinent to ascertain what results we are achieving.

#### *Construction of the Tests.*

In constructing the tests the department decided in the light of previous experience with addition and subtraction of fractions that multiplication and division might be given at one time. In order to decrease the number of tests, two types were placed in a test. For example, multiplication of an integer by a fraction and multiplication of a fraction by an integer comprised Test 1. As will be seen in Table V, the other tests were made in a similar way. In the analysis of the results the two types will be discussed separately. There was an effort to keep the tests within the realm of the practical. In all cases the terms of the fractions involved were kept small. A fraction multiplied by a fraction is not in any test but is included in the process of multiplication of mixed number by a fraction. The latter type was used because it was considered more difficult. If this be true, a pupil might be able to do the former type but unable to do the latter. However, ability to do the latter would include ability to do the

former. Table V shows the types of examples and the time allowance for each test.

TABLE V.  
Showing Examples Used in Tests in Multiplication and Division of Fractions, December, 1917.

*Multiplication of Fractions.—Test 1.—Time, 2 Minutes.*

$$(1) \frac{1}{8} \times 6 \quad (2) \frac{7}{9} \times 8 \quad (3) \frac{5}{6} \times 12 \quad (4) 12 \times \frac{5}{16}$$

*Multiplication of Fractions.—Test 2.—Time, 4 Minutes.*

$$(1) \begin{array}{r} 246\frac{1}{5} \\ \hline \end{array} \quad (2) \begin{array}{r} 573\frac{4}{5} \\ \hline \end{array} \quad (3) \begin{array}{r} 275 \\ \hline 8\frac{3}{4} \end{array} \quad (4) \begin{array}{r} 456\frac{1}{3} \\ \hline 2 \end{array} \quad (5) \begin{array}{r} 189 \\ \hline 5\frac{1}{2} \end{array}$$

*Multiplication of Fractions.—Test 3.—Time, 2 Minutes.*

$$(1) 4\frac{7}{8} \times \frac{1}{8} \quad (2) 7\frac{1}{2} \times \frac{2}{3} \quad (3) 5\frac{1}{2} \times \frac{3}{4} \quad (4) \frac{5}{6} \times 2\frac{2}{3}$$

*Multiplication of Fractions.—Test 4.—Time, 5 Minutes.*

$$(1) \begin{array}{r} 32\frac{2}{3} \\ 69\frac{1}{2} \\ \hline \end{array} \quad (2) \begin{array}{r} 84\frac{1}{3} \\ 79\frac{1}{5} \\ \hline \end{array} \quad (3) \begin{array}{r} 29\frac{3}{4} \\ 28\frac{1}{3} \\ \hline \end{array} \quad (4) \begin{array}{r} 25\frac{3}{4} \\ 17\frac{2}{3} \\ \hline \end{array} \quad (5) \begin{array}{r} 19\frac{1}{3} \\ 97\frac{1}{2} \\ \hline \end{array}$$

*Division of Fractions.—Test 5.—Time, 2 Minutes.*

$$(1) \frac{3}{4} \div 8 \quad (2) 9 \div \frac{3}{8} \quad (3) 6 \div \frac{4}{5} \quad (4) 8 \div \frac{3}{5}$$

*Division of Fractions.—Test 6.—Time, 4 Minutes.*

$$(1) 5678\frac{1}{3} \div 5 \quad (2) 2789\frac{2}{3} \div 4 \quad (3) 2467 \div 8\frac{1}{4} \\ (4) 6752 \div 12\frac{1}{3}$$

*Division of Fractions.—Test 7.—Time, 3 Minutes.*

$$(1) \frac{3}{5} \div \frac{1}{3} \quad (2) 3\frac{3}{4} \div \frac{1}{5} \quad (3) 5\frac{4}{5} \div \frac{2}{3} \quad (4) 6\frac{2}{5} \div \frac{4}{5}$$

*Giving of the Tests and Correction of Results.*

Following the plan developed in 1912 and continued since the department was organized,\* twenty-five Normal School seniors were trained to give the tests in a uniform manner. The tests were given to 1,290

\* Ballou, F. W., "Training Normal School Seniors in Educational Measurement," School and Society, Volume V., No. 108, pages 61-70, January 20, 1917.

pupils in Grade VI, 1,196 pupils in Grade VII, and to 1,027 pupils in Grade VIII in December, 1917.

The old course of study for Grade V requires :

Multiplication of fractions and mixed numbers and integers; finding fractional parts of integers including the cases where the parts so obtained are mixed numbers.

Thus the sixth grade may begin their work without a knowledge of division of fractions, and it is possible that division of fractions may not have been taught during the first three months of the school year. In spite of this knowledge, it was decided to test in Grade VI for two reasons. First, that it might be known just what the status of Grade VI actually is on a city-wide basis in multiplication and division of fractions; and second, to find out what is done by those schools which did more work than was actually required by the course of study.

After completing the work, the examiners brought the tests to the office of the department and all the work of correction and tabulation was done by members of the department. Certain rules were formulated for the correction of results.

- (a) All results which were not reduced to lowest terms or to mixed numbers were called wrong.
- (b) The papers on which children added or subtracted the fractions were counted as I. N. F. papers. (Instructions Not Followed.)
- (c) All other papers, regardless of how the child did the examples, were scored as right or wrong.
- (d) The form of doing the work did not count against the child if his answer was correct.
- (e) Some children did not do Test 1, but started upon Test 2, owing to confusion in understanding the directions. Any paper showing no work at all in Test 1 was marked I. N. F. in all tests. (Instructions Not Followed.) These were very few.

- (f) If in Tests 5, 6, and 7 (division of fractions) pupils *multiplied*, the papers were not marked I. N. F. (Instructions Not Followed.) This was because there is much confusion between the two processes and many pupils really multiply when they *think* they are dividing. If any other process was used the test was marked I. N. F. (Instructions Not Followed.)

### III. ANALYSIS OF RESULTS.

#### *Achievement.*

Table VI shows the results for the entire number of pupils tested. In the first column is shown the grade, followed by a column showing the number of pupils tested in each grade. Under each test is given the speed median and the accuracy median for each test and grade. The table is to be interpreted as follows: In Grade VIII, 1,027 pupils were tested. These pupils attained a speed median of 11.1 examples with an accuracy median of 93 per cent in Test 1. In Test 2 the speed median was 8.8 and the accuracy median was 63 per cent. Thus, reading across the page on the first line one will find the medians in speed and accuracy for each test for Grade VIII. The table shows the same facts for Grades VII and VI.

TABLE VI.

Summary Sheet — City Medians.

*Multiplication and Division of Fractions.*

GRADE.	Pupils Tested.	MULTIPLICATION.								DIVISION.					
		TEST 1.		TEST 2.		TEST 3.		TEST 4.		TEST 5.		TEST 6.		TEST 7.	
		Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.	Speed Median.	Accuracy Median.
VIII.....	1,027	11.1	93	8.8	63	7.6	85	4.7	0	10.1	75	3.3	29	10.3	79
VII.....	1,196	8.4	88	7.7	38	6.4	81	4.2	0	8.2	59	2.9	0	8.5	68
VI.....	1,290	6.2	13	8.2	0	4.7	0	5.6	0	5.4	0	3.2	0	4.9	0

It will be noticed that the accuracy medians for Test 2, multiplication of mixed number by integer or integer by mixed number, Test 4, multiplication of mixed number by a mixed number, and Test 6, division of mixed number by an integer, are especially low.

It is probably true that there is no great use for the type of work shown in these three tests in practical life, but the business world does require it to some extent; business courses in our high schools require the processes, and the new course of study requires this work. In view of these three conditions, it was thought best to include these three tests in order that we might have some facts on which to base the development of our work in multiplication and division of fractions.

#### *Analysis of Results in Grades VII and VIII.*

The analysis of results which is given in this bulletin is based wholly upon a study of the wrong examples in the work performed by pupils in the test given in December. It is perfectly possible that a pupil who does the work and reaches the right result may be doing it in an inefficient and round-about manner. When correcting large numbers of papers, his work does not attract the attention that is attracted by a pupil who does many examples and gets none or only a few *right*.

This study is based, then, upon those papers which showed low scores in accuracy. Furthermore, owing to the low degree of accuracy in Grade VI, due largely to lack of knowledge, the analysis is based upon work in Grades VII and VIII. In a study like the present one a piece of work done by a person ignorant of the process has little or no value. The value of a study of this kind comes from studying results of pupils who are supposed to have been taught the process. An analysis of Grade VI will be made in a later part of the bulletin.

It is impossible for the *report* of a study to be as helpful to a teacher as if the individual teacher had *made* the study for herself. It is only when the teacher will take the work of her class room and make some similar analy-

sis, seeking to find out *why* the pupil makes the failure and just what the pupil does in making the failure, that we are going to make great gains in the treatment of individual pupils. The analysis is given here rather in detail in the hopes that it may act as a guide and stimulate some teachers to undertake this rather laborious but extremely interesting work for the good of the individual who is having trouble with his fractions and school work in general.



TABLE VII.  
Showing Percentage of Pupils Who Fail in Multiplication and Division of Fractions.

GRADE.	TEST 1.		TEST 2.		TEST 3.		TEST 4.		TEST 5.		TEST 6.				TEST 7.	
	Integer $\times$ a Fraction.	Fraction $\times$ an Integer.	Mixed Number $\times$ an Integer.	Integer $\times$ a Mixed Number.	Fraction $\times$ a Mixed Number.	Mixed Number $\times$ a Fraction.	Vertical.	Horizontal.	Fraction $\div$ an Integer.	Integer $\div$ a Fraction.	Inversion.	Long Division.	Inversion.	Long Division.	Fraction $\div$ a Fraction.	Mixed Number $\div$ a Fraction.
VIII.....	3.1	2.6	17.9	30.6	8.9	8.6	90.4	4.6	42.5	25.0	18.3	83.4	20.0	97.3	24.9	20.4
VII.....	13.2	13.5	34.3	53.4	15.5	19.7	91.6	6.9	49.5	35.4	30.7	87.2	40.5	99.2	39.0	32.5

Table VII shows the general situation in regard to failures in Grades VII and VIII. In the compiling of this table, it was considered (1) that a pupil had failed to do a certain type if he did not get at least one example right among those he attempted, (2) that a pupil did not fail if he used the correct method even though he did not get at least one right answer. The table is to be interpreted as follows. In Test 1, 3.1 per cent of Grade VIII failed in the multiplication of an integer by a fraction and 2.6 per cent failed in the multiplication of a fraction by an integer. In Test 2, 17.9 per cent failed in the multiplication of a mixed number by an integer and 30.6 per cent failed in the multiplication of an integer by a mixed number and so on.

In multiplying a mixed number by a mixed number, Test 4, two forms were used as illustrated below.

<p>(a) Vertical method:</p> $  \begin{array}{r}  32\frac{1}{3} \\  69\frac{1}{2} \\  \hline  16\frac{1}{6} \\  23 \\  288 \\  192 \\  \hline  2247\frac{1}{6}  \end{array}  $	<p>(b) Horizontal method:</p> $  \begin{array}{l}  32\frac{1}{3} \times 69\frac{1}{2} = \\  \frac{97}{3} \times \frac{139}{2} = \frac{13483}{6} = 2247\frac{1}{6}  \end{array}  $
---	---

In this paper whenever the example was done similarly to illustration (a), it has been termed the vertical method, and when (b) the mixed numbers were reduced to improper fractions, it has been termed the horizontal method. When the example was done by the vertical method, the eighth grade failed in 90.4 per cent of the cases; when done by the horizontal method the same grade failed in 4.6 per cent of the cases.

In Test 6 the pupils were required to divide a mixed number by an integer (Examples 1 and 2) or an integer by a mixed number (Examples 3 and 4). Two possibilities of doing the work present themselves. First,

pupils may reduce the mixed numbers to improper fractions and follow the general rule for division of fractions.

$$\text{For example (a): } 5678\frac{1}{3} \div 5 = \frac{17035}{3} \div 5 =$$

$$\frac{17035}{3} \times \frac{1}{5} = \frac{3407}{3} = 1135\frac{2}{3}$$

Second, they may, when the fraction is in the dividend, do the example by either short or long division as it stands.

$$\text{For example (b): } 5678\frac{1}{3} \div 5$$

$$\begin{array}{r} 5 \overline{)5678\frac{1}{3}} \\ \underline{1135} \text{ Rem.} = 3\frac{1}{3} \\ 3\frac{1}{3} \div 5 = \frac{10}{3} \times \frac{1}{5} = \frac{2}{3} \\ 1135\frac{2}{3} \text{ Ans.} \end{array}$$

When the mixed number is in the divisor, they may place the example on the paper as though they were doing an example in long division, multiply both dividend and divisor by the denominator of the fraction and proceed as in long division.

$$\text{For example (c): } 2467 \div 8\frac{1}{3} \qquad \begin{array}{r} 299\frac{1}{3} \\ 33 \overline{)9868} \\ \underline{66} \\ 326 \\ \underline{297} \\ 298 \\ \underline{297} \\ 1 \end{array} \text{ Ans.}$$

$$\begin{array}{r} 8 \overline{)2467} \\ \underline{4} \quad \underline{4} \\ 33 \overline{)9868} \end{array}$$

These two processes will be termed (a) process of inversion and (b and c) process of long division.

### *Diagnosis of Results in Each Test.*

#### TEST 1.

##### Type of Examples Used in Test 1.

- (1)  $\frac{1}{3} \times 6$     (2)  $\frac{7}{8} \times 8$     (3)  $\frac{5}{8} \times 12$     (4)  $12 \times \frac{5}{16}$

In this test the pupils were required to multiply a fraction by an integer (Examples 1, 2 and 3) or an integer by a fraction (Example 4). About 13 per cent failed in the seventh grade and about 3 per cent failed in the eighth grade in each type. In such a simple test the chances of making errors are limited; so they fall very largely into two groups. In one group the pupils find the answer by multiplying the integer by one of the terms of the fraction and adding the other.

$$\text{For example: } \frac{1}{8} \times 6 = 14 \quad (6 \times 1 + 8) \text{ or}$$

$$\frac{1}{8} \times 6 = 49 \quad (6 \times 8 + 1)$$

The pupils in the second group multiply both numerator and denominator by the integer.

$$\text{For example: } \frac{7}{9} \times 8 = \frac{56}{72} (8 \times 7)$$

$$\frac{7}{9} \times 8 = \frac{56}{72} (8 \times 9)$$

Cancellation gives little trouble because comparatively few pupils use this method of shortening the procedure. In some cases there was evidence of cancelling by dividing the integer by the numerator, but these cases were few. There seemed to be a mixture of processes in the minds of some pupils because a few inverted one or the other of the factors.

#### TEST 2.

##### Type of Examples Used in Test 2.

(1) $246\frac{1}{5}$	(2) $273\frac{4}{5}$	(3) 275	(4) $456\frac{1}{3}$	(5) 189
<u>5</u>	<u>5</u>	<u><math>8\frac{3}{4}</math></u>	<u>2</u>	<u><math>5\frac{1}{5}</math></u>

In this test the pupils were required to multiply a mixed number by an integer (Examples 1, 2 and 4) or an integer by a mixed number (Examples 3 and 5). The percentage of failure for the first type for Grade VII was 34.3 per cent and for Grade VIII, 17.9 per cent. For the second type the percentage was nearly twice as much, being 53.4 per cent and 34.3 per cent respectively. This great difference was due very largely to the con-

struction of two examples, the fourth,  $456\frac{1}{3} \times 2$ , and the thirteenth,  $379\frac{1}{4} \times 3$ . In many cases pupils had the fourth example right and also the thirteenth, if they reached this example, and no others. In these two examples the multiplication of the fraction by the integer gives the fractional part of the product without further reduction.

In this test there are three chief sources of error.

(a) If the fraction be in the multiplicand, the multiplication of the fraction by the integer in the multiplicand and if the fraction be in the multiplier, the multiplication of the fraction by the integer in the multiplier.

For example: $246\frac{1}{5}$		$275$	
$\underline{\quad 5 \quad}$		$\underline{\quad 8\frac{3}{4} \quad}$	
$49\frac{1}{5}$	$= \frac{1}{5} \times 246$	$6$	$= \frac{3}{4} \times 8$
$\underline{1230}$	$= 5 \times 246$	$\underline{2200}$	$= 8 \times 275$
$1279\frac{1}{5}$	Ans.	$\underline{2206}$	Ans.

(b) Placing of the second partial product one place to the left of the first partial product.

For example: $275$	
$\underline{\quad 8\frac{3}{4} \quad}$	
$206\frac{1}{4}$	$= \frac{3}{4} \times 275$
$\underline{2200}$	$= 8 \times 275$
$22206\frac{1}{4}$	Ans.

(c) Multiplication of the denominator of the fraction by the integer and adding the numerator.

For example: $246\frac{1}{5}$	
$\underline{\quad 5 \quad}$	
$26$	$= 5 \times 5 + 1$
$\underline{1330}$	
$1356$	

The kind of error in (a) develops because it is not clear in the minds of many pupils which integer is to be multiplied by the fraction. If the fraction be in the multiplier, the integer of the multiplier is multiplied by the

fraction and this product given as one of the partial products. It is not strange that this should be done on account of the drill which has been given in reduction of mixed numbers to improper fractions. In other words an old habit is at work, for the pupil has not yet appreciated that it is not the same thing but something entirely different. For those pupils who persist in doing this work, individual attention is probably the only method of eradicating the error.

The kind of error noted in (b) is due probably to the same cause, viz., the following of an old habit. In multiplication of integers the pupil was taught that he must place the second partial product one step to the left of the first partial product. When the process in fractions is performed, the pupil follows the same habit unless he is led to see the difference *and a large amount of practice in the correct method of doing the work is given*. Some pupils will need more of this practice than others before the new habit is fixed.

The third source of error noted in (c) develops through the multiplication of the fraction by the integer. For example, it was a fairly common error in such an example as  $246\frac{1}{5} \times 5$  to call  $5 \times \frac{1}{5} = 26$ . That is, apparently the example was done exactly as though it was reduced to an improper fraction and then the denominator, 5, thrown away.

Another habit is probably at work in this case which is not generally taken into consideration. In teaching multiplication of integers emphasis is placed upon the fact that the product of one number by another is larger than either of the factors. To have a pupil realize that a number may be multiplied by another such that the product is smaller than one of the factors and that when both factors are fractions the product is smaller than either of the fractions, means that the pupil must break old habits and form new ones. The ability to meet this new experience and use it means a large amount of drill before the old habit can be modified to meet the

new conditions. Unless this drill is adequate such errors as those just pointed out are likely to occur.

Emphasis is being placed upon estimating the answer in many schools, but even though a pupil is able to make an approximate estimate of the product in these examples, he will not be able to trace the error until he appreciates the possibilities of these three types of error.

Many strange methods were used which do not fall into the foregoing groups. The following examples are illustrations of these:

$\begin{array}{r} 341 \\ 7\frac{2}{3} \\ \hline \end{array}$	$\begin{array}{r} 706\frac{3}{8} \\ 7 \\ \hline \end{array}$
$113\frac{2}{3} = 341 \div 3$	$5651 = 8 \times 706 + 3$
$56\frac{1}{2} = 113 \div 2$	$\begin{array}{r} 4942 = 7 \times 706 \\ \hline 10593 \quad \text{Ans.} \end{array}$
$\begin{array}{r} 2387 = 7 \times 341 \\ \hline 2556\frac{7}{8} \quad \text{Ans.} \end{array}$	

If teachers will give a test similar to this one to their classes, it is more than likely that some of these strange ways of doing the work will manifest themselves. It should be clear that class work does not reach these individuals and if the pupil is *to learn the correct method it is only through individual help.*

### TEST 3.

#### Type of Examples Used in Test 3.

(1)  $4\frac{7}{8} \times \frac{1}{8}$  (2)  $7\frac{1}{2} \times \frac{2}{3}$  (3)  $5\frac{1}{2} \times \frac{3}{4}$  (4)  $\frac{5}{6} \times 2\frac{2}{3}$

In this test the pupils were required to multiply a mixed number by a fraction (Examples 1, 2 and 3), or a fraction by a mixed number (Example 4). The percentage of failure was about 17 per cent for Grade VII and 8.7 per cent for Grade VIII in each test.

The greatest difficulties in this test are shown in (1) the reduction of the mixed number to an improper fraction and (2) in the process of cancellation. The

first type of failure shows itself in many ways. For example, some pupils multiply the two fractions and add the integer.

$$\text{For example: } 4\frac{7}{8} \times \frac{1}{8} = 4\frac{7}{4}.$$

Some pupils consider the integer as another factor instead of a part of one of the factors.

$$\text{For example: } \frac{5}{6} \times 2\frac{2}{3} = \frac{20}{18} \quad \left( \frac{5 \times 2 \times 2}{6 \times 3} = \frac{20}{18} \right).$$

Another common method was to multiply the integer by the numerator of the fraction and add the numerator of the fraction which is a part of the mixed number.

$$\text{For example: } \frac{3}{8} \times 3\frac{1}{5} = \frac{10}{40} \quad \left( \frac{3 \times 3 + 1}{8 \times 5} = \frac{10}{40} \right).$$

There were many other improper methods of finding the product of a mixed number and a fraction.

In cancellation the difficulty came in canceling before the reduction of the mixed number to the improper fraction and also in canceling the integer of the mixed number. Examples of this type of error seem unnecessary.

#### TEST 4.

##### Type of Examples Used in Test 4.

(1) $32\frac{1}{3}$ <u>69\frac{1}{2}</u>	(2) $84\frac{1}{3}$ <u>79\frac{1}{5}</u>	(3) $29\frac{3}{4}$ <u>28\frac{1}{3}</u>	(4) $25\frac{3}{4}$ <u>17\frac{2}{3}</u>	(5) $19\frac{1}{8}$ <u>97\frac{1}{2}</u>
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In this test the pupils were required to multiply a mixed number by a mixed number.

There were 78 per cent of the pupils who attempted to do the work vertically and 22 per cent who did it horizontally. Of those who did the work vertically 92 per cent failed to do the work correctly, and 1 per cent had the method correct but made errors in the work, while the remaining 7 per cent had the correct answer. Of those who did the work horizontally 7 per cent failed to do the work correctly, 45 per cent had the method correct but made errors in the work, while 48 per cent had the correct answer. The two methods will be considered separately.



(a) In a study of the vertical method it is noticeable that only a small percentage of the pupils (8 per cent) even get the right method. There were three common erroneous ways of doing the work.

1. The product or sum of the fractions added to product of the integers.

For example:

$$\begin{array}{r}
 32\frac{1}{3} \\
 69\frac{1}{2} \\
 \hline
 288 = 9 \times 32 \\
 192 = 6 \times 32 \\
 \frac{1}{6} = \frac{1}{3} \times \frac{1}{2} \\
 \hline
 2208\frac{1}{6}
 \end{array}
 \quad \text{or} \quad
 \begin{array}{r}
 32\frac{1}{3} \\
 69\frac{1}{2} \\
 \hline
 288 = 9 \times 32 \\
 192 = 6 \times 32 \\
 \frac{5}{6} = \frac{1}{3} + \frac{1}{2} \\
 \hline
 2208\frac{5}{6}
 \end{array}$$

By far the largest proportion of the pupils who did the work vertically found their answers in this manner.

2. A disregard of one or both of the fractions.

$$\begin{array}{r}
 \text{For example: } 32\frac{1}{3} \\
 69\frac{1}{2} \\
 \hline
 16 = \frac{1}{2} \times 32 \\
 288 = 9 \times 32 \\
 192 \\
 \hline
 2224
 \end{array}
 \quad \text{or} \quad
 \begin{array}{r}
 32\frac{1}{3} \\
 69\frac{1}{2} \\
 \hline
 288 = 9 \times 32 \\
 192 = 6 \times 32 \\
 \hline
 2208
 \end{array}$$

3. Process correct except that the product of the fractions is omitted.

$$\begin{array}{r}
 \text{For example: } 32\frac{1}{3} \\
 69\frac{1}{2} \\
 \hline
 23 = \frac{1}{3} \times 69 \\
 16 = \frac{1}{2} \times 32 \\
 288 = 9 \times 32 \\
 192 = 6 \times 32 \\
 \hline
 2247
 \end{array}$$

(b) The chief error when the work is done horizontally consists of inverting one or both of the fractions after the mixed numbers have been reduced to improper fractions.

It is not the intention of this bulletin to point out the method to be followed in multiplication of mixed numbers. There are three facts, however, that are significant.

1. The larger proportion, 78 per cent, of the pupils did their work vertically either through habit, or because the examples were placed in a vertical position in the test, or because of ignorance, and therefore followed the line of least resistance.

2. Of those who did the examples vertically and used the right method, only a small percentage made errors.

3. There was a large percentage, 45 per cent, who used the correct method when doing the work horizontally but made errors in the work. It is not fair, however, to draw the conclusion that the better method is the vertical method, because of the high percentage of accuracy. The number of pupils concerned is not large enough to make this conclusive.

In multiplying mixed numbers horizontally the pupil must take the following steps to do the work:

Reduction of one mixed number to improper fraction.

1. Integer multiplied by the denominator.
2. Add the product to the numerator.
3. Write the improper fraction.

Reduction of second mixed number to improper fraction.

4. Same as 1 (above) for second fraction.
5. Same as 2 (above) for second fraction.
6. Same as 3 (above) for second fraction.

Multiplication of improper fractions.

7. Numerator of first fraction multiplied by numerator of second fraction.
8. Denominator of first fraction multiplied by denominator of second fraction.
9. Reduction of improper fraction to a mixed number to find the answer ( $7 \div 8$ ).

Thus in doing this test multiplication and division of integers play an important part. When one considers

that the median accuracy in multiplication of integers is 80 per cent and the median accuracy in division of integers is 90 per cent, such a large percentage of error as shown in doing this type of examples by the horizontal method leads one to suspect that there must be some factor present which is not being considered but has an important influence upon the result.

The error may occur in any one of the nine steps noted in the foregoing. An error in the early steps may result in an increased error in the answer. Which method should be used in multiplication of mixed numbers depends on two important questions to neither of which do we have an answer.

1. By which method is the pupil most likely to obtain the correct answer?

2. How long does it take pupils to learn the method?

With sixth grade pupils it may be possible that the time used to teach the vertical method would be out of proportion to the results achieved through a greater percentage of accuracy providing this method is more likely to produce accurate results. It may be that pupils of sixth grade ability are not mature enough to learn the vertical method without an unreasonable expenditure of time. If this be true, the teaching of this process according to this method should be left to the high school classes. Whatever may be the truth in the case, if we are going to teach multiplication of mixed numbers, 50 per cent of the eighth grade class should obtain a higher accuracy than 0.

#### TEST 5.

##### Type of Examples Used in Test 5.

$$(1) \frac{3}{4} \div 8 \quad (2) 9 \div \frac{3}{8} \quad (3) 6 \div \frac{4}{5} \quad (4) 8 \div \frac{3}{5}$$

Tests 5, 6, and 7 consisted of examples in division of fractions. In Test 5 the pupils were required to divide an integer by a fraction (Examples 2, 3, and 4) or a fraction by an integer (Example 1). The percentage of error was very large, being 35.4 per cent for the first

type and 49.5 per cent for the second type in Grade VII and 25.3 per cent and 42.9 per cent for Grade VIII in the respective types.

The chief cause for failure to get at least one example right in such a large percentage of cases is due to failure to invert the divisor. Either the pupil does not invert the divisor or, not knowing which is the dividend and which the divisor, inverts the dividend. A notable fact is that when the divisor is an integer the chance of failure is nearly doubled. Evidently the pupil does not know the possibilities in this case.

As pointed out under the discussion of the fourth test, habit plays a very important part. The particular habit which probably influences the results in this instance is one formed in work with integers. Here the pupil learned that the answer in division must be smaller than the dividend. There certainly comes a new experience into the life of the pupil when he sees for the first time a division example in which the answer is larger than the dividend. Unless it is made very clear it must be a difficult thing for pupils to understand how one can divide 4 by  $\frac{1}{4}$  and get an answer of 16. To get such a large answer seems to violate all their previous conception of the meaning of division. It may be possible that the teaching of the idea of partition and measuring as pointed out in the earlier part of the bulletin would be a material help in conquering this difficulty.

The working of old habits may then be a partial explanation of the cause of such a large percentage of error in such simple examples as those given in Test 5.

The method of doing the examples was very largely the method of inversion. There were a few cases of the longer and more laborious method of reduction to a common denominator and then dividing one numerator by the other. These, however, were isolated cases and need only be mentioned in passing.

## TEST 6.

## Type of Examples Used in Test 6.

- (1)  $5678\frac{1}{3} \div 5$       (2)  $2789\frac{2}{3} \div 4$       (3)  $2467 \div 8\frac{1}{4}$   
 (4)  $6752 \div 12\frac{1}{3}$

Table VIII shows the results in Test 6. The table is to be read as follows: in doing the type mixed number divided by an integer, 18.3 per cent of the eighth grade failed to do correctly, even in method, any of the examples, 60.7 per cent did the work correctly in at least one example, and 21 per cent used the correct method but did not have a single example correct. The rest of the table is read in a similar way.

TABLE VIII.  
 Showing Results Attained in Test 6.  
*Division of Fractions.*

GRADE.	MIXED NUMBER DIVIDED BY WHOLE NUMBER.						WHOLE NUMBER DIVIDED BY MIXED NUMBER.					
	INVERSION.			LONG DIVISION.			INVERSION.			LONG DIVISION.		
	Per Cent of Failure.	Per Cent Right.	Per Cent of Error.	Per Cent of Failure.	Per Cent Right.	Per Cent of Error.	Per Cent of Failure.	Per Cent Right.	Per Cent of Error.	Per Cent of Failure.	Per Cent Right.	Per Cent of Error.
VIII.....	18.3	60.7	21	83.4	15.5	1.1	20.0	31.4	48.6	97.3	2.7	.0
VII.....	30.7	40.3	29	87.2	10.3	2.5	40.5	15.4	44.1	99.2	.5	.3

The failure, when the work was done by inversion, was in inverting the wrong fraction as pointed out in analysis of Test 5. When the work was done by long division, the failure was the inability to dispose of the remainder. The large percentage of failures in both types when done by long division does not necessarily

show anything because there was considerable evidence that this type of division of fractions had not been taught by many teachers. It is indeed possible to come to the same conclusion as reached in the analysis of Test 4, viz., if this type is going to be taught (and it is required by the new course of study) it should be taught effectively enough so that the median accuracy should be more than 39 per cent in the eighth grade.

#### TEST 7.

##### Type of Examples Used in Test 7.

$$(1) \frac{3}{5} \div \frac{1}{3} \quad (2) 3\frac{3}{4} \div \frac{1}{5} \quad (3) 5\frac{1}{5} \div \frac{2}{3} \quad (4) 6\frac{2}{5} \div \frac{4}{5}$$

In this test the pupils were required to divide a fraction by a fraction (Example 1) or a mixed number by a fraction (Examples 2, 3 and 4). In the eighth grade about 20 per cent and 24 per cent failed respectively in each type, and in the seventh grade 39 per cent and 33 per cent failed respectively. The general cause of failure was the same as in Test 5, viz., difficulty with inversion in one form or another.



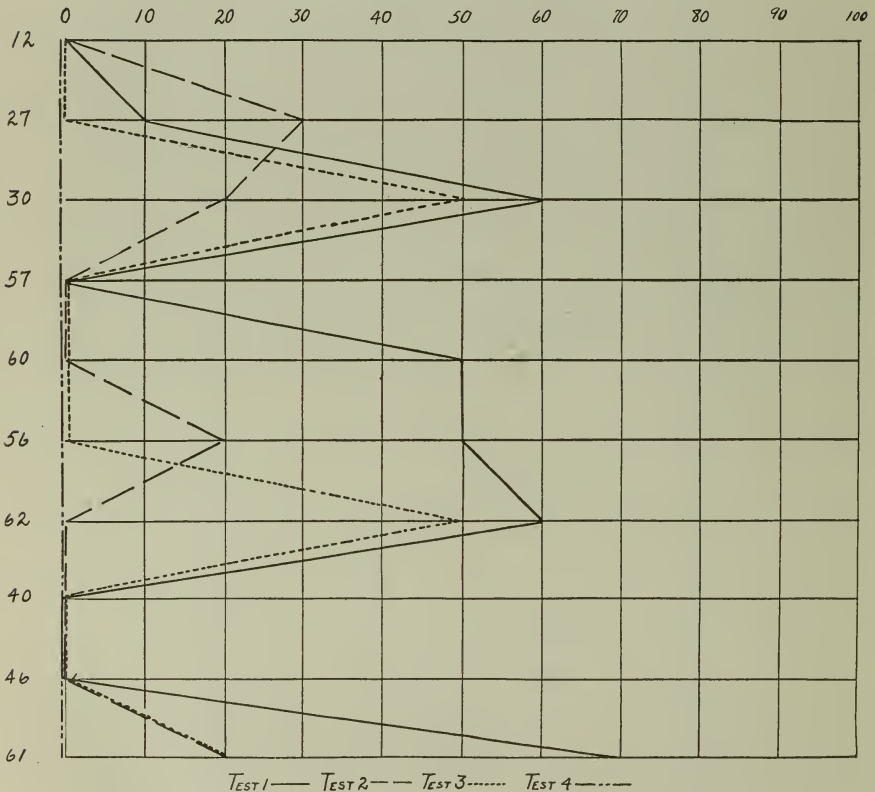
*Analysis of Results in Grade VI.*

Attention has already been called to the fact that the pupils of the sixth grade were apparently unable to do the work in multiplication and division of fractions. It seems worth while, however, to call attention to the

FIGURE 1.

Median Scores for Grade VI in Ten Schools in Multiplication of Fractions.

*Median Scores for Tests 5, 6, and 7 are all 0.*



great variation in the accuracy of the various schools in the work of multiplication and division of fractions.

Table IX shows the results in accuracy in the ten schools which were tested. In the first column is shown the school designated by a number. Under each test is shown the median or the 50 percentile score, the

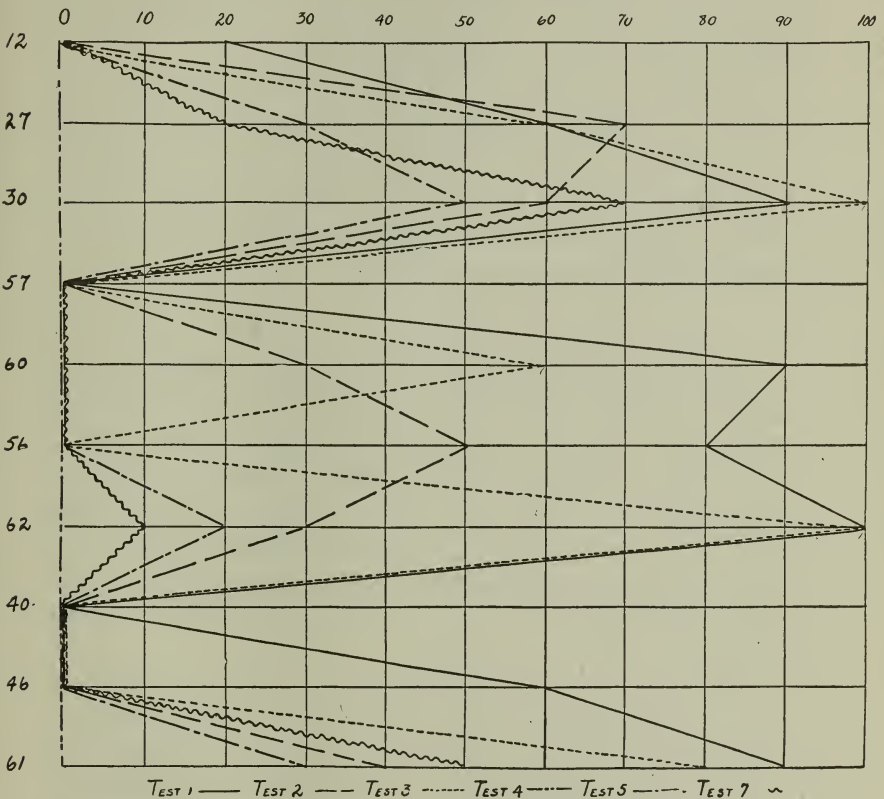


75 percentile score, which is the score above which are 25 per cent of the cases and below which are 75 per cent of the cases, and also the number of pupils who obtain a rank of 100 per cent accuracy. That is, the first line is read as follows: in school No. 12 the pupils in Test 1

FIGURE 2.

Seventy-five Percentile Scores for Grade VI in Ten Schools in Multiplication and Division of Fractions.

*Seventy-five Percentile Score for Test 6 is 0.*



have a median of 0. The 75 percentile point is at 20 and 7 pupils reach 100 per cent. In Test 2 the median and 75 percentile is 0 and there are none who reach 100 per cent. The results in the other tests are in succeeding columns. The record of the other schools is read in a similar way. Attention is called to the

scores attained by Schools 30, 60, 62, 61, in contrast with Schools 12, 57, 40.

Figure 1 and Figure 2 show the data of Table IX in graphic form. Figure 1 shows the variation in the medians. The records for Tests 5, 6, and 7 are not given because they are all 0 and would be drawn over the line showing the results for Test 4. Figure 2 shows the variation in the 75 percentile scores for the ten schools. The record for Test 6 is not drawn because all the schools had a record of 0 the same as in Test 4. These two graphs emphasize the great variation in the results much more strongly than Table IX.

As before pointed out, it was not expected that the results of Grade VI would be high because of lack of preparation in Grade V, but neither was so great a variation expected among the different schools. This difference in variation is probably due to a difference in procedure in the different schools.

#### IV. PLAN OF DIAGNOSIS FOR TEACHER.

As a result of this study of common fractions, how may a teacher effectively check the work in her grade? How may a teacher determine and keep in some permanent form a record of the pupils' ability in common fractions? The following form of record (page 37) has been used and proved to be an effective method of doing this work. This sheet may be duplicated so that each pupil may have a copy. It was planned to be used as follows:

The teacher may give examples in addition similar to the types illustrated in the sixth grade course of study, School Document No. 19, 1917, and if the pupils get the answers right the type may be checked in column marked "R", if wrong it may be checked in column marked "W". These checks in the "wrong" column should be changed as fast as the pupil has mastered the type. After giving a series of lessons covering the various types and recording results, the teacher has a record of the ability of each individual in the room showing his strength and weakness. If a pupil fails in

a problem, it can be determined immediately by referring to the record and by asking a few judicious questions, whether the difficulty is in the mechanics of the problem or in the problem itself, or both. In any case the teacher can easily tell to what extent she is required to give help to the pupil.

RECORD IN COMMON FRACTIONS OF

Name..... School.....  
 Age..... Room.....  
 Grade.....

	R.	W.		R.	W.
ADDITION.			MULTIPLICATION.		
Type 1.....			Fraction by an integer.....		
2.....			Integer by a fraction.....		
3.....			Integer by a mixed number,		
4.....			Mixed number by an integer,		
5.....			Fraction by a mixed number,		
6.....			Mixed number by a fraction,		
7.....			Fraction by a fraction.....		
8.....			Mixed number by a mixed		
9.....			number.....		
10.....					
11.....					
12.....					
13.....					
14.....					
Mixed numbers.....					
SUBTRACTION. (Without "Borrowing.")			DIVISION.		
Type 1.....			Fraction by an integer.....		
2.....			Integer by a fraction.....		
3.....			Integer by a mixed number,		
4.....			Mixed number by an integer,		
5.....			Mixed number by a fraction,		
6.....			Fraction by a fraction.....		
7.....					
8.....					
9.....					
Fraction from mixed number,					
Mixed number from mixed					
number (with "borrowing"),					
Fraction from integer.....					
Fraction from mixed number,					
Mixed number from integer..					
Mixed number from mixed					
number.....					

## SUMMARY AND CONCLUSIONS.

1. The median accuracy in all but the simplest tests in multiplication is strikingly low in some schools and high in others. The range of variation in the medians of the ten school districts tested extends from 0 to 92 per cent.

2. Analysis of results in multiplication of mixed numbers and division of a mixed number by an integer and of an integer by a mixed number seems to indicate a lack of drill in these types commensurate with their difficulty. A large percentage of the pupils show an utter lack of knowledge of the process.

3. In the tests in division of fractions, the chief source of error is in the apparent inability of the individual pupil to distinguish between the dividend and the divisor. This results in an inversion of either dividend or divisor and sometimes both.

4. The low percentage of accuracy in Tests 4 and 6 where the process consists of a number of steps leads one to think that some factors are influencing the results which are not usually considered as important.

5. The ineffectiveness of the instruction as indicated by the large variation within the class is again shown in these tests in multiplication and division of fractions. Class room drills tend to increase the difference between the individuals of the class by increasing the ability of the bright pupil and not reaching the slow pupil. The difficulty of the individual can only be reached by individual instruction whether that pupil be advanced or retarded. The waste through nonpromotion, poor attendance, and other causes may be eliminated. It is highly important that we find out the reasons for failure through the analysis of results and apply the remedy needed in each individual case.



# ANNOUNCEMENT.

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Bulletins published by the Department are distributed by the Secretary of the School Committee, who will, so far as the supply on hand permits, fill mail applications for copies when such requests are accompanied by the price indicated.

- No. I. Provisional Minimum and Supplementary Lists of Spelling.  
Words for Pupils in Grades I to VIII.  
School Document No. 8. 1914. *Out of Print.*
- No. II. Provisional Minimum Standards in Addition, Subtraction,  
Multiplication and Division for Pupils in Grades IV to  
VIII.  
School Document No. 9. 1914. *Out of Print.*
- No. III. Educational Standards and Educational Measurement.  
School Document No. 10. 1914. *Out of Print.*
- No. IV. Spelling, Determining the Degree of Difficulty of Spelling  
Words.  
School Document No. 10. 1915. *Out of Print.*
- No. V. Geography. A Report on a Preliminary Attempt to Measure  
Some Educational Results.  
School Document No. 14. 1915. *Out of Print.*
- No. VI. English. Determining a Standard in Accurate Copying.  
School Document No. 2. 1916. Price, 7 cents.
- No. VII. Arithmetic. Determining the Achievement of Pupils in the  
Addition of Fractions.  
School Document No. 3. 1916. Price, 7 cents.
- No. VIII. Report on High School Organization and Expenditures, 1916.  
Printed for local distribution only.
- No. IX. Penmanship. Determining the Achievement of Elementary  
School Graduates in Handwriting.  
School Document No. 6. 1916. Price, 7 cents.
- No. X. Arithmetic. The Courtis Standard Tests in Boston, 1912-1915.  
An Appraisal.  
School Document No. 15. 1916. Price, 7 cents.
- No. XI. Spelling. The Teaching of Spelling.  
School Document No. 17. 1916. Price, 7 cents.
- No. XII. Standards in Silent Reading, with Suggestions on How  
Teachers May Test Their Pupils in Silent Reading.  
School Document No. 18. 1916. Price, 7 cents.
- No. XIII. Arithmetic. The Value to the Teacher, to the Principal and  
to the Superintendent of Individual and Class Records  
from Standard Tests.  
School Document No. 22. 1917. Price, 7 cents.
- No. XIV. A Plan for the Promotion of Teachers from Merit Lists.  
School Document No. 2. 1918. Price, 7 cents.
- No. XV. Arithmetic. Determining the Achievement of Pupils in  
Common Fractions.  
School Document No. 5. 1918. Price, 7 cents.

SCHOOL DOCUMENT NO. 6—1918  
BOSTON PUBLIC SCHOOLS

ENGLISH

DETERMINING THE ACHIEVEMENT OF PUPILS IN  
LETTER WRITING

BULLETIN NO. XVI. OF THE DEPARTMENT OF  
EDUCATIONAL INVESTIGATION AND MEASUREMENT



JUNE, 1918

CITY OF BOSTON  
PRINTING DEPARTMENT  
1918

IN SCHOOL COMMITTEE, BOSTON, June 26, 1918.

*Ordered,* That four thousand (4,000) copies of a bulletin on "Determining the Achievement of Pupils in Letter Writing," prepared by the Department of Educational Investigation and Measurement and approved by the Board of Superintendents at its meeting on June 19, 1918, be printed as a school document.

Attest:

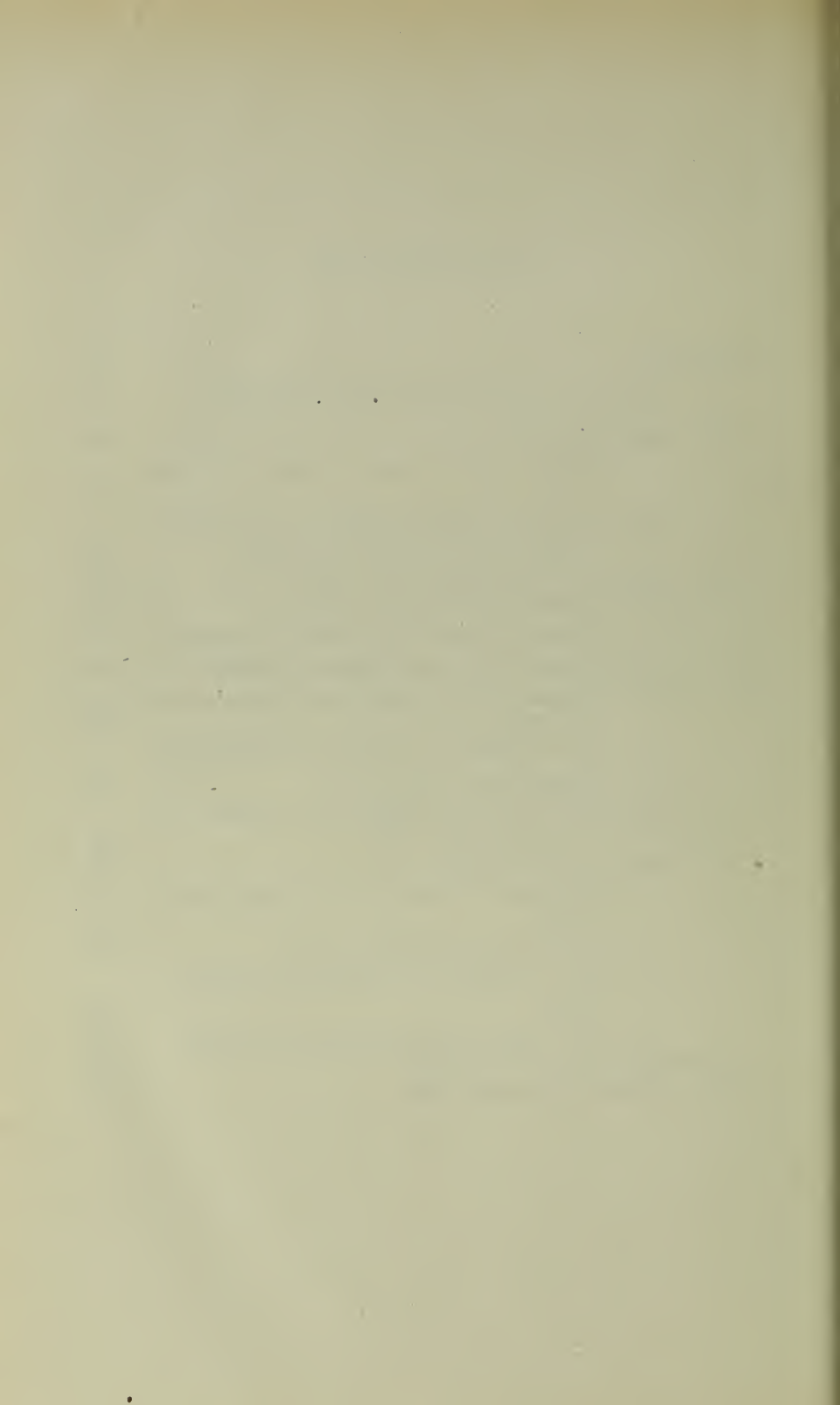
THORNTON D. APOLLONIO,  
*Secretary.*



# CONTENTS.

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	PAGE
Introduction . . . . .	5
I. Necessity of Objective Standards Recognized . . . . .	6
II. Organization and Giving of Letter Writing Test . . . . .	8
III. General Results . . . . .	10
1. Median Achievements in Letter Writing Test . . . . .	11
2. Comparison of Errors Made by Grade VIII and Grade VI on Per Cent Basis . . . . .	12
IV. Form and Arrangement of the Letter . . . . .	13
1. Model Form of Friendly Letter . . . . .	14
2. Achievements of Pupils in Writing Heading, Salutation, and Complimentary Close . . . . .	16
3. Achievements of Pupils in Writing the Heading . . . . .	17
4. Achievements of Pupils in Writing the Salutation . . . . .	19
5. Achievements of Pupils in Writing the Complimentary Close . . . . .	21
V. The Body of the Letter . . . . .	22
1. Distribution of Errors in the Body of the Letter . . . . .	23
2. Special Study of Sentence Sense . . . . .	25
3. Study of Errors in Grammar and Phraseology . . . . .	30
4. Other Facts about the Body of the Letter . . . . .	32
VI. Superscription of the Letter . . . . .	33
VII. Summary and Conclusions . . . . .	34



## INTRODUCTION.

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One test aimed to measure some phases of English instruction has already been given in the schools and the results published for the information of teachers. (Bulletin No. VI.)

This bulletin on letter writing, prepared by Miss Harriet M. Barthelmess, assistant in the Department of Educational Investigation and Measurement, covers the results of the test given in May, 1917. Particular attention of teachers is directed to those portions of the following report which indicate the comparative ability of pupils in Grades VI, VII, and VIII. A large number of pupils in Grades VI, VII, and VIII did not reach the theoretical standard set for sixth grade pupils. Further, the improvement of pupils in the various aspects of letter writing in Grades VII and VIII over Grade VI is small.

The manuscript for this bulletin was approved for publication by the Board of Superintendents at its meeting on June 19, 1918.

FRANK W. BALLOU,  
*Assistant Superintendent in Charge.*

## DETERMINING THE ACHIEVEMENT OF PUPILS IN LETTER WRITING.

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### NECESSITY OF OBJECTIVE STANDARDS RECOGNIZED.

For years educators have recognized the need of objective standards. These have been based in many cases on the consensus of expert opinion in a particular field; that is, on what competent persons agreed children ought to be able to do in a particular line of work.

This was what was done in 1913 when a committee of twelve\* was chosen from the teaching and supervisory staff of Boston for the purpose of establishing standards in English. During the school year 1913-14 this committee issued four bulletins, two of which concerned elementary school work, Bulletin 1, "Model Form of Friendly Letter," and Bulletin 3, "Tentative Minimum Requirements in English for Graduation from an Elementary School." These requirements as outlined were as follows:

A graduate of an elementary school should be able to do readily the following things:

- (1) To copy twelve lines of simple prose or poetry, and a bill of at least seven items. (Copying is not an end in itself, but a means to an end. The pupil should be made to see that accuracy in arithmetic, language, and other subjects may depend largely on accuracy in copying.)
- (2) To take down from dictation a passage of simple prose. (The purpose of dictation is to test language forms, punctuation, and spelling already taught. It should never be used as a method of teaching. It should succeed and not precede a teaching lesson.)

---

\* This committee consisted of: Charles L. Hanson, chairman; James A. Crowley, E. Gertrude Dudley, Carolyn M. Gerrish, Arthur W. Kallom, Bertha L. Mulloney, Lincoln Owen, Henry Pennypacker, Augustine L. Rafter, Helen M. Richardson, Ellen L. Roche, Charles G. Wetherbee.

- (3) To write from simple directions a friendly letter or an application for a position. (The letter is to be the pupil's own work, but he may be allowed to make corrections and to rewrite. There should be no corrections by the teacher.)
- (4) To write within a half-hour a simple, original composition of not less than one page of letter paper, with every sentence grammatically complete. The pupil may make revisions, including interlinear corrections, but must not rewrite.

In this composition the total number of serious errors in grammar, spelling, and punctuation should not exceed five — such errors, for example, as “I seen,” “we was,” “had wrote,” “he try” for “he tried,” “a women,” the use of “they” for “there,” “there” for “their,” “to” for “too”; the misspelling of such common words as “Wednesday,” “February,” “eighth,” “which,” “stopped,” “nineteen,” “minute,” “father,” “mother,” “English”; the omission of the period at the end of a sentence.

- (5) To recognize the parts of speech in their common uses; to explain the construction of words and phrases in a simple sentence containing not more than one phrase modifier in the subject and one phrase modifier in the predicate; to have a practical understanding of the uses to which the dependent clause of a complex sentence can be put — whether it be to serve as noun, adjective, or adverb; to know the principal parts of regular verbs and of the common irregular verbs, and their tense forms through the indicative mood.
- (6) To read at sight with readiness and good expression simple prose as difficult as “Little Men” or “Hans Brinker.”
- (7) To quote either orally or in writing fifty lines, not necessarily consecutive, of classic prose or poetry. (The pupil should look upon this not merely as something to be expected of him in the high school but also as a part of his equipment for life.)
- (8) To stand before the class and talk clearly on some subject of personal, school, or public interest.

In November, 1914, a test in accurate copying was given in order to establish the first requirement on a fact basis. The results of that study were reported in Bulletin No. VI\* of this department.

The third requirement reads, "To write from simple directions a friendly letter." No specifications are made as to the accuracy of work which would meet this requirement. However, the revised syllabus for the elementary schools † (1916-17) contains the following:

At the close of the sixth grade a pupil should be able to write, within twenty minutes, from simple directions, a friendly letter of not less than a page of note paper. The pupil should be expected to correct his own errors. In this letter the total number of errors in grammar, punctuation, and spelling should not exceed five.

To write correctly the superscription on an envelope.

This standard for letter writing for Grade VI, while more specific than that stated in 1914 for Grade VIII, is likewise based on the consensus of opinion of a group qualified to express judgment, and not on any actual achievements of pupils.‡

#### ORGANIZATION AND GIVING OF LETTER WRITING TEST.

Scientific educational measurement asks, To what degree do our children meet these theoretical standards? In the light of the children's actual achievements are these standards reasonable? Can they be attained by at least 50 per cent of our pupils?

In order that these questions might be answered, a test in letter writing was given in May, 1917, to the sixth, seventh, and eighth grade pupils in ten elementary districts in different parts of the city. The following shows the extent of the testing:

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\* School Document No. 2, 1916, English: Determining a Standard in Accurate Copying.

† See School Document No. 19, 1917, page 22.

‡ The committee on standards in written and spoken English consisted of the following: Emily F. Carpenter, Arthur W. Kallom, Augustus H. Kelley, Bertha L. Mulloney, Lincoln Owen, Henry Pennypacker, William L. Phinney, Augustine L. Rafter, Helen M. Richardson and Charles G. Wetherbee.

GRADE.	Districts.	Classes.	Number of Children.
VIII.....	10	27	1,010
VII.....	10	36	1,288
VI.....	10	34	1,305
Totals.....		97	3,603

The test as placed in the hands of the children was as follows:

### RESEARCH TESTS IN ENGLISH.

#### LETTER WRITING.

##### *Instructions to Pupils.*

Following is the body of a letter written on May 13, 1824, by Lothrop Motley, 68 King street, Boston, Mass., a boy nine years of age who afterward became one of our famous literary men. On the paper which has been given to you write an answer to this friendly letter, giving any news that you think would interest this boy. Use no other paper and use no books.

Read the letter as many times as you care to. You will be allowed twenty minutes in which to answer the letter.

##### *This is the Letter to be Answered.*

"I want to see you very much. I suppose you remember it is my turn to come home on Saturday next?

"This is Thursday, the day on which we speak. I was third best. The pieces which I spoke were Mr. Sprague's Prize Prologue and a most delectable comedy entitled and called 'The Cruel Tragedy of the Death of Pyramus and Thisbe.'

"My nose has bled very often lately but I believe it will not bleed much more. I have had a pain in my side once or twice. I hope you, Mother, and all the family are well. Mr. Green is very well. Mrs. Green has a headache."

The children were also asked to write the superscription. The letter to be answered was furnished by Mr. Charles G. Wetherbee of the Prince School, a member of the advisory committee. The committee felt that it was important to fulfil as far as possible the conditions under

which a child would normally write a friendly letter. He would probably have before him the letter received. Hence the test was presented in the foregoing form. The heading, salutation, and complimentary close were omitted, because it was considered desirable to know how the child would write these on his own initiative.

The organization of the test and the directions for the correction of results were largely determined by Miss Maud G. Leadbetter of the East Boston High School, in whose first-year English class the test was given experimentally.

The tests were given by Normal School seniors trained and supervised by this department. They were corrected by the room teachers who were willing to assume that extra piece of work. Further correction of the results was found necessary because of the difference of opinion as to some of the errors. One teacher might call "saturday" an error in capitalization while another would call it an error in spelling. Hence it was necessary to have these results checked by a group working under the direction of one person. In all correcting, the model form of friendly letter was followed. (Bulletin No. 1 of Committee on Standards. See page 14.)

The errors noted in marking this letter were those caused by incorrect or omitted punctuation, incorrect capitalization, incorrect position of parts (heading, etc.), wrong spelling, incomplete sentences, and errors in grammatical construction and of speech. The errors noted in marking the superscription were errors caused by wrong position, incorrect or omitted punctuation, wrong spelling, omission of title, omission of return address, and capitalization.

#### GENERAL RESULTS.

As has been stated, this test was given to determine to what extent pupils are meeting a theoretical standard based on personal judgments. We all may agree as to what pupils should be able to do, but we want to know the extent to which they can do it. The results are shown in the following table:



TABLE I.  
Median Achievements in Letter Writing Test.

GRADE.	Median Error in Total Letter.	Median Error in Heading, Salutation, and Close.	Median Error in Body of Letter.	Median Error in Superscrip- tion.
VIII.....	5.9	1.7	4.4	2.8
VII.....	6.4	1.6	4.9	3.0
VI.....	7.1	1.6	5.8	2.5

That is, the children in Grade VIII wrote the letter with a median of 5.9 errors in the entire letter. They made a median of 1.7 errors in the heading, salutation, and complimentary close, a median of 4.4 errors in the body of the letter alone, and a median of 2.8 errors on the envelope. The same facts are given for Grades VII and VI.

In other words, 50 per cent of the children in Grade VI and even in Grade VII did *not* reach the standard set for Grade VI (a maximum of five errors). The percentages of pupils who did reach the standard set for Grade VI were as follows: 50.6 per cent of the Grade VIII pupils, 46.1 per cent of the Grade VII pupils, and 39.2 per cent of the Grade VI pupils.

In the light of these facts our standards in letter writing at the present time might read as follows:

A child completing the eighth grade should be able:

To write within twenty minutes from simple directions a friendly letter of not less than a page of note paper with the total number of errors not exceeding five, and to write the superscription on an envelope with the total number of errors not exceeding two.

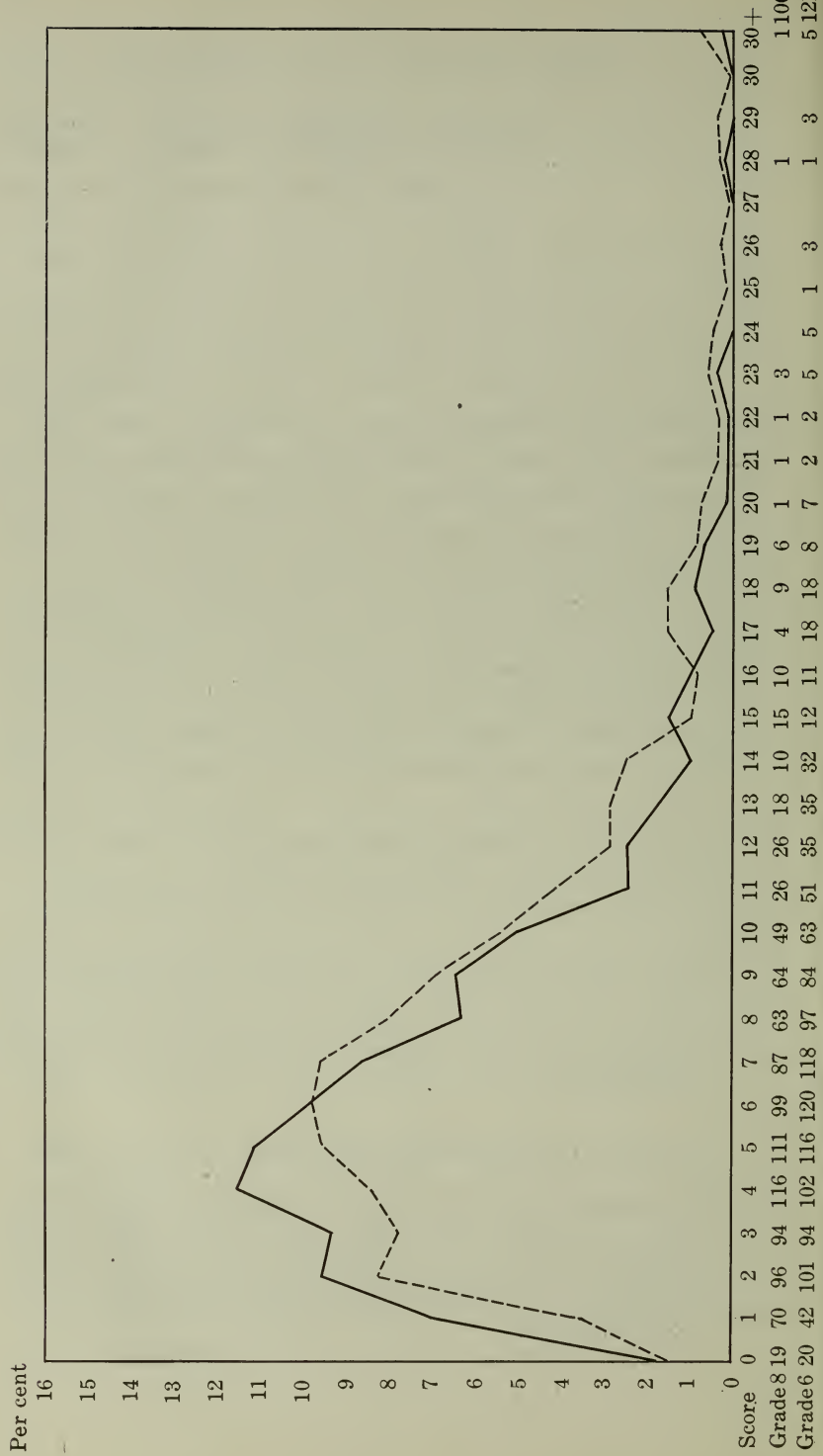
A child completing the seventh grade should be able:

To write within twenty minutes from simple directions a friendly letter of not less than a page of note paper with the total number of errors not exceeding six, and to write the superscription on an envelope with the total number of errors not exceeding three.

FIGURE 1.  
Comparison of Errors Made by Grade VIII and Grade VI on Per Cent Basis.

..... Grade 6 made a median of 7.1 errors.

\_\_\_\_\_ Grade 8 made a median of 5.9 errors.



Score 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 +  
 Grade 8 19 70 96 94 116 111 99 87 63 64 49 26 26 18 10 15 10 4 9 6 1 1 1 3  
 Grade 6 20 42 101 94 102 116 120 118 97 84 63 51 35 35 32 12 11 18 18 8 7 2 2 5 5 1 3 1 3 1 3

11000 pupils  
5 1211 pupils

A child completing the sixth grade should be able:

To write within twenty minutes from simple directions a friendly letter of not less than a page of note paper with the total number of errors not exceeding seven, and to write the superscription on an envelope with the total number of errors not exceeding two.

Of course, perfection is always the goal to be striven for in this work. The above represents the *minimum* degree of correctness which ought to be demanded from every child in the grade in view of present achievements. *However, it may be that there are factors entering into these results which would justify the feeling that so low a degree of accuracy as that represented by the median achievements should not be considered a standard.* That this is undoubtedly true in regard to the superscription will be shown in the detailed analysis of results.

Figure 1 shows the percentage of pupils in Grades VIII and VI who made any given number of errors in the entire letter (not including the superscription). The solid line represents the achievements of the eighth grade pupils and the dotted line represents the achievements of the sixth grade pupils; *i. e.*, in Grade VIII, 1.9 per cent made no errors, 7 per cent made one error, 9.6 per cent made two errors, etc. The achievements of the pupils which are stated in general terms in this figure will be explained in detail in the following pages.

#### FORM AND ARRANGEMENT OF THE LETTER.

Letter writing has special conventions as to form and arrangement which apply especially to the heading, the salutation, and the complimentary close of a letter. The forms of these to be taught are given to the teachers in the model form of a friendly letter (pages 14 and 15). How well they have been taught is shown by the following facts about the heading, salutation, and complimentary close. (Taken from Table I.)

In Grade VIII there was a median of 1.7 errors in these three parts. In Grade VII there was a median of 1.6 errors in these three parts. In Grade VI there was a median of 1.6 errors in these three parts.

Model Form of Friendly Letter.

316 Summit Street,  
Pomona, Cal.,

September 2, 1913.

Dear Marion,

Mother and I reached home yesterday after our visit of three months in the East. Although we had a pleasant time with our relatives in Maine and Massachusetts, we are glad to be at home once more.

The peaches and plums are ripe now, and we spend all day on the ranch helping the men gather the crop. I wish that you could be here to help eat our peaches; but I suppose you are enjoying your good Massachusetts apples.

Give my love to your mother and write soon.

Your loving friend,

Helen Garland.

## Model Form for Addressing Envelope.

*Helen Garland,  
316 Summit Street,  
Pomona, Cal.*

*Miss Marion L. Brown,  
16 Prospect Street,  
Reading, Mass.*

### DIRECTIONS FOR ENVELOPE.

1. Use ink in addressing letters or other mail matter.
2. Write plainly the name of the person addressed, street and number, post office and state.
3. Place your name and address in the upper left hand corner of the envelope or package.
4. The name of the person addressed should be written in about the middle of the envelope and with about as much space at the right as at the left, and each following line of the superscription should begin an even distance at the right of the preceding line.

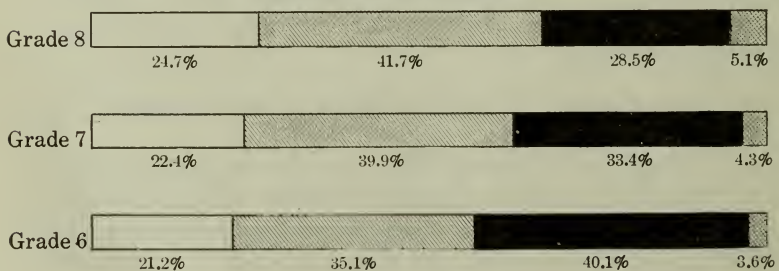
**TABLE II.**  
**Achievements of Pupils in Writing Heading, Salutation, and Complimentary Close.**

GRADE.	Per Cent Having Right Form with No Errors.	Per Cent Having Right Form with Errors.	Per Cent Having Wrong or Omitted Form.	Per Cent Having Undetermined Score.
VIII.....	24.7	41.7	28.5	5.1
VII.....	22.4	39.9	33.4	4.3
VI.....	21.2	35.1	40.1	3.6

The foregoing table shows for each grade the achievements of the pupils in regard to the heading, salutation, and complimentary close. Reading the first line across, one sees that in Grade VIII there were 24.7 per cent of the pupils having the right form of these three parts and making no errors, 41.7 per cent having the right form but making one or more errors, 28.5 per cent who either used the wrong form of one or more of these parts or omitted one or more of them altogether, and 5.1 per cent whose score was undetermined because of unfinished work. The results for Grades VII and VI may be read in the same way.

Figure 2 shows the same facts in graphic form.

**FIGURE 2.**  
**Showing Achievements of Pupils in Writing Heading, Salutation, and Complimentary Close.**



- % of pupils having correct form with no errors.
- % of pupils having correct form with errors.
- % of pupils having wrong or omitted form of one or more parts.
- % of pupils whose score was not determined because of unfinished work.

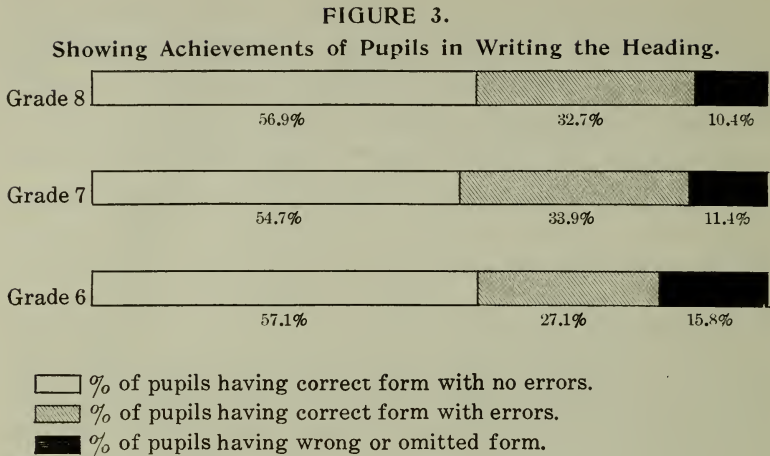
These results show that only about a quarter of the pupils can write a letter with heading, salutation, and complimentary close correct in form and free from error. Indeed, the large percentages having wrong or omitted form of one or more parts show that a large proportion of the pupils cannot write a letter with all three of these conventional parts correct in form regardless of other errors. There were only six pupils in Grade VIII, one pupil in Grade VII, and seven pupils in Grade VI who omitted heading, salutation, and complimentary close. This disposes of the possible criticism that it is not natural for the child to receive a letter without these parts and that because they were omitted in the letter given him to answer he would omit them in his reply. More specific information can be gleaned from the separate tabulations of the heading, salutation, and complimentary close.

TABLE III.  
Achievements of Pupils in Writing the Heading.

GRADE.	Per Cent Having Right Form With No Errors.	Per Cent Having Right Form With Errors.	Per Cent Having Wrong or Omitted Form.
VIII.....	56.9	32.7	10.4
VII.....	54.7	33.9	11.4
VI.....	57.1	27.1	15.8

The foregoing table shows for each grade (a) the percentage of pupils having the right form of heading and making no errors, (b) the percentage of pupils having the right form but making one or more errors, and (c) the percentage of pupils who either had the wrong form of heading or omitted that part of the letter altogether. Reading the first line across, one sees that in Grade VIII there were 56.9 per cent having the right form and making no errors, 32.7 per cent having the right form but making one or more errors, and 10.4 per cent either having the wrong form or omitting the heading altogether. The results in Grades VII and VI may be read in the same way.

Figure 3 shows the same facts in graphic form.



These results show that a majority of pupils in each grade knew the correct form for the heading and wrote it with no errors. Of the remainder, a large proportion had the correct form but made errors in technicalities. Those who did not know the correct form or omitted the heading altogether comprised 10 per cent to 15 per cent of the pupils. The heading was considered the wrong form unless it included (1) the street and number (or school) where the writer resided or was at the time of writing, (2) the city and the state, and (3) the date. Some children wrote the heading customary for all school papers and this, of course, was also considered the wrong form.

The distribution according to type of the technical errors in the heading is shown in Table IV.

**TABLE IV.**  
Distribution of Errors in the Heading According to Type.

	Grade VIII.	Grade VII.	Grade VI.
Position.....	19.1%	15.6%	11.9%
Punctuation.....	75.4%	76.8%	82.3%
Capitals.....	4.1%	6.6%	3.7%
Spelling.....	1.4%	1.0%	2.1%

The first column shows that in Grade VIII 19.1 per cent of all the errors made were due to wrong position, 75.4 per cent to wrong or omitted punctuation, 4.1 per cent to wrong capitalization, and 1.4 per cent to mis-



spelling. The second and third columns show the same facts for Grades VII and VI.

It will be seen from this table that punctuation was responsible for the large majority of the errors in the heading.

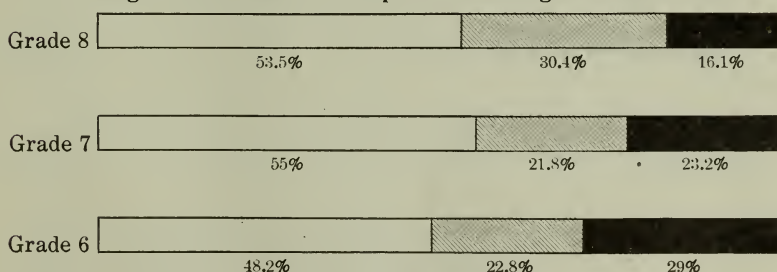
TABLE V.  
Achievements of Pupils in Writing the Salutation.

GRADE.	Per Cent Having Right Form With No Errors.	Per Cent Having Right Form With Errors.	Per Cent Having Wrong or Omitted Form.
VIII.....	53.5	30.4	16.1
VII.....	55.0	21.8	23.2
VI.....	48.2	22.8	29.0

The foregoing table shows for each grade (a) the percentage of pupils having the right form of salutation and making no errors, (b) the percentage of pupils having the right form but making one or more errors, and (c) the percentage of children who either had the wrong form of salutation or omitted it altogether. That is, in Grade VIII there were 53.5 per cent having the right form with no errors, 30.4 per cent having the right form with errors, and 16.1 per cent either having the wrong form or omitting the salutation altogether. The same facts are given for Grades VII and VI.

In Figure 4 the achievements of pupils in writing the salutation are shown in graphic form.

FIGURE 4.  
Showing Achievements of Pupils in Writing the Salutation.



- % of pupils having correct form with no errors.
- % of pupils having correct form with errors.
- % of pupils having wrong or omitted form.

It will be seen that practically half the children in each grade knew the correct form of salutation of a friendly letter and wrote it with no mistakes. A much larger per cent of the pupils in Grade VI (29 per cent) had the wrong form of salutation or omitted that part altogether than in Grade VIII (16.1 per cent). The wrong form included any business form of address and various other incorrect forms for a friendly letter, such as "Dear Mr. Lothrop Motley" and "Dear Lothrop Motley." The large number of pupils having the wrong form in Grade VI is probably due to the fact that in this grade the children have learned for the first time how to write a business letter and many of them have not distinguished between the correct forms for business and friendly letters. According to the new course of study, however, the forms for a business letter are not to be taught in Grade VI. In some cases letters were not addressed to Lothrop Motley at all but to various others. "Dear Craig," "Dear John," "Dear Mary," were some of the forms. Inasmuch as these were correct forms for a friendly letter, they were not marked as errors in form.

The remaining children knew the correct form but made errors in technicalities. Again in the salutation, punctuation was responsible for a large proportion of the errors, as is shown by the distribution of errors according to type in Table VI.

TABLE VI.  
Distribution of Errors in the Salutation According to Type.

	Grade VIII.	Grade VII.	Grade VI.
Position.....	24.4%	22.7%	19.8%
Punctuation.....	52.7%	42.7%	49.2%
Capitals.....	20.0%	21.6%	17.5%
Spelling.....	2.9%	13.0%	13.5%

That is, a large part of our children do not punctuate the salutation of a friendly letter according to the model form, in which the salutation is followed by a comma.

Some children used a colon, some a colon and dash, some a semicolon, while others omitted punctuation altogether.

Many showed that they did not know that the salutation should begin at the first margin, this lack of knowledge causing an error in position.

TABLE VII.  
Achievements of Pupils in Writing the Complimentary Close.

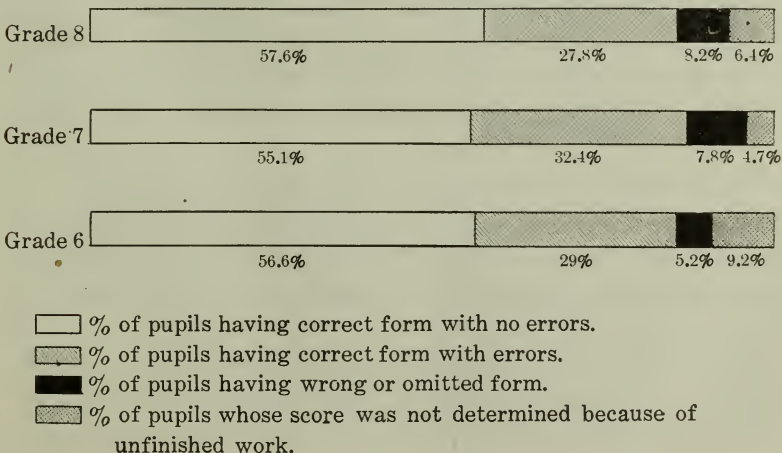
GRADE.	Per Cent Having Right Form with No Errors.	Per Cent Having Right Form with Errors.	Per Cent Having Wrong or Omitted Form.	Per Cent Having Unfinished Work.
VIII.....	57.6	27.8	8.2	6.4
VII.....	55.1	32.4	7.8	4.7
VI.....	56.6	29.0	5.2	9.2

Table VII shows for each grade (a) the percentage of pupils having the right form of complimentary close and having no errors in that part of the letter, (b) the percentage of pupils having the right form but making one or more errors, (c) the percentage of pupils who either had the wrong form or omitted the complimentary close, and (d) the percentage of pupils whose work was unfinished.

Figure 5 shows the same facts in graphic form.

FIGURE 5.

Showing Achievements of Pupils in Writing the Complimentary Close.



These results show that the majority of our boys and girls know how to write the conclusion of a friendly letter and can do it with no errors. In the marking of the conclusion, "Yours respectfully" was considered strictly a business form of closing and was, therefore, wrong. This accounts for most of the errors in form. The errors in the conclusion were pretty well divided between position, punctuation, capitals, and spelling, as Table VIII shows.

TABLE VIII.

Distribution of the Errors in the Complimentary Close According to Type.

	Grade VIII.	Grade VII.	Grade VI.
Position.....	22.3%	17.7%	25.7%
Punctuation.....	36.0%	33.7%	26.4%
Capitals.....	27.7%	28.5%	20.1%
Spelling.....	14.0%	20.1%	27.8%

#### THE BODY OF THE LETTER.

This statement appears in the revised syllabus for Grade VI:

A pupil's composition will be formal, meager, and uninteresting as long as the technicalities of spelling, penmanship, punctuation, and paragraphing distract his attention from the thought which he wishes to express. Hence it becomes the chief purpose of written composition in Grade VI to review the work of previous grades and give sufficient instruction and practice in the use of the following technicalities so as to make their use somewhat automatic.

Then follows a list of the common technicalities of written speech. The above statement may be applied to the body of a letter. Table IX shows the degree to which the children have succeeded in making automatic the use of the common technicalities.

The results show us that we may expect the average eighth or seventh grade child under present conditions to write the body of a letter with not more than four errors

TABLE IX.  
Distribution of Errors in the Body of the Letter.

	NUMBER OF ERRORS.																				TOTALS.										
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	+	Pupils.	Errors.		
Grade VIII.....	55	100	145	150]	118	117	83	67	41	28	31	19	11	10	10	4	2	4	.....	.....	1	.....	.....	2	.....	2	.....	2	.....	1,000	4,645
	Median error, 4.4.																														
Grade VII.....	46	108	133	189	158	153	115	90	74	53	38	28	14	16	10	1	10	4	2	.....	4	3	.....	2	.....	6	.....	6	1,257	6,589	
	Median error, 4.9.																														
Grade VI.....	41	76	128	140	115	136	120	113	65	68	49	28	23	28	13	19	8	12	5	5	2	2	1	4	2	7	.....	7	1,211	7,434	
	Median error, 5.8.																														

of any kind. The average sixth grade child should be expected not to make more than five errors. The errors in the body of the letter were distributed according to the following groups:

*Punctuation.*

This includes in this study terminal marks, the comma only in its common uses as taught in Grade VI, quotation marks, the apostrophe to show possession and in contractions, and the period after abbreviations.

*Capitals.*

This includes cases of misuse of the capital letter as well as cases of failure to use the capital letter where needed.

*Spelling.*

This includes not only mistakes in the spelling of individual words but also cases of failure to recognize some words as units. For instance, "anymore" for "any more," "besure" for "be sure," and "needed" for "need it" are errors in spelling.

*Incomplete Sentence.*

This includes *only* those serious errors in sentence structure caused by (1) absence of a subject, (2) absence of a predicate, and (3) absence of both subject and predicate.

*Grammar and Errors of Speech.*

This includes other mistakes of syntax, inflection, and phraseology.

TABLE X.

Distribution of the Errors in the Body of the Letter According to Type.

	GRADE VIII.		GRADE VII.		GRADE VI.	
	Number of Errors.	Per Cent.	Number of Errors.	Per Cent.	Number of Errors.	Per Cent.
Punctuation.....	973	20.9	1,559	23.7	1,802	24.2
Capitals.....	419	9.0	646	9.9	764	10.3
Spelling.....	1,048	22.6	1,756	26.7	2,380	32.0
Incomplete sentence.....	228	4.9	322	4.9	341	4.6
Grammar and errors of speech.....	1,977	42.6	2,286	34.8	2,147	28.9
Totals.....	4,645	100.0	6,569	100.0	7,434	100.0

Table X shows for each grade the number and percentage of the total errors in the body of the letter that were due to punctuation, capitals, spelling, incomplete sentences, and grammar, respectively.

At first sight it would appear that the number of errors in the grammar group is disproportionately large, but it must be remembered that this group is more comprehensive than any of the others and so the chance for error is correspondingly large.

It would seem most desirable to study in detail the errors falling in the different groups so that we might know, for example, whether a few specific errors are causing the errors in grammar and whether a few common words are responsible for the mistakes in spelling.

This diagnostic analysis of error is, of course, most valuable to the teacher when done by her in connection with the papers of her own class. It is a necessary thing if her teaching is to be effective, for it points out the most common sources of error and shows the needs of the individual child. A special study of the errors in sentence structure and in grammar is made here with the feeling that it might be of value to the teachers in general, inasmuch as it covers a wider range of errors than would occur among a small group of pupils.

#### SPECIAL STUDY OF SENTENCE SENSE.

Much has been said and written about the need of developing in the children "sentence sense," and indeed the need is vital. A sentence, no matter what may be its length and complexity, must contain a subject and a predicate and must not be grammatically dependent on any words outside itself. If a child has gained the ability to distinguish both in his mind and on paper a sentence as a unit of thought, then he has gone a long way towards enabling his reader to grasp and follow the thoughts which he wishes to communicate.

There are two principal types of violation of "sentence sense," (A) incomplete sentence, and (B) the failure to make a new sentence for a new thought.

Under (A) incomplete sentence, we may distinguish the following types:

1. Subject omitted.

Examples:

- (a) *Hope you are well.*
- (b) *The pieces you spoke were very interesting and am glad to know you did well.*
- (c) *And as for the pains in your side are only growing pains.*

2. Whole or part of verb omitted.

Examples:

- (a) *I suppose the piece that was entitled "The Death of Pyramus."*
- (b) *Your letter received.*
- (c) *I am feeling very well and also the family.*
- (d) *I hope you will be well after this and no more pains.*

3. No subject or predicate.

Examples:

- (a) Noun phrase used as sentence.  
*Just a few lines to answer your letter.*  
*\* Best regards to all from all.*  
*That pain also.* (Following the sentence, "I hope your nose is better.")
- (b) Subordinate clause standing alone.  
*Because I want to see you.*  
*Which I am certain are not better than yours.*  
(These are really parts of foregoing sentences.)
- (c) Participial phrase used as sentence (chiefly at end of letter).  
*Hoping to see you Saturday.* (Wrong even if followed by comma, unless also followed by "I am" or "I remain.")
- (d) Prepositional phrases standing as sentences.  
*\* With love.*  
*In reply to your letter which I received yesterday.*

Under (B) failure to make new sentence for new thought, attention is called to the following groups:

---

\* It is recognized that this use of an incomplete sentence is not to be judged so harshly as the other examples noted; while it is true that cultured people sometimes allow themselves the privilege of using this construction at the end of a friendly letter, nevertheless it should be discouraged in letter writing in school in order that the children may not extend its use to other types of written work.



1. Independent clauses joined as one at the end of the letter.

Examples:

*Give my love to everybody, I am*

*Write soon, I am*

2. Independent clauses not related in thought joined without connective.

Examples:

*I am glad to say you have been honored good and I hope you also feel that way too, I hope your nose will not be bleeding as much as it did before, because sometimes I have them, but mostly I have them in the summer.*

*I hope you will come home soon and help with the garden the baby is well and all the family but Mother.*

*I hope you will not have any nosebleeds also I am sorry your side has pained.*

This classification is admittedly incomplete. As can be seen, only the major violations of sentence structure are included here. All the examples are taken from pupils' letters.

Using this classification of error we have the following record of pupils' errors in sentence structure:

*Grade VIII.*

1. Pupils who made errors in (A) (incomplete sentences) . . . . .	187	18.7%
2. Pupils who made errors in (B) (failure to make new sentence for new thought) . . . . .	219	21.9%
3. Pupils who made errors in both (A) and (B) . . . . .	46	4.6%
	<hr/>	<hr/>
Total of pupils who made errors in sentence structure (1 + 2—3) . . . . .	360	36.0%

*Grade VII.*

1. Pupils who made errors in (A) (incomplete sentences) . . . . .	248	19.7%
2. Pupils who made errors in (B) (failure to make new sentence for new thought) . . . . .	300	23.9%
3. Pupils who made errors in both (A) and (B) . . . . .	68	5.4%
	<hr/>	<hr/>
Total of pupils who made errors in sentence structure (1 + 2—3) . . . . .	480	38.2%

*Grade VI.*

1. Pupils who made errors in (A) (incomplete sentences) . . . . .	271	22.4%
2. Pupils who made errors in (B) (failure to make new sentence for new thought) . . . . .	375	31.0%
3. Pupils who made errors in both (A) and (B) . . . . .	83	6.9%
Total of pupils who made errors in sentence structure (1 + 2—3) . . . . .	563	46.5%

Table XI summarizes this classification of errors in sentence structure.

TABLE XI.  
Summary of Pupils' Errors in Sentence Structure.

	Per Cent of Pupils Making Errors in (A).	Per Cent of Pupils Making Errors in (B).	Per Cent of Pupils Making Errors in (A) and (B).	Total Per Cent of Pupils Making Errors in Sentence Structure.
VIII.....	18.7%	21.9%	4.6%	36.0%
VII.....	19.7%	23.9%	5.4%	38.2%
VI.....	22.4%	31.0%	6.9%	46.5%

(A)—Incomplete sentence.

(B)—Failure to make new sentence for new thought.

These figures show that gross violations of sentence structure exist in the pupils' writing to an alarming extent. In other words, about one in three of the pupils in Grades VIII and VII (36 per cent and 38.2 per cent, respectively) and about every other pupil in Grade VI (46.5 per cent) made one or more of the kinds of error in sentence structure listed above. This certainly would indicate a need for work in developing "sentence sense." It is only fair to add that these pupils were by no means evenly distributed among classes, for while there were as many as 61 per cent of one class who had errors of this kind, there were as few as 19 per cent of another class in the same district who had errors in sentence structure, showing that some teachers have been more successful in attacking the problem than others. It seems to indicate, too, that a large part of the

error is unnecessary. It should be remembered that the foregoing percentages of errors in sentence structure do not by any means include all cases of violation of sentence unity and coherence. As pointed out before, these figures apply only to the gross violations of sentence structure in order that attention may be directed to them. A sentence may be structurally correct and yet lack unity and coherence. Cases of this kind are not included in the record of error.

It is most important, however, as one well-known manual of rhetoric points out, that we should distinguish between those cases of coördination in which the structure best expresses the thought and those in which it represents no thought at all.

For example, some children use coördination to join unrelated ideas into one sentence. It occurs in the following types:

1. Two or more independent clauses.

Example:

*I hope Mrs. Green feels better and have you grown any?*

2. Independent clause and participial phrase.

Example:

*I am well hoping these few lines will cheer you up.*

3. Independent clause with prepositional phrase.

Example:

*Goodbye until next Saturday with love to all.*

4. Independent clause with dependent clause.

Example:

*Isn't there some way of stopping the nosebleed because I had one yesterday and I know what it is?*

Many such examples occur and while they are certainly structurally correct they represent flagrant violations of unity and coherence. A good teacher is always on the alert for the elimination of such uses of coördination.

Sometimes when independent clauses are related in thought, some children separate them merely by commas.

Examples:

*You had better take care of yourself, Mother was worried.*

*I am sorry Mrs. Green is not well, you must be careful not to trouble her.*

*I am glad you came out third best, so is Mother.*

Of course, in a case of this type it is not permissible to express coördination by means of a comma. A semicolon must be used if the thought is to be expressed in this form. However, for children to whom the use of the semicolon has not been taught, the remedy for this comma fault lies in training in the recognition of independent clauses as units and in the use of complex sentences.

#### STUDY OF ERRORS IN GRAMMAR AND PHRASEOLOGY.

There was a total of 2,147 errors in Grade VI in the "grammar and errors of speech" group — an average of 1.8 errors per pupil. These errors were distributed among the following groups:

Misuse of "shall" and "will" . . . . .	731
Examples:	
<i>We will</i> be glad to see you.	
<i>Will</i> I go tomorrow?	
Disagreement in number of subject and predicate . . . . .	307
This error usually occurs where there is a compound subject or predicate or in a sentence where the subject has lengthy modifiers.	
Examples:	
<i>Mother and the family is</i> well.	
<i>We are</i> well and <i>was going</i> to visit you.	
<i>One of my friends were</i> there.	
<i>What was the prizes?</i>	
This group includes 117 cases of "you was" and seventeen cases of "it don't."	
Wrong expressions . . . . .	263
Examples:	
We went <i>up the hall</i> (down the beach, etc.).	
The garden is <i>in back of</i> the school.	
He stayed <i>home</i> (for <i>at home</i> ).	
Be sure <i>and</i> come.	
<i>Some place</i> for <i>somewhere</i> .	
<i>Kind of</i> for <i>rather</i> .	

Wrong word . . . . .	221
Example:	
<i>Bring for take, feel good for feel well, come for go, must of</i> <i>for must have, guess for think, like for as, most for</i> <i>almost, hope for wish.</i>	
Wrong tense or verb form . . . . .	160
Examples:	
You <i>come</i> yesterday.	
I wish I <i>was there</i> (for <i>had been</i> ).	
I hope she gets better and <i>be</i> well.	
Baby <i>is got</i> two teeth.	
Wrong form of past participles ( <i>have came, have saw,</i> <i>have know, was ran over, was ranned over</i> ).	
No expressed antecedent for pronouns . . . . .	117
Example:	
I am sorry your nose has been bleeding. I think <i>it</i> will go away soon.	
Adjective in place of adverb . . . . .	110
Example:	
You spoke <i>good</i> .	
Wrong preposition . . . . .	31
Example:	
I had a pain <i>on</i> my side.	
Disagreement of pronoun with antecedent . . . . .	29
Examples:	
Bring the <i>pieces</i> to let me see <i>it</i> .	
<i>Everybody</i> sends <i>their</i> love.	
Wrong connective . . . . .	27
Examples:	
Do you like the stories <i>what</i> you have read?	
I am sorry <i>why</i> your nose bleeds.	
Subject or object repeated . . . . .	18
Examples:	
The <i>name</i> of that <i>it</i> is, etc.	
The <i>pieces</i> I spoke everybody enjoyed <i>them</i> .	
Double negative . . . . .	18
Miscellaneous . . . . .	115
Total . . . . .	2,147

The major value of a special study of error such as this lies in its pointing out the types of error which are common and which, therefore, every teacher should guard against.

The difficulty with "shall" and "will" must be great when 34 per cent of all the errors in this group are caused by the wrong use of these words. Fourteen per cent of the errors were caused by disagreement in number of subject with predicate. "You was" is a common error. The wrong form of the present perfect is also frequent. Every kind of error is represented and the different types are so scattered that one is impressed by the fact that the diagnostic work reaches its greatest effectiveness only when it is used by the individual teacher to find out the types of error common in her own class, as well as errors peculiar to individual children.

#### OTHER FACTS ABOUT THE BODY OF THE LETTER.

The requirement for amount written as stated for letter writing reads: "One page of note paper in length." As far as the amount written was concerned, there were few cases where the children failed to meet the requirement.

There were some children who evidently did not comprehend the directions, for there were some who copied the letter; 1 per cent of the pupils in Grade VIII, 2.4 per cent in Grade VII, and 6.7 per cent in Grade VI. These were considered I. N. F. papers (Instructions Not Followed) and were not included in the tabulation of errors in the body of the letter.

Others did not really answer the letter intelligently; 5.6 per cent in Grade VIII, 12.7 per cent in Grade VII, 14.9 per cent in Grade VI. They wrote friendly letters but they could not be said to have answered the letter given.

Since this study was mainly concerned with putting on a fact basis standards which have been determined by opinion, attention was confined solely to the mechanics of language. No analysis was made of the general excellence of composition and the fluency of expression. These are certainly vitally important and we ought to know what the achievements of our pupils are in these respects and what relation exists between these qualities and technical accuracy.\*

\* An article entitled "Fluency, Accuracy, and General Excellence in English Composition," written by R. L. Lyman of the University of Chicago and published in the "School Review," February, 1918, is well worth the attention of everyone interested in composition work in the schools.

## SUPERSSCRIPTION OF THE LETTER.

As will be seen from Table I (page 11), few children of any grade were able to "write correctly the superscription on an envelope," for the median error was 2.8 in Grade VIII, 3 in Grade VII, and 2.5 in Grade VI. The percentage of children in each grade which met the requirement was as follows:

Grade VIII . . . . .	3.5 per cent.
Grade VII . . . . .	5.5 per cent.
Grade VI . . . . .	11.1 per cent.

These results raise the question as to whether the superscription has been taught according to the Model Form of Friendly Letter issued by the School Committee.

There were 7.4 per cent of the pupils in Grade VIII, 8.6 per cent of those in Grade VII, and 10.8 per cent of those in Grade VI who did not have the correct form at all. That is, they did not recognize the fact that the superscription must contain the name and address of the person to whom the letter is to be sent. These papers were not included in the following distribution of errors according to type.

TABLE XII.

Distribution of Errors in the Superscription According to Type.

	Grade VIII.	Grade VII.	Grade VI.
Position . . . . .	554	708	460
Punctuation . . . . .	708	915	832
Omission of return address . . . . .	761	933	765
Omission of title of addressee . . . . .	249	463	440
Spelling . . . . .	34	60	38
Capitalization . . . . .			1
Totals . . . . .	2,306	3,079	2,536

Table XII shows for each grade the number of errors due to incorrect position, incorrect punctuation, omission

of the return address, omission of the title of the addressee, incorrect spelling, and incorrect capitalization, respectively.

Some pupils used the block form of writing the address with each line, beginning underneath the first letter of the preceding line. This differs from the Model Form. However, errors in position were marked only where the address was written in such a position on the envelope that there would be danger of its being covered by the postal mark. Errors in punctuation were noted in cases where the punctuation was not as printed on the Model Form. The above distribution shows that a large part of the errors fall in the groups "punctuation" and "omission of return address." If it be preferable to omit punctuation on the envelope and to have the writing of the return address optional, then those facts should be recognized in a more flexible model form, for a model form which is not taught loses its practical value. There seems to be little doubt that in general the children are not taught to write the return address for it was omitted by 81.2 per cent of the children in Grade VIII, 79 per cent in Grade VII, and 66.4 per cent in Grade VI. Usually all the pupils of the individual class either include it or omit it.

One interesting fact that may be noticed in the tabulation of error on the superscription is that the children of the seventh and eighth grades do not do so well as the children in the sixth grade. Apparently after the pupils leave Grade VI they do not receive enough training on this phase of letter writing to enable them to retain their Grade VI achievement.

#### SUMMARY AND CONCLUSIONS.

1. The pupils of Boston as a group cannot write a friendly letter with the degree of accuracy required by the present theoretical standard. The degree of technical accuracy set for Grade VI (a maximum of five errors) was reached or exceeded by only 50.6 per cent of the Grade VIII pupils, 46.1 per cent of the Grade VII pupils, and 39.2 per cent of the Grade VI pupils. For the present, that degree of accuracy represented by the median achievement of



the pupils in each grade in this test may be considered a reasonable standard, in so far as the letter itself is concerned.

2. The heading, salutation, and complimentary close were written correct in form and free from error by 24.7 per cent of the pupils in Grade VIII, 22.4 per cent of the pupils in Grade VII, and 21.2 per cent of the pupils in Grade VI. Practically a majority in each grade can write correctly any one of these parts, but the average child makes one error in writing the three parts.

3. A large proportion of our pupils violate the main principles of sentence structure in one or more instances. This group includes 36 per cent of the pupils tested in Grade VIII, 38.2 per cent of those tested in Grade VII, and 46.5 per cent of those tested in Grade VI. This kind of error shows the need of diagnostic work on the part of the teacher to determine the needs of her own pupils. In some classes the percentage of pupils who had this type of error ran as high as 61 per cent, while in other classes it was as low as 17 per cent, showing that the development of a "sentence sense" may come as a result of effective instruction.

4. In Grade VI, 34 per cent of all the errors recorded as errors in grammar were caused by the misuse of "shall" and "will." In Grade VI, the disagreement in number of subject and predicate caused 14 per cent of the errors in grammar. About a third of this 14 per cent was caused by the use of "you was," while the other cases were usually caused by the confusion due to a compound subject or predicate.

5. The achievements of the pupils in addressing an envelope warrant the assumption that the model form of a superscription as printed has not been generally taught. If that model is not desirable in its present form, it ought to be changed. In grades above the sixth the pupils apparently do not receive enough training on this phase of letter writing to enable them to retain their sixth grade achievement. Obviously conditions do not warrant setting up a standard on the basis of the present achievements of pupils in respect to the superscription.

## ANNOUNCEMENT.

Bulletins published by the department are distributed by the Secretary of the School Committee, who will, so far as the supply on hand permits, fill mail applications for copies when such requests are accompanied by the price indicated.

- No. I. Provisional Minimum and Supplementary Lists of Spelling Words for Pupils in Grades I to VIII.  
School Document No. 8. 1914. *Out of Print.*
- No. II. Provisional Minimum Standards in Addition, Subtraction, Multiplication and Division for Pupils in Grades IV to VIII.  
School Document No. 9. 1914. *Out of Print.*
- No. III. Educational Standards and Educational Measurement.  
School Document No. 10. 1914. *Out of Print.*
- No. IV. Spelling. Determining the Degree of Difficulty of Spelling Words.  
School Document No. 10. 1915. *Out of Print.*
- No. V. Geography. A Report on a Preliminary Attempt to Measure Some Educational Results.  
School Document No. 14. 1915. *Out of Print.*
- No. VI. English. Determining a Standard in Accurate Copying.  
School Document No. 2. 1916. Price, 7 cents.
- No. VII. Arithmetic. Determining the Achievement of Pupils in the Addition of Fractions.  
School Document No. 3. 1916. Price, 7 cents.
- No. VIII. Report on High School Organization and Expenditures, 1916.  
Printed for local distribution only.
- No. IX. Penmanship. Determining the Achievement of Elementary School Graduates in Handwriting.  
School Document No. 6. 1916. Price, 7 cents.
- No. X. Arithmetic. The Curtis Standard Tests in Boston, 1912-1915. An Appraisal.  
School Document No. 15. 1916. Price, 7 cents.
- No. XI. Spelling. The Teaching of Spelling.  
School Document No. 17. 1916. Price, 7 cents.
- No. XII. Standards in Silent Reading, with Suggestions on How Teachers May Test Their Pupils in Silent Reading.  
School Document No. 18. 1916. Price, 7 cents.
- No. XIII. Arithmetic. The Value to the Teacher, to the Principal, and to the Superintendent of Individual and Class Records from Standard Tests.  
School Document No. 22. 1917. Price, 7 cents.
- No. XIV. A Plan for the Promotion of Teachers from Merit Lists.  
School Document No. 2. 1918. Price, 7 cents.
- No. XV. Arithmetic. Determining the Achievement of Pupils in Common Fractions.  
School Document No. 5. 1918. Price, 7 cents.
- No. XVI. English. Determining the Achievement of Pupils in Letter Writing.  
School Document No. 6. 1918. Price, 7 cents.

SCHOOL DOCUMENT NO. 7—1918  
BOSTON PUBLIC SCHOOLS

Course of Study in  
**CLERICAL PRACTICE**  
(COMMERCIAL SUBJECTS)

For Intermediate Schools and Classes



CITY OF BOSTON  
PRINTING DEPARTMENT  
1918

IN SCHOOL COMMITTEE, BOSTON, June 26, 1918.

*Ordered,* That the accompanying course of study in clerical practice (commercial branches) is hereby adopted for intermediate schools and classes, and that it be printed as a school document.

## OUTLINES OF WORK IN CLERICAL PRACTICE (COMMERCIAL SUBJECTS) FOR INTER- MEDIATE SCHOOLS AND CLASSES.

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These outlines of work have been prepared by a Council, comprising teachers of commercial subjects in the high and intermediate schools of the city.

The members of this Council are as follows:

WILLIAM L. ANDERSON, <i>Chairman</i> , *	Dorchester High School.
ERNEST V. PAGE, <i>Chairman, pro tem.</i> ,	Brighton High School.
ELIZABETH HISCOCK, <i>Secretary</i>	Henry L. Pierce School.
RITA G. BAKER . . . . .	Robert G. Shaw School.
JAMES A. CROWLEY . . . . .	Emerson School.
ELLA A. CURTIS † . . . . .	Hancock School.
JULIA S. DOLAN . . . . .	John Winthrop School.
ELIZABETH J. FITZGERALD . . . . .	East Boston High School.
CHESTER M. GROVER . . . . .	Roxbury High School.
JOHN E. J. KELLEY . . . . .	South Boston High School.
JOHN J. MALONEY . . . . .	Abraham Lincoln School.
FREDERICK J. MURPHY . . . . .	Ulysses S. Grant School.
ARTHUR F. O'MALLEY ‡ . . . . .	High School of Commerce.
ELLEN L. ROCHE . . . . .	Mary Hemenway School.
ALLAN L. SEDLEY . . . . .	Lewis School.
HAROLD C. SPENCER . . . . .	West Roxbury High School.

\* Temporarily in service at Camp J. E. Johnston, Jacksonville, Florida, April 1 to September 1, 1918.

† Succeeding Matilda F. Bibbey.

‡ Succeeding James R. Mahoney, enlisted.

CLERICAL PRACTICE, COMMERCIAL COURSE, INTERMEDIATE  
SCHOOLS. (NINTH GRADE.)

SUBJECTS REQUIRED.	Number of 30-Minute Periods per Week in Intermediate Schools.	High School Diploma Points.
Art appreciation.....	2	1
Choral practice.....	1	1
Hygiene-physiology.....	1	1
Physical training.....	3	2
English.....	7	5
Clerical practice.....	7	5
<i>Elective: At least one.</i>		
Modern foreign language.....	7	5
Mathematics.....	7	5
Introductory science.....	4	3
Industrial Boston and civics.....	4	3

NOTE.— (1) Ancient history, 3 or 5 points, freehand drawing, 3 points, and domestic art, 3 points, might be offered.

CLERICAL PRACTICE.

SUGGESTIVE PROGRAM.

Penmanship . . . . .	17 weeks.
Copying forms . . . . .	4 weeks.
Palmer — High School Edition, pages 80, 82, 83, 85, 86, 87, 92.	
Clerks' Sales — writing and figuring . . . . .	2 weeks.
Pay Roll and Memorandum (6 of each) . . . . .	2 weeks.
Bills — writing and figuring 18 bills . . . . .	3 weeks.
Save these bills for use in Business Form Sets.	
Business Form Sets . . . . .	3 weeks.
The bills (18) are used as a basis of work with deposit slip, check book, notes, drafts, and receipts.	
Bookkeeping . . . . .	Remainder of school year.

## PENMANSHIP.

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The standardization of instruction in penmanship throughout the schools has secured such excellent results, that any change in the fundamental idea has not been considered. A few suggestions may be offered at this time, with the aim of bringing the pupil's writing into a definite form that will make it more practical for business use.

Up to the time of entering the intermediate school, the pupil has been drilled with a fixed idea of gaining freedom of movement, without which good writing has been proved to be impossible. In this strain for movement, the pupils have become quite expert in movement drills, and the resulting writing is too large for use in recording transactions in books of account. The ninth grade is the psychological time to cut the writing down in size and thereby use the foundation already laid to mold a business product.

The pupil has usually been trained to space his letters between lines three eighths of an inch apart. In books of account, however, quarter-inch spacing is rare, the prevailing width between lines being either three sixteenths of an inch or even one eighth of an inch. To train the pupils to write compactly in the narrow spaces provided, quarter-inch ruled paper should be used. Later, this width may be reduced.

Movement exercises should be given that will not exceed in height the quarter-inch ruling. The letter forms should be analyzed and the letter formation definitely fixed in the pupil's mind. It is obvious that a pupil cannot develop skill in writing a letter form if he has not a definite mental conception of its outline and some definite idea of the process of making it.

The reason for most illegible writing is that the little details of the letters are overlooked and no method of counting is used which emphasizes these details. Such letters as the small v, w and b may be cited as examples of illegibility caused by lack of attention to the last part of these letters. A little practice by the teacher will show that if a stop is made at the point where the line leaves the v proper to connect with the next letter it will tend to check illegibility in these cases. A similar study of other letters and appropriate counting will eliminate much that is now looked upon as faulty. The relation between one letter form and another should be pointed out, and the letter practice developed from the simplest form through related groups.

If, in practically all the small letters, the teacher will insist that pupils make the down-strokes straight, the bases of the letters produced will be uniform and thus a smooth, even style of writing will be the result. The contact of the down-strokes of the letters with the line should be emphasized in order to produce such uniformity.

The capitals may be similarly treated. In order to adapt the writing as taught in the "Palmer Method" writing book to practical use in narrow ruled books, it is suggested that the style of the capital F be changed; namely, that a capital F be made by crossing the stem of the capital T form, as is done in the "Palmer Method" text on page 90.

When the writing is small, as required in books of account, the style of capitals P and R in the "Palmer Method" are not written legibly by the average writer, and these letters have therefore been the subject of much adverse criticism. It is suggested that, as capitals P, R and B are related letters, the P and R should be made in the style of the B. This means that the capital P is made by simply dropping the last lower part of the B and that the R is made by adding the last down-stroke of the capital K to the capital P thus developed.

It is recommended that care be used in making the signs used to represent dollars, cents, pounds, number, per cent, etc., as carelessness in this respect causes much illegibility in these widely-used symbols.

There is plenty of material available for the practice of business writing, and it may be arranged to suit the ideas of the individual teacher. A series of practice drills may be made from business forms given in the new "Palmer Method Writing Book," and other model forms may be found in bookkeeping texts used in the high schools, particularly the incoming papers in bookkeeping sets, which are usually discarded by the bookkeeping pupils.

Practice through dictation should be given in order that the pupil may learn to use good letter forms automatically and not be dependent upon a copy. Care should be taken not to sacrifice form for speed, for, after all, good writing is produced by well-formed letters and not by speed.

A style of writing suited to ledger headings and other titles should be taught. The possession of such a style is necessary to the clerk or bookkeeper for use in card indexing and other office work, in which writing of a larger and more distinct type is essential. In such writing, the letters should be of the same width as in normal writing, but about twice the height.

One of the great weaknesses in the writing of the average pupil lies in the making of figures. In figure practice it is suggested that the teacher should use the quarter-inch quadrille paper, and direct the pupils to practice writing four figures in each square, one in each corner. Care should be taken to make each figure distinct, and one figure should not touch another. The long tails should be eliminated from the 5's, 7's and 9's, and the 4's should be carefully crossed in the middle of the horizontal line.

The work in penmanship, although taught from a utilitarian standpoint, may be made very interesting. The design, arrangement and filling out of business forms may be made the basis of the work, and thereby an intense interest may be created in the subject. Checks, notes, drafts, receipts, and orders may be made up, and practice in ruling gained through the construction of various forms. In this way, the time given to penmanship may be linked with the work done in business forms and bookkeeping.



## DRILL WORK IN ARITHMETIC FOR GRADES SEVEN, EIGHT AND NINE.

\* The Intermediate Council on Commercial Branches recommends, with the sanction of the Council on Mathematics, that the first ten minutes of each mathematics period in the seventh, eighth, and ninth grades be devoted to drill work in arithmetic according to the following course:

### SEVENTH GRADE.

Subject matter: drill on common fractions down to  $\frac{1}{12}$  and on decimal fractions, with application to United States money.

#### I. Common Fractions.

- A. Reduction to lowest terms.
- B. Reduction to common denominator.
- C. Reduction of improper fractions to integers and mixed numbers.
- D. Changing mixed numbers to improper fractions.
- E. Addition, subtraction, multiplication, and division of common fractions.

#### 1. ADDITION OF COMMON FRACTIONS.

Add fractions arranged in horizontal lines as well as in columns.

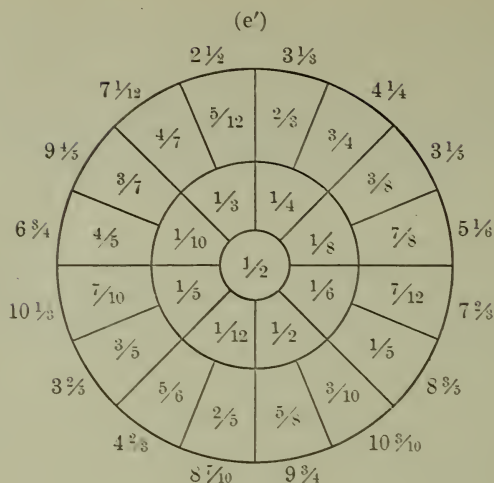
##### A. Sight Drills.

(a')	(b')	(c')	(d')	(e')	$\frac{1}{2} + \frac{5}{8} + \frac{1}{4} = ?$
$\frac{1}{2} +$	$2\frac{5}{8} +$	$1\frac{3}{8} +$	$15\frac{1}{2} +$	(f')	$3\frac{3}{8} + \frac{1}{4} + \frac{3}{4} = ?$
$\frac{3}{4}$	$\frac{1}{4}$	$3\frac{1}{6}$	$10\frac{1}{2}$	(g')	$2\frac{1}{6} + 4\frac{3}{8} + \frac{1}{3} = ?$
$\frac{1}{8}$	$\frac{3}{4}$	$\frac{1}{3}$	$9\frac{3}{10}$	(h')	$5\frac{1}{5} + 2\frac{1}{2} + 3\frac{3}{10} = ?$

##### B. Add at Sight.

(a')	(b')	(c')	(d')
$\frac{1}{2}, \frac{1}{4}$	$2\frac{1}{2}, \frac{1}{4}$	$2\frac{1}{2}, 3\frac{5}{8}$	$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$
$\frac{1}{2}, \frac{3}{4}$	$3\frac{1}{2}, \frac{3}{4}$	$2\frac{3}{4}, 7\frac{7}{8}$	$\frac{2}{3}, \frac{1}{2}, \frac{1}{6}$
$\frac{1}{2}, \frac{1}{8}$	$5\frac{1}{2}, 1\frac{1}{8}$	$4\frac{1}{2}, 6\frac{5}{8}$	$\frac{1}{12}, \frac{5}{6}, \frac{5}{2}$
$\frac{1}{2}, \frac{5}{8}$	$3\frac{1}{2}, \frac{5}{8}$	$3\frac{1}{2}, 5\frac{1}{8}$	$\frac{2}{3}, \frac{3}{4}, \frac{7}{8}$
$\frac{1}{2}, \frac{7}{8}$	$8\frac{1}{2}, \frac{7}{8}$	$4\frac{1}{2}, 6\frac{2}{3}$	$\frac{5}{12}, \frac{1}{3}, \frac{3}{4}$
$\frac{1}{4}, \frac{7}{8}$	$8\frac{1}{4}, \frac{7}{8}$	$5\frac{1}{4}, 7\frac{1}{3}$	$\frac{3}{5}, \frac{3}{4}, \frac{5}{2}$
$\frac{1}{4}, \frac{5}{8}$	$7\frac{1}{4}, \frac{3}{8}$	$8\frac{3}{4}, 5\frac{1}{3}$	$\frac{3}{8}, \frac{5}{12}, \frac{1}{4}$
$\frac{3}{4}, \frac{3}{8}$	$9\frac{3}{4}, \frac{3}{8}$	$6\frac{3}{4}, 8\frac{2}{3}$	$\frac{1}{3}, \frac{3}{4}, \frac{5}{12}$
$\frac{1}{3}, \frac{3}{4}$	$5\frac{1}{3}, \frac{3}{4}$	$2\frac{1}{3}, 7\frac{1}{8}$	$\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{12}$
$\frac{5}{8}, \frac{2}{3}$	$8\frac{5}{8}, \frac{2}{3}$	$6\frac{1}{3}, 9\frac{5}{8}$	$\frac{2}{5}, \frac{3}{4}, \frac{5}{12}, \frac{1}{2}$

\* NOTE: It has been officially decided to give, in the ninth grade, two periods per week of Clerical Practice time for the business arithmetic of this course.



By changing the fraction in the center of  $e'$ , this device can be used many times and in many different ways for addition at sight.

C. *Written Drills.* (Estimate Answer Before Figuring.)

<p>(a') <math>48\frac{3}{8} +</math>  <math>17\frac{5}{8}</math>  <math>19\frac{3}{4}</math>  <math>48\frac{1}{2}</math></p> <hr style="width: 80%; margin-left: 0;"/>	<p>(b') <math>103\frac{3}{8} +</math>  <math>46\frac{5}{8}</math>  <math>9\frac{5}{8}</math>  <math>28\frac{3}{4}</math>  <u>1,000</u></p>	<p>(c') <math>\\$47\frac{1}{2} +</math>  <math>96\frac{3}{4}</math>  <math>83\frac{1}{8}</math>  <math>55\frac{5}{8}</math></p> <hr style="width: 80%; margin-left: 0;"/>
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Check results of written work.

2. SUBTRACTION OF COMMON FRACTIONS.

A. *Sight Drills.*

<p>(a') <math>\frac{1}{2} -</math>  <math>\frac{1}{3}</math></p> <hr style="width: 80%; margin-left: 0;"/>	<p>(b') <math>1\frac{1}{2} -</math>  <math>\frac{3}{8}</math></p> <hr style="width: 80%; margin-left: 0;"/>	<p>(c') <math>4 -</math>  <math>2\frac{3}{8}</math></p> <hr style="width: 80%; margin-left: 0;"/>	<p>(d') <math>14\frac{1}{2} -</math>  <math>12\frac{3}{8}</math></p> <hr style="width: 80%; margin-left: 0;"/>	<p>(e') <math>4\frac{2}{3} -</math>  <math>3\frac{3}{4}</math></p> <hr style="width: 80%; margin-left: 0;"/>
<p>(f') <math>\frac{3}{8} + ? = \frac{1}{2}</math>  <math>\frac{5}{8} + ? = \frac{3}{4}</math>  <math>\frac{3}{4} + ? = \frac{7}{8}</math>  <math>\frac{1}{2} + ? = \frac{7}{8}</math>  <math>\frac{1}{4} + ? = \frac{5}{8}</math>  <math>\frac{1}{2} + ? = \frac{1}{2}</math>  <math>\frac{1}{3} + ? = \frac{1}{2}</math>  <math>\frac{2}{3} + ? = 1</math>  <math>\frac{3}{4} + ? = 1\frac{1}{2}</math>  <math>\frac{2}{3} + ? = \frac{5}{6}</math></p>	<p>(g') <math>\frac{3}{8} + ? = 1\frac{1}{2}</math>  <math>\frac{3}{8} + ? = 2\frac{3}{4}</math>  <math>\frac{3}{4} + ? = 5\frac{3}{8}</math>  <math>\frac{1}{2} + ? = 3\frac{7}{8}</math>  <math>\frac{1}{4} + ? = 2\frac{5}{8}</math>  <math>\frac{5}{12} + ? = 3\frac{1}{2}</math>  <math>\frac{1}{3} + ? = 4\frac{1}{2}</math>  <math>\frac{2}{3} + ? = 4</math>  <math>\frac{3}{4} + ? = 3\frac{1}{2}</math>  <math>\frac{2}{3} + ? = 3\frac{5}{8}</math></p>	<p>(h') <math>\frac{1}{2} + \frac{3}{4} - \frac{1}{3} = ?</math>  <math>\frac{2}{3} + \frac{3}{8} - \frac{1}{2} = ?</math>  <math>\frac{3}{4} + \frac{7}{8} - 2 = ?</math>  <math>\frac{3}{4} + \frac{5}{8} - \frac{3}{4} = ?</math>  <math>\frac{1}{2} - \frac{1}{4} + \frac{7}{8} - 1 = ?</math>  <math>\frac{7}{8} - \frac{1}{2} + \frac{3}{4} - 1 = ?</math>  <math>\frac{2}{3} + \frac{1}{6} - \frac{1}{2} + 5\frac{1}{2} = ?</math>  <math>\frac{3}{4} + \frac{5}{8} - \frac{2}{3} + 1 = ?</math>  <math>\frac{5}{6} + \frac{1}{3} - 1 + \frac{1}{2} = ?</math>  <math>\frac{1}{2} - \frac{1}{6} + \frac{2}{3} - \frac{1}{2} = ?</math></p>		

Further drill in subtraction, using device *é* of addition.

(i')	(j')	(k')	(l')	(m')
$24\frac{1}{2}$ —	32 —	$21\frac{1}{2}$ —	$16\frac{1}{4}$ —	$11\frac{2}{3}$ —
<u>18</u>	<u><math>19\frac{3}{4}</math></u>	<u><math>9\frac{1}{4}</math></u>	<u><math>14\frac{3}{4}</math></u>	<u><math>8\frac{1}{2}</math></u>

B. *Written Drills.* (Estimate Result Before Figuring.)

(a')	(b')	(c')
$429\frac{2}{3}$ —	$832\frac{7}{8}$ —	532 —
<u>396</u>	<u><math>516\frac{1}{8}</math></u>	<u><math>215\frac{3}{4}</math></u>
(d')	(e')	(f')
$821\frac{1}{4}$ —	$7251\frac{1}{2}$ —	$922\frac{3}{4}$ —
<u><math>725\frac{3}{4}</math></u>	<u><math>689\frac{1}{4}</math></u>	<u><math>584\frac{7}{8}</math></u>

Check results of written work.

3. MULTIPLICATION OF COMMON FRACTIONS.

A. *Sight Drills.*

(a')	(b')	(c')	(d')			
$3 \times \frac{1}{2} = ?$	$\frac{7}{9} \times 3 = ?$	$1\frac{1}{3} \times 8 = ?$	$6 \times 2\frac{1}{2} = ?$			
$4 \times \frac{5}{7} = ?$	$\frac{5}{8} \times 4 = ?$	$1\frac{1}{5} \times 6 = ?$	$8 \times 3\frac{1}{4} = ?$			
$5 \times \frac{3}{8} = ?$	$\frac{5}{8} \times 9 = ?$	$1\frac{2}{3} \times 2 = ?$	$3 \times 7\frac{3}{5} = ?$			
$8 \times \frac{9}{10} = ?$	$\frac{3}{10} \times 7 = ?$	$1\frac{1}{3} \times 3 = ?$	$3 \times 8\frac{1}{4} = ?$			
$7 \times \frac{5}{6} = ?$	$1\frac{1}{2} \times 6 = ?$	$4\frac{1}{2} \times 6 = ?$	$5 \times 7\frac{2}{3} = ?$			
$9 \times \frac{5}{8} = ?$	$\frac{4}{7} \times 9 = ?$	$2\frac{2}{3} \times 9 = ?$	$6 \times 8\frac{3}{4} = ?$			
(e')	(f')	(g')				
$\frac{1}{2}$ of $\frac{2}{3} = ?$	$\frac{5}{9}$ of $1\frac{1}{2} = ?$	$1\frac{1}{2} \times 1\frac{1}{2} = ?$				
$\frac{3}{4}$ of $\frac{1}{2} = ?$	$\frac{3}{4}$ of $1\frac{2}{3} = ?$	$1\frac{1}{2} \times 1\frac{1}{3} = ?$				
$\frac{2}{3}$ of $\frac{5}{6} = ?$	$\frac{1}{6}$ of $3\frac{1}{2} = ?$	$2\frac{2}{3} \times 4\frac{1}{2} = ?$				
$\frac{4}{9}$ of $\frac{2}{3} = ?$	$\frac{3}{4}$ of $1\frac{1}{2} = ?$	$2\frac{1}{2} \times 3\frac{1}{3} = ?$				
$\frac{2}{3}$ of $\frac{4}{5} = ?$	$\frac{2}{3}$ of $2\frac{1}{2} = ?$	$5\frac{1}{2} \times 1\frac{2}{3} = ?$				
$\frac{1}{3}$ of $\frac{2}{3} = ?$	$\frac{3}{4}$ of $1\frac{7}{8} = ?$	$3\frac{1}{2} \times 1\frac{2}{3} = ?$				
(h')	(i')	(j')	(k')	(l')	(m')	(n')
$3 \times$	$\frac{7}{9} \times$	$1\frac{1}{3} \times$	$6 \times$	$\frac{1}{2} \times$	$\frac{5}{9} \times$	$1\frac{1}{2} \times$
<u><math>\frac{1}{2}</math></u>	<u>3</u>	<u>8</u>	<u><math>2\frac{1}{2}</math></u>	<u><math>\frac{2}{3}</math></u>	<u><math>1\frac{1}{2}</math></u>	<u><math>1\frac{1}{2}</math></u>

Further drill in multiplication by using device *e'* of addition.

B. *Written Drills.* (Estimate Result Before Figuring.)

(a')	(b')	(c')	(d')
$428\frac{7}{8} \times$	$629 \times$	$64\frac{1}{2} \times$	$36\frac{3}{4} \times$
<u>19</u>	<u><math>37\frac{3}{4}</math></u>	<u><math>84\frac{1}{3}</math></u>	<u><math>24\frac{2}{3}</math></u>

Check results of written work.

## 4. DIVISION OF COMMON FRACTIONS.

A. *Sight Drills.*

(a')	(b')	(c')	(d')
$\frac{4}{5} \div 3 = ?$	$\frac{5}{6} \div 2 = ?$	$12 \div \frac{2}{3} = ?$	$1\frac{1}{4} \div 5 = ?$
$\frac{7}{8} \div 4 = ?$	$\frac{6}{7} \div 3 = ?$	$7 \div \frac{3}{5} = ?$	$1\frac{3}{8} \div 6 = ?$
$\frac{8}{11} \div 4 = ?$	$\frac{9}{10} \div 5 = ?$	$9 \div \frac{6}{5} = ?$	$2\frac{2}{3} \div 4 = ?$
$1\frac{1}{2} \div 3 = ?$	$\frac{5}{9} \div 4 = ?$	$7 \div \frac{7}{10} = ?$	$4\frac{2}{3} \div 12 = ?$
$\frac{5}{6} \div 3 = ?$	$\frac{9}{16} \div 3 = ?$	$8 \div \frac{1}{3} = ?$	$6\frac{3}{8} \div 2 = ?$
$\frac{3}{8} \div 5 = ?$	$1\frac{5}{8} \div 5 = ?$	$9 \div \frac{7}{8} = ?$	$4\frac{2}{3} \div 3 = ?$
	(e')	(f')	
	$\frac{1}{2} \div \frac{3}{5} = ?$	$1\frac{1}{2} \div 1\frac{1}{3} = ?$	
	$\frac{3}{4} \div \frac{2}{3} = ?$	$2\frac{1}{2} \div 1\frac{1}{4} = ?$	
	$\frac{3}{5} \div \frac{4}{5} = ?$	$2\frac{1}{2} \div 1\frac{1}{3} = ?$	
	$\frac{5}{6} \div \frac{2}{3} = ?$	$2\frac{1}{3} \div 1\frac{1}{4} = ?$	
	$\frac{3}{4} \div \frac{3}{5} = ?$	$2\frac{1}{2} \div 2\frac{1}{4} = ?$	
	$\frac{4}{5} \div \frac{2}{3} = ?$	$4\frac{1}{2} \div 2\frac{1}{4} = ?$	

Further drill in division by using device e' of addition.

B. *Simplify.*

(a')	(b')	(c')	(d')
$\frac{1\frac{1}{2}}{2}$	$\frac{3}{4\frac{1}{2}}$	$\frac{2\frac{1}{2}}{3\frac{1}{2}}$	$\frac{3\frac{1}{8}}{1\frac{1}{4}}$

C. *Written Drills.* (Estimate Result.)

(a')  $125 \div \frac{2}{3}$  (b')  $\frac{2}{4} \div 15$  (c')  $1\frac{1}{2} \div \frac{5}{8}$  (d')  $125\frac{1}{2} \div 12$  (e')  $112 \div 12\frac{1}{2}$  (f')  $62\frac{1}{2} \div 1\frac{2}{3}$ .

Check results of written work.

D. *Ratio. Sight Drills.*

What is the ratio of:

(a')	(b')	(c')	(d')
2 to 4?	3 to 8?	4 to 2?	8 to 3?
3 to 6?	5 to 8?	6 to 3?	8 to 5?
3 to 9?	7 to 8?	9 to 3?	8 to 7?
4 to 16?	9 to 10?	16 to 4?	10 to 9?
5 to 20?	11 to 12?	20 to 5?	12 to 11?
6 to 18?	3 to 7?	18 to 6?	7 to 3?
8 to 24?	4 to 11?	24 to 8?	11 to 4?
12 to 36?	7 to 9?	36 to 12?	9 to 7?

Application of Ratio Drills in Practical Problems

Illustrations:

2 handkerchiefs cost 25c., 8 handkerchiefs cost?  
4 erasers for 11c., how many erasers for 44c.? For 77c.?

7 inches is what part of a foot?

11 inches is what part of a foot?

5 inches is what part of a foot?

9 oz. is what part of a pound?

11 oz. is what part of a pound?

13 oz. is what part of a pound?

Change to a fraction of a day: 6 hrs., 4 hrs., 12 hrs., 9 hrs.

Change to a fraction of a pound: 2 oz., 11 oz., 5 oz., 7 oz

Change to a fraction of a ton: 500 lbs., 250 lbs., 300 lbs.

What is the ratio of:

25 to 125?

27 to 81?

15 to 525?

18 to 252?

$12\frac{1}{2}$  to  $87\frac{1}{2}$ ?

## II. Decimal Fractions.

### A. ADDITION OF DECIMALS.

Add decimals arranged in horizontal lines as well as in columns.

#### 1. *Sight Drills.*

Illustrations:

$$\begin{aligned} & \text{(a)} \\ & .8 + .4 + .3 + .9 + .6 = ? \\ & 1.2 + 3.1 + 4.3 + 5. = ? \\ & .09 + .07 + .05 + .03 = ? \\ & \$5.03 + 6.01 + 7.02 + 4.07 = ? \end{aligned}$$

$$\begin{array}{r} \text{(b)} \\ \begin{array}{cccc} .8 + & 1.2 + & .07 + & \$4.07 + \\ .4 & 2.4 & .09 & 3.04 \\ .3 & 3.7 & .01 & 2.02 \\ .2 & 1.1 & .08 & 3.01 \\ .3 & 2. & .09 & 5.01 \\ .4 & \hline & \hline & \hline \end{array} \end{array}$$

Considerable drill in addition of columns of U. S. money.

#### 2. *Written Drills.* (Estimate Results.)

(a)	(b)	(c)
29.643 +	490.49 +	\$400.19 +
8.96	16.9	1214.08
4.0963	8.49	396.84
3.4139	27.08	964.15
8.409	1000.	4000.62
49.	.96	783.96
		723.16
		839.14

\$

Arrange in columns and add. (Estimate results.)

(d) 29.009, 14.92, 723.013, 746.893.

(e) 4.0009, 3.92, 200.01, 1000.

(f) \$29.56, \$98.47, \$78.59, \$321.17, \$832.25.

(g) \$1.08, \$0.17, \$292.15, \$25, \$118.16.

Check the results of written work.

## B. SUBTRACTION OF DECIMALS.

Just as in the drills in addition of decimals, the arrangement should frequently be horizontal.

1. *Sight Drills.*

(a)	.8—	.11—	.15—	1.2—	\$25.16—
	.4	.07	.09	.4	\$5.08
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>

(b)	.8 —	.4?		(c)	.4 +?	.8
	.9 —	.3?			.3 +?	.9
	.11—	.06?			.06+?	.11
	\$0.14—	\$0.09?			\$0.09+?	\$0.14
	\$0.25—	\$0.13?			\$0.13+?	\$0.25

2. *Considerable Drill in Subtraction of U. S. Money.*

Illustrations:

		\$10.90—	\$5.70?	
		\$8.14—	\$5.07?	
(a)		\$6.03—	\$4.02?	
		\$7.25—	\$4.25?	
(b)	\$8.25—	\$9.24—	\$55.10—	\$492.91—
	\$7.25	\$8.08	\$54.03	\$340.00
	<hr/>	<hr/>	<hr/>	<hr/>

## Making Change.

\$0.04+?=\$0.10	\$0.08+?=\$0.25	\$0.36+?=\$0.50
\$0.88+?=\$2.00		\$0.73+?=\$1.00

## Sales Received—Count the Change.

\$0.24	\$2.77	\$0.50
\$0.37	\$3.81	\$2.00
\$1.23	\$1.00	\$5.00
	\$10.00	

3. *Written Drills.* (Estimate Results.)

(a)	496.4—	100.—	893.75—
	89.696	96.093	.096
	<hr/>	<hr/>	<hr/>
(b)	Subtract 175.169 from 302.14.		
(c)	Subtract \$79.58 from \$160.00.		
(d)	\$924.16—	\$400.16—	\$501.16—
	\$784.96	\$394.59	\$483.92
	<hr/>	<hr/>	<hr/>

Check results of written work.

## C. ADDITION AND SUBTRACTION OF DECIMAL AND COMMON FRACTIONS COMBINED.

1. *Sight Drills.*

Illustrations:

(a)	4.5+	(b)	3.15+	(c)	4 $\frac{1}{2}$ +	(d)	3.9—	(e)	8.875—
	2 $\frac{1}{2}$ +		4 $\frac{1}{4}$		3.625		2 $\frac{1}{2}$		4 $\frac{1}{8}$
	1 $\frac{1}{2}$								
	<hr/>		<hr/>		<hr/>		<hr/>		<hr/>

2. *Written Drills.* (Estimate Results.)

(a) $455\frac{1}{2}+$ 396.375 49.863 <hr style="width: 80%; margin-left: 0;"/> $59\frac{3}{4}$	(b) $59\frac{1}{4}+$ 85.399 $18\frac{3}{8}$ <hr style="width: 80%; margin-left: 0;"/> 15.875	(c) \$15.96+ $8\frac{3}{4}$ $9\frac{3}{8}$ <hr style="width: 80%; margin-left: 0;"/> 7.23
(d) 89.743+ 75.809 $55\frac{5}{8}$ <hr style="width: 80%; margin-left: 0;"/> $75\frac{3}{4}$	(e) 1000.15— <hr style="width: 80%; margin-left: 0;"/> $459\frac{3}{4}$	(f) \$72.15— <hr style="width: 80%; margin-left: 0;"/> $29\frac{5}{8}$

Check result of written work.

D. MULTIPLICATION OF DECIMALS.

1. Multiply decimals by 10, 100, 1000.
2. Multiply decimals by multiples of 10, 100, 1000.  
 Illustrations:  $7.4 \times 20$ ;  $6.2 \times 300$ ;  $8.1 \times 4000$ .
3. Multiply integers and mixed decimals by tenths, hundredths, thousandths.  
 Illustrations:  $4 \times .3$ ;  $4 \times .03$ ;  $4 \times .003$ ;  
 $1.2 \times .4$ ;  $1.2 \times .04$ ;  $1.1 \times .003$ .
4. Have a large amount of drill in finding hundredths of numbers, especially U. S. money. This gives a firm foundation for percentage and interest.

5. *Sight Drills.*

Find:

(a)	(b)
3 hundredths of 12.	$12 \times .03 = ?$
4 hundredths of 15.	$15 \times .04 = ?$
5 hundredths of 10.	$10 \times .05 = ?$
3 hundredths of 32.	$32 \times .03 = ?$
4 hundredths of 41.	$41 \times .04 = ?$
8 hundredths of 11.	$11 \times .08 = ?$
9 hundredths of 22.	$22 \times .09 = ?$

6. Multiply mixed decimals by mixed decimals. This work will be *written*.  
 (Estimate results.)

Illustrations:  $4.1 \times 2.3 = ?$      $24.3 \times 92.09 = ?$      $29.04 \times 32.58 = ?$

Check results of written work.

7. Apply 1, 2, 3, and 6 to U. S. money.

Application of 1 to U. S. money.

Write answers or give orally:

(a)	(b)	(c)
$10 \times \left\{ \begin{array}{l} \$4.81 \\ 2.41 \\ 3.06 \\ 5.25 \\ 11.05 \\ 9.46 \\ 100.00 \\ 92.15 \\ 88.173 \\ 14.096 \end{array} \right.$	$100 \times \left\{ \begin{array}{l} \$9.64 \\ 16.15 \\ 23.16 \\ 30.92 \\ 83.15 \\ 90.63 \\ 84.91 \\ 75.56 \\ 60.09 \\ 59.96 \end{array} \right.$	$1000 \times \left\{ \begin{array}{l} \$0.009 \\ .159 \\ 29.15 \\ 84.021 \\ 29.16 \\ 58.27 \\ 40.91 \\ 80.17 \\ 5.963 \\ 8.001 \end{array} \right.$

8. Application of \$2 to U. S. money.

(a) *Sight Drills.*

	(a')		(b')		(c')			
20×	{	\$0.04 \$0.03 \$0.05 \$0.12 \$0.02 \$2.03 \$4.04 \$3.04 \$4.10 \$6.04	300×	{	\$1.11 \$1.22 \$3.10 \$3.12 \$2.13 \$2.03 \$4.12 \$3.03 \$4.09 \$5.01	4000×	{	\$0.01 \$0.22 \$0.03 \$0.11 \$0.12 \$0.02 \$0.06 \$0.08 \$0.21 \$0.15

In (a'), any other multiple of 10 than 20 may be used a multiplier.

In (b'), any other multiple of 100 than 300 may be used as multiplier.

In (c'), any other multiple of 1000 than 4000 may be used as multiplier.

(b) *Written Drills.*

Multiply the following by 40; by 80; by 320; 480; 6000.

\$4.16	\$19.29	\$84.53	\$178.94	\$541.91
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(Estimate Results.)

Check results of written work.

9. Application of \$3 to U. S. money.

(a) *Sight Drills.*

Multiply the following by .2; by .3; by .02; by .03.

\$6	\$12	\$32	\$100	\$200
\$8	\$25	\$46	\$120	\$300

(b) *Written Drills.* (Estimate results.)

(a') Find .06 of each of the following amounts of money.

\$72	\$63	\$182	\$1000
\$59	\$125	\$922	\$2000

(b') Find .05, .04, .03½ of each of the following:

\$8.25	\$87.25	\$98.25	\$4000.00
\$72.15	\$78.29	\$834.93	\$793.01

(Estimate Results.)

10. Application of \$6 to U. S. money.

\$1.25 × 2.4	\$100.92 × 42.09
\$12.62 × 2.09	\$962.35 × 47.02

(Estimate Results.)

Etc.

Check results of written work.

11. Review aliquot parts of a dollar.

25c. = \$¼.	66⅔c. = \$⅔.	62½c. = \$⅝.	8⅓c. = \$⅛.
50c. = \$½.	16⅔c. = \$⅙.	87½c. = \$⅞.	11⅓c. = \$⅓.
75c. = \$¾.	12½c. = \$⅕.	83⅓c. = \$⅚.	14⅔c. = \$⅔.
33⅓c. = \$⅓.	37½c. = \$⅜.	6¼c. = \$⅛.	5c. = \$⅒.
			20c. = \$⅕.



Review aliquot parts of a hundred.

Review aliquot parts of a ten.

- 5 is  $\frac{1}{2}$  of 10.
- $3\frac{1}{3}$  is  $\frac{1}{3}$  of 10.
- $2\frac{1}{2}$  is  $\frac{1}{4}$  of 10.

12. Use aliquot parts in multiplication.

Illustrations: Give products at sight:

- |                                   |                                 |
|-----------------------------------|---------------------------------|
| $\$0.33\frac{1}{3} \times 18 = ?$ | $\$33\frac{1}{3} \times 9 = ?$  |
| $\$0.25 \times 40 = ?$            | $\$75 \times 8 = ?$             |
| $\$0.06\frac{2}{3} \times 32 = ?$ | $\$66\frac{2}{3} \times 12 = ?$ |
| $\$0.16\frac{2}{3} \times 8 = ?$  | $\$87\frac{1}{2} \times 3 = ?$  |



The figure in the center of diagram may be changed, thus making many different exercises.

13. Application of multiplication of aliquot parts in practical problems.

Illustrations: (a) Give at sight the cost of

- 21 lbs. coffee at  $33\frac{1}{3}c$ .
- 48 lbs. tea at  $75c$ .
- 9 chairs at  $\$33\frac{1}{3}$ .
- etc.

(b) *Written Drills.* (Estimate Results.)

Find cost of:

- |                                |                                |
|--------------------------------|--------------------------------|
| 524 lbs.—at $37\frac{1}{2}c$ . | 256 lbs.—at $25c$ .            |
| 976 lbs.—at $12\frac{1}{2}c$ . | 216 lbs.—at $75c$ .            |
| 840 lbs.—at $62\frac{1}{2}c$ . | 176 lbs.—at $87\frac{1}{2}c$ . |
| 112 lbs.—at $83\frac{1}{3}c$ . | 164 yds.—at $66\frac{2}{3}c$ . |
| 192 lbs.—at $12\frac{1}{2}c$ . | 200 yds.—at $16\frac{2}{3}c$ . |
| etc.                           |                                |

Check results of written work.

E. DIVISION OF DECIMALS.

1. Division of decimals by 10, 100, 1000.

Illustrations: At sight divide the following by 10; by 100; by 1000:

216.	49.6	2.5	\$425.
352.	82.4	1.6	\$516.
815.	59.3	.24	\$392.
934.	84.2	81.6	\$189.
596.	40.7	2.3	\$25.10
86.	51.5	7.	\$89.16
92.	98.2	.9	\$78.53
73.	83.4	15.	\$1.92
59.	59.2	1.7	\$7.83
43.	75.3	24.	\$16.09

etc.

2. Division of decimals by multiples of 10, 100, 1000.

(a) *Sight Drills.*

2.6 ÷ 20	4.8 ÷ 80	28. ÷ 200
1.2 ÷ 60	.45 ÷ 90	4.8 ÷ 200
.06 ÷ 30	27.6 ÷ 30	22.5 ÷ 500

(b) *Written Drills.* (Estimate Results.)

7831 ÷ 2700	\$4296.00 ÷ 1100
59641 ÷ 9300	\$1593.36 ÷ 2200
78593 ÷ 4900	\$92164.15 ÷ 6000
14964 ÷ 5200	\$87651.14 ÷ 3300
59641 ÷ 6100	\$75641.17 ÷ 2800

etc.

Check the results of written work.

3. Division of decimals by tenths, hundredths, thousandths.

*Sight Drills.*

.3 ÷ .1	.37 ÷ .01	.38 ÷ .001
.4 ÷ .2	.48 ÷ .02	.44 ÷ .002
.8 ÷ .4	.84 ÷ .04	.88 ÷ .004
.9 ÷ .3	.96 ÷ .03	.93 ÷ .003
.6 ÷ .2	.64 ÷ .02	.66 ÷ .002
etc.	etc.	etc.

4. Division of mixed decimals by tenths, hundredths, thousandths.

(a) *Sight Drills.*

4.2 ÷ .2	.49 ÷ .007
9.6 ÷ .03	6.3 ÷ .09
1.48 ÷ .02	59.2 ÷ .2
30.5 ÷ .06	5.05 ÷ .05
90.5 ÷ .5	28.07 ÷ .7
4.2 ÷ .007	.36 ÷ .012

etc.

(b) *Written Drills.* (Estimate results.)

783.30 ÷ .17	\$34.60 ÷ .175	\$8.64 ÷ .42
809.49 ÷ .25	\$89.30 ÷ .268	\$750.00 ÷ .015
783.92 ÷ .39	\$8.47 ÷ .36	\$1500.15 ÷ .039
593.89 ÷ .78	\$96.70 ÷ .017	\$924.57 ÷ .96
510.03 ÷ .013	\$435.50 ÷ .62	\$784.53 ÷ .841

etc.

It is not necessary to carry out the work beyond *three* places in the quotient. This applies to all decimal work in this grade.

Check results of written work.

5. Division of mixed decimals by mixed decimals.

*Written Drills.* (Estimate results.)

26.6 ÷ 1.6	34.6 ÷ 1.75	
3.2 ÷ 6.25	89.3 ÷ 2.68	
1.6 ÷ 6.25	8.47 ÷ 36.5	
129.6 ÷ 3.6	96.7 ÷ 17.3	
87.2 ÷ 1.2	36.8 ÷ 9.6	
	etc.	
\$72.50 ÷ \$1.50	\$785.96 ÷ \$2.17	\$724.15 ÷ \$5.91
\$896.52 ÷ \$8.75	\$500.01 ÷ \$4.98	etc.

Check the results of written work.

6. Application of 1, 2, 3, 4, 5 to concrete problems involving U. S. money.

It is intended to have the drills given above serve as types. Additions to the exercises of each type may be made according to the needs of the class.

Attention is called to the importance of estimating roughly the answer before doing any written work. This work in estimating is a great help, dealing with all written problems, but is especially valuable in decimal work. Reverse multiplication is in line with estimating, since the first partial product is the estimated result.

Illustration:	4962 ×
	23
	99240
	14886
	114126

Illustration:	\$59.65
	.18
	\$5.965
	4.7720
	\$10.7370

99240 is estimated result.

\$5.965 is estimated result.

Illustration:

*Problem.*

Find the cost of 19.6 yds. of lace at \$0.52 a yard.

Page.	Ex.	Estimated Result.	Work.	Proof.	Accurate Result.
51	4	\$9 or \$10 (Think 20 × \$½, \$10)	\$ .52 19.6 <hr style="width: 50%; margin: 0 auto;"/> 5.2 4.68 312 <hr style="width: 50%; margin: 0 auto;"/> 10.192	19.6 × \$ .52 <hr style="width: 50%; margin: 0 auto;"/> or division.	\$10.19

The solution of any written problem consists of four steps:

1. Estimate the result.
2. Perform the work.
3. Check the "accurate" result with the "estimate" to be sure the accurate result is reasonable.
4. Prove for accuracy.

### EIGHTH GRADE.

Subject matter: drill on addition, subtraction, multiplication, and division; and on interest by the 360-day method, and from date to date.

Drill on

- I. Four Processes.
- II. Interest.

- A. Based on a 360-day year.
- B. Based on exact time.

In the assembling of material for use in Grade Eight and in the explanation of method, considerable help was secured from "Essentials of Business Arithmetic," by George H. Van Tuyl, and from "Practical Exercises in Rapid Calculation," by Powers and Loker.

### Four Processes.

The present standards in addition, subtraction, multiplication and division are as follows:

TIME.	Speed or Attempts.	Per Cent of Accuracy.	Efficiency.
8 min. . . . .	12	80	33.1
4 min. . . . .	12	90	33.9
6 min. . . . .	11	80	32.4
8 min. . . . .	11	90	39.7

Types			
Addition	Subtraction		* Note
845	102,142,649		
372	<u>70,428,396</u>		
689			
835		Multiplication	
426		2549	
745		<u>19</u>	
813			
197			Division
686			<u>59)34,869</u>

Since it takes considerable time to copy exercises in the four processes, or to dictate them, it is desirable that for the ten-minute daily drill the pupils have printed exercises. Below is a list of the several systems for use in this work, authorized for schools. By having the pupils keep a record of their progress, those who need the most help can easily be found.

#### *Exercises in Arithmetic.*

1. Birch's Lessons in Rapid Calculation.
2. Cole's One Hundred Per Cent Number Tests.
3. Courtis' Practice Tests.
4. Fassett's Standardized Number Tests.
5. Hadley's Arithmetical Tables.
6. Hammett's Arithmetic Cards.
7. Lamprey's Practice Sheets.
8. Maxson's Practical Self-Keyed Fundamental Number Work.

\* Note.—The standard in subtraction was derived from the type illustrated above. Usually subtraction of five or six figure numbers will be found practical.

9. Rice Drill Cards in Arithmetic.
  10. Studebaker Economy Practice Exercises in Arithmetic.
  11. Thompson's Minimum Essentials.
  12. Thorndike's Exercises in Arithmetic, No. 2.
- A. *Addition.*
1. Drill on the 45 primary combinations and their related combinations.
  2. Progression from one figure numbers to five or six figure numbers.
  3. Horizontal addition.
- B. *Subtraction.*
1. Progression from one figure numbers to five or six figure numbers.
  2. Vertical and horizontal subtraction by the additive method.
- C. *Multiplication.*
1. Estimation of answer.
  2. Reversed method.
  3. Progression in multiplier from one figure to four figures.
  4. Short methods.  
*E. g.*, Multiplying by 10 or a multiple of 10.  
Multiplying by 25, 50, 75, etc.  
Multiplying by  $12\frac{1}{2}$ ,  $6\frac{1}{4}$ , etc.
- D. *Division.*
1. Estimation of answer.
  2. Progression in divisor from one figure to four figures.
  3. Short methods.  
*E. g.*, Dividing by 10, 100, 1,000, etc.  
Dividing by 25, 50, 75, etc.
  4. Division carried to three decimal places.

## II. Interest.

- A. Finding time between dates.
- B. Dividing time into aliquot parts of 60 days and 6 days.
- C. Relation of other rates of interest to 6%.
- D. Method of finding interest.
- E. Types of interest exercises.
  - (1) Finding interest for days at 6%.
  - (2) Finding interest for days at various rates.
  - (3) Finding interest for days, months, years.
  - (4) Finding interest between dates.
  - (5) Finding amount.
  - (6) Problems.

### A. FINDING TIME BETWEEN DATES.

1. Based on a 360-day year — 12 months of 30 days each. One half a month is 15 days; one quarter of a year is three calendar months. A month from a given day in any month is the same day in the next month, except in those months in which there is no day to correspond with the given day in the month from which the time is reckoned; for instance, 1 month from Jan. 14 is Feb. 14, and 5 mo. from Feb. 1 is July 1; but 1 mo. from Jan. 29, 30, or 31 is Feb. 28 (29th in leap years), and 3 mo. from Aug. 31 is Nov. 30, etc.

2. Based on exact number of days between two dates. This way of finding time is used by many business men. A great many others, however, prefer the 360-day year, because of the facility in finding time.
3. Below are given three methods of finding time. Since business houses differ in method, it is advisable for pupils to have practice in each. In the exercises under "Exercises in Finding Interest," no one method is suggested, but it is expected that all three methods will be applied.
- (a) *Compound time* is expressed in years, months and days. It is determined by the method of compound subtraction.
- The time from Dec. 14, 1912, to Oct. 11, 1914, is reckoned thus:
- |            |   |
|------------|---|
| 1914-10-11 | The compound time is 1 yr., 9 mo., 27 days.   |
| 1912-12-14 | Compound time is used in the majority of business transactions, especially if the period is more than a |
| 1-9-27     | year.   |
- (b) Money is loaned on interest rarely longer than for a year. Most frequently it is less than six months.
- (c) *Bankers' time* is expressed in days or months and days. It is reckoned by counting months for the whole months and exact days for any remaining part of a month. To illustrate: From Jan. 20 to June 15 are 4 mo. and 26 days. 4 mo. from Jan. 20 is May 20, and from May 20 to June 15 are 26 days.
- (d) *Exact time* is expressed in days, or years and days. It is found by counting the exact time in days between two dates.
- In computing interest, bankers in Boston reckon the exact number of days between two dates.
- The exact time from May 3 to Sept. 28 is reckoned thus:
- |                        |
|------------------------|
| May, 28 days remaining |
| June, 30 days          |
| July, 31 days          |
| Aug., 31 days          |
| Sept., 28 days         |
| 148 days               |
- (e) Exercises.
- Find the time in months and days.
- (a') From June 4 to Sept. 5.
- (b') From Jan. 9 to March 15.
- (c') From March 16 to Aug. 19.
- (d') From Oct. 2 to Dec. 23.
- (e') From July 7 to Sept. 2.
- (f') From April 20 to July 15.
- (g') From Feb. 2, 1911, to Aug. 7, 1911.
- (h') From Sept. 9, 1915, to Dec. 11, 1915.
- (i') From June 7, 1914, to Oct. 2, 1914.
- (j') From March 27, 1916, to Nov. 2, 1916.
- (k') From Oct. 20, 1916, to Feb. 12, 1917.
- (l') From Sept. 14, 1917, to March 16, 1918.
- (m') From Aug. 6, 1917, to Jan. 3, 1918.

(f) Find the time.

No.	Date of Borrowing.	Date of Payment.	Time.
a'	Jan. 9	Mar. 13	
b'	Nov. 3	Dec. 9	
c'	Feb. 4	June 4	
d'	June 5	July 27	
e'	Aug. 15	Nov. 12	
f'	Sept. 25	Oct. 19	
g'	April 19	July 14	
h'	Feb. 14	June 21	
i'	Oct. 17	Dec. 1	
j'	Mar. 3	June 14	
k'	April 2	July 3	
l'	Oct. 9	Dec. 27	
m'	Nov. 24	Dec. 12	
n'	Sept. 17	Nov. 1	
o'	June 2	July 14	
p'	Mar. 9	June 28	
q'	Oct. 4	Nov. 12	
r'	July 8	Sept. 13	
s'	Nov. 2	Dec. 30	
t'	Aug. 30	Sept. 9	
u'	Feb. 27	June 21	
v'	April 7	Aug. 12	
w'	July 21	Sept. 14	
x'	Sept. 15	Dec. 20	

## B. DIVIDING TIME INTO ALIQUOT PARTS OF 60 DAYS AND 6 DAYS.

(The basic time elements in this method.)

- 33 d. = 30 d. + 3 d. =  $\frac{1}{2}$  of 60 d. +  $\frac{1}{2}$  of 6 d.
- 40 d. = 60 d. - 20 d. = 60 d. -  $\frac{1}{3}$  of 60 d.

3.  $22 \text{ d.} = 20 \text{ d.} + 2 \text{ d.} = \frac{1}{3}$  of 60 d.  $+$   $\frac{1}{3}$  of 6 d.
4.  $45 \text{ d.} = 60 \text{ d.} - 15 \text{ d.} = 60 \text{ d.} - \frac{1}{4}$  of 60 d.
5.  $85 \text{ d.} = 60 \text{ d.} + 20 \text{ d.} + 5 \text{ d.} = 60 \text{ d.} + \frac{1}{3}$  of 60 d.  $+$   $\frac{1}{4}$  of 20 d.
6.  $27 \text{ d.} = 20 \text{ d.} + 6 \text{ d.} + 1 \text{ d.} = \frac{1}{3}$  of 60 d.  $+$  6 d.  $+$   $\frac{1}{3}$  of 6 d.
7.  $26 \text{ d.} = 24 \text{ d.} + 2 \text{ d.} = 4 \times 6 \text{ d.} + \frac{1}{3}$  of 6 d.

Exercises.

Find combinations of 60 d. and 6 d. and aliquot parts of 60 d. and 6 d. that will best amount to:

84 d.	23 d.	120 d.	25 d.	34 d.
70 d.	37 d.	56 d.	55 d.	49 d.
45 d.	41 d.	81 d.	17 d.	29 d.
96 d.	39 d.	19 d.	14 d.	93 d.
104 d.	143 d.	99 d.	130 d.	140 d.

NOTE.— In many cases there is more than one way of dividing the time. 40 days could very well be taken as  $2 \times \frac{1}{3}$  of 60 d., or as  $\frac{1}{3}$  of 60 d.  $+$   $\frac{1}{3}$  of 60 d. The latter division of the time eliminates some computation.

#### C. RELATION OF OTHER RATES OF INTEREST TO SIX PER CENT.

The basic rate of this method.

As a general rule to find the interest at any rate, divide the interest at 6% by six and multiply by the given rate.

The following rates are found more easily.

$$\begin{aligned}
 3\% &= 6\% \div 2 \\
 2\% &= 6\% \div 3 \\
 4\% &= 6\% - \frac{1}{3} \text{ of } 6\% \\
 5\% &= 6\% - \frac{1}{6} \text{ of } 6\% \\
 8\% &= 6\% + \frac{1}{3} \text{ of } 6\% \\
 7\% &= 6\% + \frac{1}{6} \text{ of } 6\% \\
 4\frac{1}{2}\% &= 6\% - \frac{1}{4} \text{ of } 6\% \\
 5\frac{1}{2}\% &= 6\% - \frac{1}{12} \text{ of } 6\% \\
 6\frac{1}{2}\% &= 6\% + \frac{1}{12} \text{ of } 6\%
 \end{aligned}$$

#### D. METHOD OF FINDING INTEREST.

The following method, commonly called the Bankers' Method, is followed to a great extent in business circles.

The basic rate is 6%.

The basic time elements are 60 days and 6 days. Since the interest at 6% of any principal for 60 days is .01 of itself, and for 6 days is .001 of itself, interest for any given time can be reckoned by dividing said time into aliquot parts of 60 days and 6 days, and taking such parts of the interest of 60 days and 6 days.



*Examples.*

- (1.) Find the interest on \$150 for 79 days at 6%.

\$1 50	=int. for 60 days.
150	=int. for 6 days.
1 50	=int. for 60 days.
450	=int. for 18 days.
025	=int. for 1 day.
1 975	=int. for 79 days at 6%.
\$1 98	

- (2.) Find the interest on \$200 for 5 months, 22 days at 3%.

\$2 00	=int. for 60 days.
20	=int. for 6 days.
4 00	=int. for 4 months.
1 00	=int. for 1 month.
666	=int. for 20 days.
066	=int. for 2 days.
5 732	=int. for 5 mos., 22 days at 6%.
2 866	=int. for 5 mos., 22 days at 3%.
\$2 87	

- (3.) Find the interest on \$140 for 1 yr. 3 mo. 7 days at 2%.

\$1 40	int. for 60 d.
14	int. for 6 d.
8 40	int. for 1 yr.
1 40	int. for 2 mo.
70	int. for 1 mo.
14	int. for 6 d.
023	int. for 1 d.
10 663	int. for 1 yr. 3 mos. 7 d. at 6%
3 554	int. for 1 yr. 3 mos. 7 d. at 2%.
\$3 55.	

- (4.) Find the interest on \$64.50 from Jan. 24, 1916, to April 5, 1917, at 4%.

\$ 645	int. for 60 d.	1917-4-5
064	int. for 6 d.	1916-1-24
3 870	int. for 1 yr.	1-2-11
645	int. for 2 mo.	
107	int. for 10 d.	
0 010	int. for 1 d.	
4 632	int. for 1 yr. 2 mo. 11 d. at 6%	
1 544	int. for 1 yr. 2 mo. 11 d. at 2%	
3 088	int. for 1 yr. 2 mo. 11 d. at 4%	
\$3 09.		

## E. TYPES OF INTEREST EXERCISES.

1. *Finding Interest for Days at 6 Per Cent.*

(a) Find the interest at 6%.

a'	\$140.00	for 120 days.
b'	210.00	for 60 days.
c'	360.00	for 35 days.
d'	125.00	for 105 days.
e'	195.00	for 72 days.
f'	305.00	for 62 days.
g'	450.00	for 39 days.
h'	216.00	for 47 days.
i'	199.00	for 48 days.
j'	437.00	for 75 days.
k'	152.00	for 45 days.
l'	650.00	for 15 days.
m'	115.00	for 87 days.
n'	392.50	for 69 days.
o'	140.75	for 32 days.
p'	200.75	for 18 days.
q'	415.50	for 27 days.
r'	412.75	for 43 days.
s'	165.75	for 39 days.
t'	391.30	for 41 days.

(b) Find the interest at 6%:

a'	\$40.75	for 10 d.
b'	91.00	for 9 d.
c'	14.50	for 27 d.
d'	37.50	for 31 d.
e'	45.00	for 41 d.
f'	29.75	for 96 d.
g'	16.40	for 12 d.
h'	375.00	for 78 d.
i'	405.45	for 57 d.
j'	37.40	for 23 d.
k'	112.00	for 25 d.
l'	431.75	for 19 d.
m'	49.00	for 43 d.
n'	50.00	for 14 d.
o'	9.75	for 23 d.
p'	14.50	for 64 d.
q'	50.45	for 91 d.
r'	100.50	for 37 d.
s'	91.75	for 27 d.
t'	116.97	for 16 d.

2. *Finding Interest for Days at Various Rates.*

- (a) Find the interest at 4%:
- (a') \$275.00 for 60 d.  
 (b') 350.50 for 75 d.  
 (c') 495.45 for 45 d.  
 (d') 19.75 for 37 d.  
 (e') 200.45 for 85 d.
- (b) Find the interest at 5%:
- (a') \$147.35 for 41 d.  
 (b') 201.50 for 27 d.  
 (c') 49.60 for 28 d.  
 (d') 30.00 for 19 d.  
 (e') 171.00 for 43 d.
- (c) Find the interest at  $4\frac{1}{2}\%$ :
- (a') \$401.75 for 59 d.  
 (b') 29.65 for 85 d.  
 (c') 403.30 for 76 d.  
 (d') 229.00 for 14 d.  
 (e') 114.75 for 25 d.

(d) Find the interest:

No.	Principal.	Days.	2%.	3%.	4%.	5%.	6%.	7%.
a'	\$140.00	36						
b'	360.00	60						
c'	400.00	75						
d'	144.00	45						
	Total.							

3. *Finding Interest for Days, Months, Years.*

Find the interest:

No.	Principal.	Time.	Rate.	Interest.
a	\$145.00	1 yr., 2 mo., 10 d.	6%	
b	200.00	1 yr., 2 mo., 15 d.	6%	
c	315.00	1 yr., 3 mo., 18 d.	3%	
d	195.40	1 yr., 6 mo., 20 d.	2%	
e	340.45	1 yr., 4 mo., 23 d.	3%	

4. *Finding Interest Between Dates.*

Find the interest:

No.	Principal.	Date.		Rate.	Interest.
		From	To		
a	\$400.00	Aug. 1, 1914,	Jan. 2, 1915.	6%	
b	40.90	June 1, 1915,	Sept. 9, 1915.	2%	
c	300.50	Nov. 7, 1916,	June 9, 1917.	5½%	
d	190.75	Dec. 21, 1915,	Jan. 19, 1916.	4%	
e	20.50	Sept. 30, 1917,	Feb. 9, 1918.	7%	
f	240.90	Oct. 9, 1917,	Dec. 19, 1917.	8%	
g	100.00	Nov. 11, 1916,	Jan. 1, 1917.	3½%	
h	90.00	Feb. 5, 1917,	Mar. 19, 1918.	2¼%	
i	40.50	Mar. 4, 1914,	June 2, 1915.	3½%	
j	39.75	June 3, 1915,	Oct. 31, 1916.	5%	
k	121.40	May 19, 1916,	Sept. 2, 1916.	4¼%	
l	49.90	Apr. 30, 1914,	Jan. 1, 1916.	4%	
m	69.74	Jan. 21, 1917,	June 20, 1917.	2%	
n	371.35	Dec. 19, 1915,	Jan. 19, 1917.	6%	
o	20.43	Aug. 16, 1916,	Sept. 30, 1916.	8%	

5. *Finding Amount.*

Find the amount:

No.	Principal.	Time.	Rate.	Interest.	Amount.
a	\$120.00	36 d.	6%		
b	240.00	80 d.	6%		
c	100.00	49 d.	6%		
d	645.00	29 d.	6%		
e	45.00	125 d.	6%		
f	95.00	40 d.	4%		
g	64.00	96 d.	2%		
h	25.50	43 d.	3%		
i	100.50	87 d.	4%		
j	64.00	25 d.	2%		
k	95.75	5 mo., 16 d.	5%		
l	30.00	3 mo., 9 d.	7%		
m	20.90	66 d.	4½%		
n	45.00	2 mo., 20 d.	5%		
o	55.00	4 mo., 21 d.	2%		
p	600.00	1 yr., 9 mo.	3%		
q	110.00	1 yr., 10 d.	5%		
r	40.00	81 d.	6%		
s	75.00	3 mo., 2 d.	2%		
t	150.00	46 d.	3%		
u	300.00	1 yr., 7 mo.	4%		
v	10.00	63 d.	5½%		
w	43.00	41 d.	4%		

6. *Problems.*

## Exercises.

- (a) Find the interest on \$410 from March 4, 1915, to April 9, 1916, at 4%.
- (b) Find the amount at 4½% on \$175 from Jan. 14, 1916, to June 19, 1917.
- (c) Aug. 1, 1914, a wholesaler sold a bill of goods amounting to \$459.50. If the bill was not paid until Sept. 4, 1915, what amount was due, interest being 6%?

- (d) What is the interest on \$495 from Sept. 19, 1917, to Dec. 14, 1917, at  $3\frac{1}{2}\%$ .  
 (e) I borrowed \$75 on Dec. 3, 1917, and paid the same back on June 19, 1918, with interest at  $5\frac{1}{2}\%$ . How much did I pay back?

### NINTH GRADE.

Subject matter: drill on percentage and interest, with review and continued practice on the drill work of the seventh and eighth grades.

The "Essentials of Business Arithmetic" by George H. Van Tuyl (American Book Company) has been adopted as the text-book for the ninth grade arithmetic drill work. Since every teacher will be able to secure a desk copy, the following report refers to the pages and paragraphs of Van Tuyl's which should be covered.

The Council approves of the methods employed by Van Tuyl, and so does not give additional illustrations, except in a few cases, where notes are inserted. There should be drill on the pages recommended, and additional drill in similar exercises given by the teacher whenever it is needed.

#### I. PERCENTAGE.

It is suggested that in taking up the drill in percentage, the use of formulæ be emphasized. Have the pupils state definitely which number in the problem is the base, which is the percentage, and which term is the unknown quantity. Then all problems may be worked out from the original formula:  $B \times R = P$ .

Pages 145-149, paragraph 333; page 152, paragraph 339; page 155, paragraph 343; page 157, paragraph 345; and selected exercises on pages 159-165.

#### II. TRADE DISCOUNT.

Page 173, paragraph 368, and selected problems in paragraph 369.

#### III. PROFIT AND LOSS.

Page 176, paragraph 380; page 177, paragraphs 382 and 383; page 179, paragraph 386; page 181, paragraph 389; and selected problems on pages 183-185.

N. B.—The proper method of figuring profits causes considerable controversy among retailers, wholesalers and accountants. It makes no difference, however, whether the profit is based on 100% cost price or 100% selling price, so long as the same basis of figuring profits is used throughout the work. When it is desired to find the per cent of gain, it is important to know whether that gain is to be figured at a certain per cent of the invoice price, or a certain per cent of the selling price. Therefore, finding the per cent of gain or loss on the selling price, rather than on the cost, should be explained to the pupils as being peculiar to certain business conditions at the present time. They should understand that the gain or loss is always to be found on the cost as 100%, unless it is expressly stated in the problem that it is to be found on the selling price as the base or 100%.

#### IV. COMMISSION.

Page 192, paragraph 411.

## V. INTEREST.

Begin the interest drill with paragraph 445 on page 209, so that interchanging principal and time may be applied throughout the work in interest. Pages 202-210 (inclusive).

## VI. REVIEW OF FUNDAMENTALS.

A. *Addition*.—Pages 33-41, omitting paragraphs 78-82 (inclusive).

B. *Subtraction*.—Pages 42-44 (inclusive).

C. *Multiplication*.—Page 48, paragraphs 102 and 103; page 52, paragraph 113.

N. B.—In multiplying use reverse method.

D. *Division*.—Page 56, and additional drill, carrying the quotient out 4 decimal places.

Plenty of drill in the fundamentals should be given to develop both speed and accuracy.

## VII. ALIQUOT PARTS.

Pages 12-19 (inclusive), selecting only such exercises as contain the following:

$\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{2}{3}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{1}{5}$ ,  $\frac{2}{5}$ ,  $\frac{3}{5}$ ,  $\frac{4}{5}$ ,  $\frac{1}{6}$ ,  $\frac{5}{6}$ ,  $\frac{1}{7}$ ,  
 $\frac{1}{8}$ ,  $\frac{3}{8}$ ,  $\frac{5}{8}$ ,  $\frac{7}{8}$ ,  $\frac{1}{9}$ , all 10th's,  $\frac{1}{11}$ ,  $\frac{1}{12}$ ,  $\frac{1}{16}$ ,  $\frac{1}{20}$ ,  $\frac{1}{25}$ ,  $\frac{1}{50}$ .



## BUSINESS FORMS IN INTERMEDIATE SCHOOLS AND CLASSES.

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The work in business forms in the intermediate schools is to be a natural outgrowth of arithmetic and penmanship. By applying the work of the earlier part of the year to certain very ordinary forms used in business, drill may be had on both arithmetic and penmanship. These forms in themselves lead imperceptibly, by exercises which require accurate, painstaking, and orderly tabulation and calculation, to the more formal study of the elementary principles of bookkeeping to follow at the end of the year.

With these aims in view, the first work in this line is in connection with penmanship. The book in use (The Business and High School Edition of the "Palmer Method of Business Writing") has in Part III, pages 80-94, exercises in applied writing. Of these, it seems best to restrict the work to the following pages: 80, 82, 83, 85, 86, 87, 92, leaving the more advanced work to be used in connection with bookkeeping. In the exercises on receipts, drafts, notes, etc., it is recommended that the amounts of money be written with initial capitals, with the exception of compound numbers, where the units figure connected with a hyphen should be small; that the amount be placed to the extreme left of the line ("the sum of" in this case necessarily will be omitted); and that this work be done in ledger hand.

In arithmetic, meanwhile, threads have been gathering to form a network on which business forms may be based. Much material has been given in Powers and Loker's "Practical Exercises in Rapid Calculation" and in Van Tuyl's "Essentials of Business Arithmetic" that leads directly to the work to be undertaken with blank forms supplied by the city in an envelope under the name of "First Year Bookkeeping Outfit."

The intermediate step between penmanship and bookkeeping is made by exercises on sale summaries and pay rolls, in which excellent drill is offered both in penmanship and arithmetic. In the orderly arrangement of the work, in the summaries especially, an approximation to bookkeeping is made. Groups are arranged on the six-column summary sheets of the outfit. The drill is one in addition. It is excellent practice to take off on paper the weekly total for each clerk and the grand total, which furnishes a positive check on the whole problem.

As a preliminary to the short set, Business Forms Set No. 1, eighteen bills are prepared from Powers and Loker's and sent to Teacher & Co. This allows the teacher to collect and to pass out the bills so that no pupil receives a bill to pay that he himself made out. The thirty-seven transactions which follow include the use of the check book, deposit slips, drafts, notes, and receipts, blank forms for all of which will be found in the outfit.

The checking point of the work, and perhaps its real aim, is to find, at three times, the balance in the bank. The work requires careful rulings. "The School Flexible Ruler No. 789" is recommended. In regard to spoiled checks, etc., it should be noted that there are just enough checks to do this set and the supplementary set No. 2, to follow. A spoiled check, therefore, should be replaced by making up one with blank paper and a ruler, or with ruled paper of suitable size. Rulings must also be made at the bottom of each check stub for total checks drawn, and on the back for deposits made.

To afford further material for drill, toward the end of the work on forms, in just those parts of the work that seem most in need of review, Business Forms Set No. 2 is provided. It consists entirely of a series of checks and deposits, with the same idea as in the first set of getting the bank balance. In this set, however, a bank statement is furnished. The only difficulty here is that two checks — that to the S. S. Pierce Co. and that to the N. Y., N. H. & H. R. R. — are not returned with the statement. The student is required to reconcile his account with the statement.

In the outline for business forms there has been an effort made to establish a link that will make the transition to the work in elementary bookkeeping as easy as possible.

#### Summary of Clerks' Daily Sales. January 1.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Bates, Aurelia.....	\$26 72	\$31 78	\$27 36	\$42 99	\$86 72	\$101 79
Davis, Carroll.....	54 82	60 70	37 86	77 89	87 41	98 67
Fahey, Edward.....	37 87	94 76	38 72	118 71	27 63	201 69
Heavey, Grace.....	45 50	71 46	62 34	77 82	65 47	98 71
Jones, Isaac.....	73 82	26 42	87 98	62 41	47 32	72 65
Lauter, Karl.....	87 64	72 41	92 76	34 27	57 41	172 86
Nelson, Mary.....	96 25	73 26	69 74	82 71	92 46	235 49
Peterson, Olga.....	26 13	28 97	32 46	27 37	41 20	47 62
Rice, Quincy.....	65 82	71 47	82 65	71 46	62 14	86 70
Teal, Samuel.....	62 37	72 14	50 00	62 14	82 71	74 82
Vinal, Uriah.....	92 14	80 16	67 41	42 19	83 16	123 76
Xenophon, William.....	75 50	83 17	51 64	60 50	63 92	84 72
Zettner, Yates.....	84 19	94 18	36 15	51 72	80 73	126 50
Totals.....						

## Summary of Clerks' Daily Sales. February 2.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Calvin, Aaron.....	\$126 35	\$96 47	\$83 26	\$60 50	\$89 17	\$142 73
Davis, Bates.....	25 13	28 32	41 61	52 75	46 18	59 78
Flagg, Ella.....	38 42	26 13	40 78	49 67	45 00	68 13
Gorman, Harry.....	61 72	18 16	27 41	32 73	28 82	49 72
Isaacs, John.....	17 86	92 42	30 17	18 21	32 47	45 86
Krouse, Laura.....	79 82	14 16	80 41	79 82	91 05	121 46
Morse, Nathan.....	24 13	116 41	91 02	76 42	74 86	92 04
Oliver, Pauline.....	35 19	42 73	37 79	46 45	50 00	62 17
Quinn, Robert.....	41 04	52 16	49 41	28 37	51 29	64 86
Smith, Theresa.....	50 32	48 17	62 17	39 47	52 16	71 07
Ulin, Vera.....	33 83	42 44	51 55	67 66	78 88	90 99
Xiques, William.....	43 32	34 43	35 56	51 15	46 64	75 57
Young, Zebedee.....	91 19	83 84	79 97	68 79	75 50	101 12
Totals.....						

## Summary of Clerks' Daily Sales. March 3.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Allison, Alice.....	\$1,602 73	\$876 21	\$1,101 17	\$678 43	\$932 41	\$1,347 82
Bates, Bertha.....	983 46	1,201 00	1,201 64	821 73	1,025 75	1,347 82
Cressey, Cora.....	721 32	679 81	532 81	976 45	827 67	873 45
Eilers, Ella.....	674 39	721 63	675 27	931 17	640 00	974 32
Fearing, Fanny.....	1,142 70	962 17	876 71	935 43	920 71	1,267 89
Goode, Grace.....	936 27	727 67	676 82	323 67	796 81	936 43
Hazeb, Harriet.....	237 48	325 05	254 72	329 99	391 42	491 90
Isaacs, Lola.....	135 91	262 17	217 17	329 98	277 84	367 55
Jessup, June.....	246 08	142 21	296 96	321 00	333 76	455 65
Kreisler, Kitty.....	1,270 16	967 76	898 98	922 79	1,060 79	1,673 87
Labovitz, Lena.....	987 65	1,010 72	989 89	1,097 79	996 69	1,241 77
McManus, May.....	432 10	505 75	494 49	505 75	676 79	587 66
Totals.....						

## Summary of Clerks' Daily Sales. April 4.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Nulty, Nora.....	\$623 71	\$979 86	\$832 41	\$827 32	\$672 87	\$1,201 17
O'Connor, Olive.....	726 45	829 98	757 85	666 09	727 82	979 82
Peary, Patience.....	927 32	779 82	636 09	567 89	441 48	727 89
Quinn, Queenie.....	326 71	271 22	439 63	321 86	392 97	526 76
Ring, Rachel.....	427 86	989 27	568 73	476 74	523 56	827 77
Simmons, Sophie.....	367 41	427 29	404 41	389 98	363 67	525 50
Thomas, Theodora.....	623 41	523 67	521 18	426 93	514 71	728 88
Urquhart, Ursula.....	425 19	519 76	439 78	521 18	494 98	621 17
Vinal, Victoria.....	375 18	417 71	392 18	417 81	492 67	584 76
Welch, Winona.....	514 21	672 83	591 87	589 76	513 12	763 18
Zavier, Zalvia.....	421 73	489 66	402 77	396 46	580 70	826 98
Young, Yvonne.....	785 17	816 91	987 42	707 70	685 75	990 00
Zedabaum, Zita.....	826 00	728 50	642 51	555 67	724 76	897 72
Totals.....						

## Summary of Clerks' Daily Sales. May 5.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Calvin, Abel B.....	\$1,267 23	\$972 31	\$721 00	\$658 75	\$1,421 70	\$1,200 00
Cote, Benjamin.....	372 15	487 20	392 64	348 71	666 66	722 41
Dolan, Fred E.....	89 27	236 42	315 78	402 40	531 82	500 79
Fry, David E.....	965 00	375 27	687 50	729 88	647 50	727 85
Gates, Harrie I.....	345 72	365 17	333 33	1,371 81	426 62	945 82
Ide, Gertrude H.....	723 00	478 63	942 76	816 00	714 75	426 25
Kaye, Leah J.....	505 00	111 21	340 71	540 36	472 83	888 87
Long, James K.....	2,715 00	1,602 70	827 00	565 75	927 50	922 42
Mooney, Neal O.....	627 78	545 54	501 70	516 98	679 82	796 45
Orth, Michael N.....	860 25	327 85	700 70	659 05	807 55	727 78
Pearl, Rena Q.....	595 50	450 00	379 97	404 09	777 77	813 64
Riley, Prudence.....	795 35	615 00	556 50	550 00	726 78	896 43
Tobey, Stella U.....	627 78	909 99	614 19	515 72	908 00	479 82
Uzzah, Saul T.....	265 27	413 27	1,237 45	400 09	550 00	725 71
Wart, Volney X.....	482 10	444 44	327 00	726 75	642 24	689 98
Wilson, Una V.....	396 79	241 17	350 50	222 22	317 78	500 79
Zacks, Yarnall.....	346 17	450 71	361 17	555 55	420 01	821 72
Totals.....						

Monthly Summary of Departmental Sales. January.

	Jan. 3.	Jan. 10.	Jan. 17.	Jan. 24.	Jan. 31.	Totals.
Clothing.....	\$2,146 17	\$941 18	\$1,267 13	\$989 14	\$2,645 18	
Dress goods.....	897 14	1,414 18	1,217 16	995 72	890 00	
Furniture.....	2,176 18	1,246 21	1,126 89	1,118 26	1,415 16	
Household.....	976 84	853 21	777 01	826 50	797 81	
Jewelry.....	1,645 10	918 71	1,201 12	2,112 12	982 16	
Millinery.....	345 18	416 71	281 79	426 82	510 10	
Men's hats.....	462 71	821 76	348 17	518 10	479 32	
Suits.....	1,082 16	982 71	1,265 13	1,011 18	789 14	
Shoes.....	546 82	721 84	652 75	786 41	976 32	
Underwear.....	726 84	491 82	679 13	826 42	535 83	
Totals.....						

Pay Roll for the Week Ending July 1, 1918.

Number.	NAME.	TIME IN HOURS.						Rate per Hour.	TOTAL.		Amount Deducted.	Net Amount.
		M.	T.	W.	T.	F.	S.		Time.	Amount.		
1	Bly, Cora A.....	8	8	8	7	8	8	16				
2	Day, Frank E.....	8	9	8	8	9	8	18				
3	Grant, Harry L.....	8	9	8	8	9	8	17				
4	Jones, Robert J.....	8	9	9	9	9	9	20½				
5	Lontz, Laura K.....	8	8	6	8	9	8	19				
6	Nay, Mary O.....	8	7	9	8	8	8	15				
7	Roe, Pearl Z.....	8	8	8	8	8	10	20			\$5 00	
8	Shay, Tessie U.....	8	9	9	9	8	8	16½				
9	Stacey, Allen.....	8	10	8	8	8	8	19½				
10	Thomas, Sara F.....	8	6	8	8	8	8	21				
11	Webb, Varna K.....	8	7	7	7	7	8	17½				
12	Young, Zila T.....	9	8	8	8	8	8	18½			1 00	

## Pay Roll for the Week Ending August 2, 1918.

Number.	NAME.	TIME IN HOURS.						Rate per Hour.	TOTAL.		Amount Deducted.	Net Amount.
		M.	T.	W.	T.	F.	S.		Time.	Amount.		
1	Allen, Alice.....	9	8	9	8	8	8	21½			\$2 00	
2	Bly, Bertha.....	9	9	9	8	9	9	20				
3	Dooley, Daniel.....	9	8	8	9	9	9	21				
4	Drake, Carrie.....	9	8	9	9	9	10	22				
5	Elmo, Ella.....	9	9	9	9	9	9	23½				
6	Fry, Frank.....	9	9	8	8	8	8	20½				
7	Grone, Grace.....	8	9	9	9	9	10	22½			2 50	
8	Hunt, Horace.....	9	9	9	9	9	10	23				
9	Isaacs, Irma.....	9	10	10	10	9	9	25½				
10	Jessup, Joseph.....	9	9	9	10	9	9	25				
11	Kay, Katherine.....	8	9	8	9	9	8	24½				
12	Latimer, Lucy.....	9	9	9	9	8	8	24				

## Pay Roll for the Week Ending September 3, 1918.

Number.	NAME.	TIME IN HOURS.						Rate per Hour.	TOTAL.		Amount Deducted.	Net Amount.
		M.	T.	W.	T.	F.	S.		Time.	Amount.		
1	Jones, Zenas.....	10	9	10	10	9	9	29½				
2	Mooney, Maria.....	10	10	10	9	10	10	26			\$2 50	
3	Nolan, Nellie.....	10	9	8	7	10	10	28				
4	Olsen, Lola.....	10	10	9	8	7	10	26½				
5	Price, Peter.....	10	10	10	7	8	9	27				
6	Quinn, Quigley.....	10	10	10	10	9	8	29				
7	Roster, Robert.....	10	10	7	7	7	7	28½				
8	Smith, Sylvia.....	10	8	8	8	8	8	27½				
9	Tagg, Theresa.....	9	8	8	8	8	8	30½			1 00	
10	Vane, Uriah.....	9	8	9	9	8	9	29½				
11	West, Wallace.....	9	9	6	9	9	9	30				
12	Young, Yvonne.....	9	5	7	9	9	9	31				

Pay Roll for the Week Ending October 4, 1918.

Number.	NAME.	TIME IN HOURS.						Rate per Hour.	TOTAL.		Amount Deducted.	Net Amount.
		M.	T.	W.	T.	F.	S.		Time.	Amount.		
1	Bernard, Arthur.....	11	10	8	9	10	9	32				
2	Ferris, Felix.....	12	9	8	7	8	9	30				
3	Flanagan, Ben.....	9	10	8	9	10	9	31				
4	Knox, Harold.....	9	8	9	10	11	10	32				
5	Long, George.....	12	9	8	7	9	10	31				
6	Manley, Wallace.....	10	8	9	8	9	7	31				
7	Nugent, Sprague.....	12	7	8	9	7	8	30				
8	Riley, Everett.....	11	8	7	9	10	10	33			\$1 00	
9	Shelsey, Fred.....	8	10	11	9	12	8	32				
10	Thackery, John.....	10	9	6	8	7	9	32				
11	Watson, James.....	10	12	9	8	7	9	30				
12	Wilson, William.....	11	7	8	6	9	7	30			2 50	

Pay Roll for the Week Ending November 5, 1918.

Number.	NAME.	TIME IN HOURS.						Rate per Hour.	TOTAL.		Amount Deducted.	Net Amount.
		M.	T.	W.	T.	F.	S.		Time.	Amount.		
1	Barrett, Rollin.....	12	9	12	9	8	9	38				
2	Bisbee, Albert.....	10	11	9	10	9	11	38				
3	Doe, William.....	12	10	8	9	10	8	35				
4	Fry, Samuel.....	9	9	9	8	9	8	37				
5	Fisher, John.....	11	8	9	12	8	9	36				
6	Hawes, Harold.....	9	10	9	11	9	12	37			\$2 00	
7	Jack, Milford.....	10	12	11	9	8	9	36			2 00	
8	Jones, Harry.....	9	10	8	9	12	10	36				
9	Nutt, George.....	9	8	9	9	8	9	35				
10	Power, Frederic.....	11	11	10	9	8	9	34				
11	Ross, Carleton.....	11	9	8	9	10	11	37				
12	Staples, Arthur.....	10	9	9	9	9	10	38			7 00	

## Pay Roll for the Week Ending December 6, 1918.

Number.	NAME.	TIME IN HOURS.						Rate per Hour.	TOTAL.		Amount Deducted.	Net Amount.
		M.	T.	W.	T.	F.	S.		Time.	Amount.		
1	Adair, James . . . . .	11	10	11	9	12	9	41				
2	Balfe, Joseph . . . . .	9	12	6	7	9	10	40½				
3	Grover, Thomas . . . . .	11	9	10	9	8	7	41				
4	Jones, Roland . . . . .	12	6	9	8	7	10	40				
5	Knight, Chester . . . . .	12	9	8	9	7	9	42			\$2 00	
6	Moore, Nelson . . . . .	10	10	11	10	12	9	42				
7	O'Malley, John . . . . .	9	8	12	9	7	8	41½				
8	Petrie, Harold . . . . .	12	9	8	12	9	8	42				
9	Slaight, Samuel . . . . .	9	10	12	11	9	10	42				
10	Spencer, Warren . . . . .	10	9	9	8	9	10	41½				
11	Sumner, Arthur . . . . .	10	12	11	9	8	9	40½			4 00	
12	Tully, Arthur . . . . .	11	10	9	8	9	7	42			5 00	



## BUSINESS FORMS.

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Read carefully the section pertaining to Business Forms on an earlier page in this report.

### Set No. 1.

The business papers used in this set are based on eighteen bills in Powers and Loker's "Practical Exercises in Rapid Calculation," exercises 21, 22b, 23c, 24a, 35c, 45a, 53, 59, 65a, 67, 71, 84a, 86a, 90a, 94a, 97, 104, 120a. When completed to the satisfaction of the teacher, these exercises are laid aside to be given out later for work in business forms. To avoid having a pupil make out a bill and pay the same one, care should be taken to give each pupil one that another pupil has made out. Bills should be directed to Teacher & Co. or to Teacher, Pupil & Co., using the names in each case. The bills should be numbered as follows:

1. 21 Swift, Pierce & Co., Chicago.
2. 22b S. S. Pierce & Co., Boston.
3. 23c Paine Furniture Co., Boston.
4. 24a Jones, McDuffee & Stratton Co., Boston.
5. 35c Pope Lumber Co., Dorchester, Mass.
6. 45a Jordan, Marsh Co., Boston.
7. 53 Blodgett, Ordway & Webber, Boston.
8. 59 Farley, Harvey & Co., Boston.
9. 65a Samuel Ward Manufacturing Co., Boston.
10. 67 Maverick Mills, East Boston, Mass.
11. 71 Brown, Durrell & Co., Boston.
12. 84a Metropolitan Coal Co., Boston.
13. 86a Hammett & Co., Boston.
14. 90a Dennison Manufacturing Co., Boston.
15. 94a Arthur E. Dorr & Co., Boston.
16. 97 Mason-Perkins Paper Co., Newton, Mass.
17. 104 Walworth Manufacturing Co., Boston, Mass.
18. 120a Farmers' Outlet Co., Boston.

It would be well for teachers to have an "O. K." or "Approved" stamp for use on satisfactory papers.

1. Deposit \$2,240; \$2,200 in bills, \$40 in coin. When money is deposited, or checks are drawn, the pupil must not fail to make the necessary notations in the check book.
2. Pay bill No. 1 by check on the School Bank.
3. Pay bill No. 2 by check.
4. Write your ten-day note for bill No. 3.
5. Deposit \$265; \$260 in bills, \$5 in coin.
6. Give check for bill No. 4.
7. Draw a ten-day draft on Wells & Co., of Brockton, who owes you, in favor of Jones, McDuffee & Stratton for bill No. 5.

8. Deposit \$6,642; \$4,500 in checks, \$2,000 in bills, \$142 in coin.
9. Pay bill No. 6 by check.
10. Deposit \$244; \$144 in checks, \$100 in bills.
11. Draw a ten-day draft on Swift & Co., of Lowell, Mass., in favor of Blodgett, Ordway & Webber for the amount of bill No. 7.
12. Give your thirty-day note in favor of Farley, Harvey & Co. for bill No. 8.
13. Deposit \$2,563; \$1,563 in checks, \$950 in bills, \$50 in coin.
14. Pay bill No. 9 by check.
15. Write your ten-day note in favor of the Maverick Mills for bill No. 10.
16. Pay by check your ten-day note for the amount of bill No. 3.
17. Write a receipt for \$125.25 for William Jackson, who has just paid us his bill. This amount is included in deposits. Transaction 19.
18. Pay bill No. 11 by check.

What is your bank balance at present?

19. Deposit \$1,587; \$87 in checks, \$1,410 in bills, \$90 in coin.
20. Write a receipt for \$235, which Joseph E. Eskin has just paid in full for his bill of merchandise. Amount included in transaction 28.
21. Write a thirty-day draft in favor of the Metropolitan Coal Co. drawn on Appleton & Co. for the amount of bill No. 12.
22. Write a check for the amount of bill No. 13.
23. Deposit \$56 in coin.
24. Pay by check bill No. 14.
25. Write a check for the amount of the thirty-day note, in payment for bill No. 8.
26. Draw a ten-day draft on Fairbanks & Co. in favor of Arthur E. Dorr & Co. for the amount of bill No. 15.
27. Give your thirty-day note in favor of the Mason-Perkins Paper Co. for the amount of bill No. 16.
28. Deposit \$2,631; \$2,600 in checks, \$31 in coin.
29. Pay by check bill No. 17.
30. Pay by check your ten-day note in settlement of bill No. 10.
31. Write a check for bill No. 18.

What is the amount of your present bank balance?

32. Deposit \$1,931.76; \$1,930 in checks, \$1.76 in coin.
33. Write a check for the amount of your thirty-day note in favor of the Mason-Perkins Paper Co. for bill No. 16.
34. Deposit \$9,672; \$9,010 in checks, \$600 in bills, \$62 in coin.
35. Give your note for ten days for \$9,000 in favor of Simons, Hatch & Whitten for money which has been borrowed.
36. Write a receipt for \$413 paid on account by Henry Simpson. Deposit the money.
37. William Wilson has paid cash for merchandise. Write a receipt.

What is your final bank balance?

### Set No. 2.

The object of this set is to provide supplementary material and a review. Checks, deposit slips, and pay roll memoranda are the only forms actually required; but from the material, practice may be had in work similar to that done in Set No. 1. In regard to checks, it should be noted that there are just enough in the book for the two sets. New checks must be made up

for any that are spoiled. Deposits must be made and record kept on the back of the stub in the check book. The only difficulty in Set No. 2 is Item 8. A bill of lading may be taught so that the pupil will understand it by referring to the receipt given at an express office when a package is sent away. Copies of the bill of lading may be obtained at any freight office. The sight draft may be developed from the drafts in Set No. 1.

1. Give checks for bills as follows: John H. Andrews & Co., \$125 for rent; Massachusetts Mutual Life Insurance Co. in payment of semi-annual premium, \$90.87.

2. Deposit coin, \$38.85; checks: First National Bank of Boston, \$117.50; State Street Trust Co., \$35; Cosmopolitan Trust Co., \$164.66. Make out deposit slip.

3. Pay by check bill for groceries to S. S. Pierce & Co., \$39.43.

4. Write a check for the total of this pay roll and make out the pay roll memorandum:

Crowell, Barnett . . . . .	\$28 75
Evans, Arnold . . . . .	27 30
Lally, Josephine . . . . .	17 50
Lynch, Arthur . . . . .	33 50
Morrell, William . . . . .	27 35
Nee, Martha . . . . .	18 00
Richmond, John . . . . .	34 00

5. Pay by check freight bill from Boston & Maine R. R. amounting to \$133.25, less an overcharge of \$27.

6. Deposit checks: Dorchester Trust Co., \$85; Old Colony Trust Co., \$45; Paul Revere Trust Co., \$255; coin, \$3.75; bills, \$149. Make out deposit slip.

7. Pay by check to Dennison Co. for tags, \$3.85.

8. Make out checks necessary to cover the following transactions:

I ordered a marine motor from the Caille Perfection Motor Co., Detroit, Mich. To inspect it, I had it shipped with a sight draft attached to the bill of lading. The First National Bank notified me of the arrival of the draft. The motor cost \$135.75, f. o. b. Detroit. The N. Y., N. H. & H. R. R. charged \$1.85 for freight.

9. Paid by check to R. S. Brine \$8.95 for cartage.

10. Deposit checks: Exchange Trust Co., \$98.05; Fidelity Trust Co., \$2.80; Boylston National Bank, \$78 and \$78.75 coin, \$350 bills. Make out deposit slip.

11. Make out check, etc., as above, for this pay roll:

Crowell, Barnett . . . . .	\$25 20
Evans, Arnold . . . . .	32 10
Lally, Josephine . . . . .	18 30
Lynch, Arthur . . . . .	38 00
Morrell, William . . . . .	21 33
Nee, Martha . . . . .	16 37
Richmond, John . . . . .	27 16

12. Deposit checks: People's National Bank, \$3.35; Second National Bank of Boston, \$37.04; Revere Trust Co., \$33; Mutual National Bank, \$160; Hanover Trust Co., \$240 and \$18.43 coin, \$275 bills. Make out deposit slip.

Have pupils make totals at the bottom of each page of the check book, and on the back rule columns for deposits. Return all checks but 17 and 22, and have the student reconcile his account with the following statement:

..... (Name)

in account with the

SCHOOL BANK.

DEPOSITS.		CHECKS.	
June Bal. . . . .	\$2,358 17	June. . . . .	\$125 00
2 . . . . .	356 01	15 . . . . .	90 87
4 . . . . .	537 75	16 . . . . .	186 40
10 . . . . .	607 60	18 . . . . .	106 25
12 . . . . .	766 82	19 . . . . .	3 85
		20 . . . . .	135 75
		21 . . . . .	8 95
		23 . . . . .	178 46
		24 . . . . .	
Total deposits . . . . .	\$4,626 35	Total checks . . . . .	\$835 53
	835 53		
Bal. . . . .	\$3,790 82		

1. How does this compare with the account you kept in the check book?
2. How much money have you available now?
3. What would be a good way to indicate on this statement the present state of your account?

## DOUBLE ENTRY BOOKKEEPING SUGGESTIONS.

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The following outline provides directions and material for a six weeks' course of thirty minutes a day.

The material in Exercises I, II, and III presents typical transactions which may be added to indefinitely for drill purposes until correct reactions are obtained. These three exercises contain isolated transactions and present only a part, not the whole, of a month's business.

Exercise IV is a complete set in itself and presents all transactions for a month, including the proprietor's investment.

In bookkeeping, every transaction is entered first in a journal and then posted to a ledger. Exercise IV is to be written up in that way and in no other.

For introducing to pupils the principles of debit and credit which underlie both journal and ledger entries, however, the ledger lends itself more effectively than the journal and may be explained first. The pupil will then know his ultimate destination when he comes to use the journal; he will travel toward a goal and not blindly.

After the ledger has been utilized to develop mastery of ideas of debit and credit in connection with Exercises I, II, and III, these exercises may be used again for journalizing and posting to the ledger in the customary way.

Teachers are expected to consult standard bookkeeping texts for model forms of journal and ledger, for functions of accounts, for guidance in analysis of ledger records, and for general mastery of detail.

### I. Cash and Merchandise accounts.

1. Use any paper. Rule  $\top$  and  $\top$ .
2. Buy merchandise and pay cash.
3. Sell merchandise and receive cash.
4. Invent transactions, and drill thoroughly.
5. Use both accounts in every transaction.
6. Receipts of cash and merchandise are recorded on the left hand side, deliveries on the right hand side of these accounts, respectively.
7. Urge pupils to visualize transactions.
8. Gradually substitute "debit" for "left" and "credit" for "right."
9. Introduce ruled ledger paper.
10. Use Exercise I.

### II. Expense account.

1. Use any paper. Rule  $\top$  and  $\top$ , for Expense and Cash.
2. Buy postage stamps for cash.
3. Cash is credited. What is debited?
4. Merchandise includes those things which the business buys to sell again. What it buys for its own use is Expense.
5. It may buy goods or services. Invent transactions involving stationery, postage, wages, light, heat, rent, and labor.
6. Use ruled ledger paper for Exercise II.

- III. Personal accounts.
1. Sell A. G. Whipple merchandise on account.
  2. Merchandise is credited. What is debited?
  3. A. G. Whipple's account is debited. (The business receives a claim against him.)
  4. Buy of Thomas & Co. merchandise on account. (The business gives Thomas & Co. a claim against itself.)
  5. A. G. Whipple pays us what he owes.
  6. We pay Thomas & Co. what we owe.
  7. Invent similar transactions, and drill.
  8. Follow with Exercise III.
- IV. Proprietor's account.
1. Treat his account like that of any personal account. He is credited for whatever cash or merchandise the business receives from him, and debited for whatever he withdraws.
  2. Invent transactions, and drill.
- V. Trial Balances.
1. Let pupils discover equality of debit and credit totals in the Ledger for Exercise I.
  2. Show arrangement of trial balances — heading, date, and columns.
  3. Make trial balance for Exercise I.
  4. Make trial balance for Exercise II.
  5. Make trial balance for Exercise III.
- VI. Journal.
1. Explain need of books preliminary to the Ledger as a business grows.
  2. Show arrangement of debits and credits in first column.
  3. Use preposition "To" before credits.
  4. Emphasize need of full explanations.
  5. Journalize Exercise I.
  6. Journalize Exercise II.
  7. Journalize Exercise III.
- VII. Posting.
1. Number Journal pages 1, 2, 3, etc.; Ledger pages, 20, 21, 22, etc.
  2. Post in order of dates.
  3. Follow fixed order rigidly.
    - A. Entry in Ledger.
    - B. Journal page in Ledger.
    - C. Ledger page in Journal.
  4. Post Exercises I, II, III.
  5. Take three trial balances.
- VIII. Review.
1. Use Exercise IV.

#### Exercise I.

- Feb. 11. Bought 20 bbls. flour at \$11.50, for cash.
12. Bought 50 bu. wheat at \$2, for cash.
  13. Sold 8 bbls. flour at \$14, for cash.
  14. Sold 6 bbls. flour at \$14, for cash.
  15. Bought 40 bu. oats at \$1.50, for cash.
  16. Sold 25 bu. wheat at \$2.25, for cash.

- Feb. 16. Sold 15 bu. oats at \$1.65, for cash.  
18. Bought 20 bbls. potatoes at \$6, for cash.  
19. Sold 12 bbls. potatoes at \$7, for cash.  
20. Sold 15 bu. oats at \$1.80, for cash.  
21. Sold 15 bu. wheat at \$2.30, for cash.  
21. Bought 22 bbls. flour at \$11.75, for cash.  
23. Sold 10 bbls. flour at \$14.50, for cash.  
23. Sold 10 bu. wheat at \$2.15, for cash.  
25. Sold 15 bbls. flour at \$14.75, for cash.  
26. Sold 8 bbls. potatoes at \$7.15, for cash.  
27. Bought 5 bu. wheat at \$2.25, for cash.

Find the total cost of merchandise bought.

Find the total price of merchandise sold.

Find the total amount of cash received.

Find the total amount of cash paid out.

### Exercise II.

- March 11. Bought 60 tons egg coal at \$7, for cash.  
12. Bought 90 tons stove coal at \$6.90, for cash.  
13. Sold 8 tons egg coal at \$8.50, for cash.  
13. Paid wages for one week, \$60.  
15. Sold 15 tons egg coal at \$8.50, for cash.  
16. Bought stationery for office use, \$5.  
17. Sold 20 tons stove coal at \$7.75, for cash.  
18. Bought 50 tons nut coal at \$7.25, for cash.  
19. Sold 15 tons stove coal at \$8, for cash.  
20. Paid for hay for horses' use, \$30.  
22. Sold 30 tons of nut coal at \$9, for cash.  
22. Sold 35 tons egg coal at \$8.75, for cash.  
23. Paid wages for one week, \$60.  
24. Paid for postage, \$4.50.  
25. Paid rent for March, \$50.  
26. Sold 20 tons nut coal at \$9, for cash.  
27. Sold 50 tons stove coal at \$8, for cash.

Find total cost of merchandise bought.

Find total amount of expenses.

Find total amount of cash paid out.

### Exercise III.

- April 14. Bought of Packer & Co. 11 bbls. beef at \$18, on account.  
15. Bought of Packer & Co. 80 bbls. salt at \$1.80, on account.  
17. Sold 20 bbls. beef at \$22, for cash.  
17. Sold 25 bbls. salt at \$2.10, to Wilson Bros., on account.  
18. Sold H. Brooks, on account, 15 bbls. beef at \$22.50.  
19. Paid Packer & Co., on account, \$200.  
20. Bought of Packer & Co., on account, 50 bbls. pork, at \$15.  
21. Received of Wilson Bros., on account, \$50.  
22. Paid rent for April, \$75.  
22. Sold O. J. Lyman, on account, 50 bbls. beef at \$23.  
24. Received of H. Brooks, in full of account, \$237.50.

- April 25. Sold Miller & Co., on account, 50 bbls. salt at \$2.15.  
 26. O. J. Lyman pays us in full of account, \$1,150.  
 27. Paid Packer & Co., on account, \$500.  
 28. Sold H. Brooks, on account, 5 bbls. pork at \$18.  
 29. Sold, for cash, 45 bbls. pork at \$18.  
 29. Miller & Co. pays us, on account, \$75.

Find total price of merchandise sold.

Find who owes us and how much.

Find whom we owe and how much.

#### Exercise IV.

##### A SMALL RETAIL COAL BUSINESS.

*Books to be used.*— Journal and Ledger.

*Accounts to be used.*— Proprietor's, Merchandise, Expense, Personal, and Cash.

*Emphasis.*— After it has been made clear that journalizing is the separating of a transaction into its debits and credits and arranging them in a form convenient to transfer to the ledger accounts, emphasis should be placed on the following rules in journalizing the transactions.

##### *Personal Accounts.*

Debit the receiver.

Credit the giver.

##### *Merchandise Account.*

Debit it for goods bought.

Credit it for goods sold.

##### *Expense Account.*

Debit it for the cost of whatever is to be consumed in the business.

##### *Cash.*

Debit it when received.

Credit it when paid.

NOTE.— No attempt should be made to make one rule cover all kinds of transactions. A rule like "debit what comes into the business and credit what goes out," when applied to personal accounts causes confusion in the beginner's mind and is difficult of explanation, while the pupil will readily understand the rules given above.

##### TRANSACTIONS FOR A SMALL RETAIL COAL BUSINESS, JANUARY, 1918.

1. C. R. French began a coal business by investing cash, \$5,000.
2. Paid Nathan Stone for rent of office and yard for one month to February 1, \$50.
3. Bought of W. J. Holland, for cash, 100 tons hard coal at \$8.50.
4. Paid an advertising agency \$10 to place our advertising in the local papers.
5. Bought of A. L. Tripp, on account, 150 tons of soft coal at \$3.50.
7. Sold A. L. Morse, on account, 15 days, 30 tons soft coal at \$5.
8. Bought of John L. Sullivan, on account, 15 days, 300 tons of coke at \$6.
9. Paid for postage, bill heads, and letter heads, \$15.
10. Paid A. L. Tripp cash, on account, \$300.
11. Sold C. A. Dresser, for cash, 30 tons soft coal at \$4.50.
12. Sold William Hoffman, on account, 40 tons coke at \$6.50.
14. Bought of A. L. Tripp, on account, 20 days, 75 tons soft coal at \$3.50.



15. Sold C. O. Oakes, on account, 60 tons coke at \$6.50.
16. Paid A. L. Tripp cash, on account, \$100.
17. Received cash of William Hoffman, on account, \$180.
18. Sold D. E. Masters, on account, 30 days, 20 tons hard coal at \$10.
19. Paid John L. Sullivan, on account, \$900.
22. Bought of W. J. Holland, for cash, 35 tons hard coal at \$8.50.
23. Received cash of D. E. Masters, on account, \$100.
23. Received cash, on account, from A. L. Morse, \$150.
24. Paid John L. Sullivan cash, on account, for balance of invoice of the 8th, \$900.
25. Received cash of C. O. Oakes, on account, \$300.
26. Sold William Hoffman, on account, 10 days, 20 tons soft coal at \$3.50, 35 tons hard coal at \$10.
28. Paid clerk's salary for two weeks, \$15.
28. Paid the City Teaming Co. \$75 for making deliveries for the business.
30. Paid rent for office and yard for the month of February, \$50.
31. C. R. French has withdrawn \$50 cash for his own personal use.
31. Paid bill for office repairs, including sign for the business placed on the front of the office, \$25.



SCHOOL DOCUMENT NO. 8—1918  
BOSTON PUBLIC SCHOOLS

SPECIAL SYLLABUS-DRAWING

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GRADES I., II., III.



1918-1919

The subject matter of the "Special Syllabus-Drawing, Grades I., II., III.," is hereby approved.

FRANKLIN B. DYER,  
*Superintendent of Public Schools.*

## SUPPLIES.

Furnished in September on the basis of principals' reports for which blanks are issued in March. The amounts delivered plus any surpluses reported should equal quotas stated.

If supplies are not received by date given, inquiry should be made of the master or assistant in charge. If it is found that they have not arrived in the district, inquiry should be made of the Supply Department. The quotas following have been carefully and generously revised, and, if supplies are distributed and used as indicated, there should be no necessity for further requisitions except in the cases where numbers prove larger than estimates or reports last sent in.

### GRADES I., II., III.

ARTICLE.	Annual Quota. To be Delivered September 13, 1918.
Drawing paper, Manila, 6-inch by 9-inch, Grade I.....	100 sheets per pupil.
Drawing paper, Manila, 9-inch by 12-inch, Grades II. and III.....	100 sheets per pupil.
Drawing paper, gray, 6-inch by 9-inch, Grade I.....	100 sheets per pupil.
Drawing paper, gray, 9-inch by 12-inch, Grades II. and III.....	125 sheets per pupil.
Drawing paper, white, 6-inch by 9-inch, Grades I. and II.....	10 sheets per pupil.
Drawing paper, white, 9-inch by 12-inch, Grade III.....	12 sheets per pupil.
Envelopes, 8-inch by 11-inch, Grade I.....	1 per pupil.
Envelopes, 10-inch by 13-inch, Grades II. and III.....	1 per pupil.
Box colored crayons, Grades I., II. and III.....	1 per pupil.
Pencils, E. Faber's No. 3200-B, Grades I., II. and III.....	1 per pupil.
Pasteboard rules, Grades II. and III.....	1 per pupil.
Pressboard tablets, assorted shapes, Grades I. and II.....	1 set to 2 classes.
Colored circles and squares, 1 inch, Grades I. and II.....	30 to each pupil.
Colored pegs, Grades I. and II.....	2 packages to each building.
Strips of colored paper, 1-inch by 2-inch, Grade III.....	19 to each pupil.
Strips of colored paper, 1-inch by 4-inch, Grade III.....	13 to each pupil.

**Scissors.**—(4½-inch.) One pair to two pupils. (To be used in sets, each set shared by two classes.)

## DRAWING. PRIMARY AND GRAMMAR GRADES. DESIGN.

### Aim.

To have the children see and feel the difference between Order and Disorder, and appreciate the value and importance of Order; to develop the Love of Order and, so far as possible, the Sense of Beauty.

The beautiful is simply the best of its kind — the supreme instance which gives the standard. To recognize and discover it is one of the chief interests of a civilized life.

### Subjects to be Considered.

- A. The impressions of Vision; of light, of color, of positions, directions, measures, proportions and shapes.
- B. The forms of Order as observed in Nature and in works of Art.
- A. The Impressions of Vision.

First discriminations:

- I. Tones: Different effects of Light and Color.
  - a. Differences of Color: Red, Orange, Yellow, Green, Blue, Violet, and their intermediates, Violet-Red, Red-Orange, Orange-Yellow, Yellow-Green, Green-Blue, Blue-Violet.
  - b. Differences of Value in Colors: Colors light and colors dark; colors in different quantities of light.
  - c. Differences of Intensity in Colors: Colors bright, as in Spectrum Band, and colors dull; more or less neutralized, even completely neutralized.
- II. Positions:  
Recognition of different positions in the Field of Vision, the principal position being the center of the Field of Vision.
- III. Directions:  
Recognition of differences of direction in the Field of Vision: The Vertical (Up and Down); the Horizontal (Right and Left); and the intermediate diagonal directions.
- IV. Measures:  
Recognition of different measures (large and small), of different sizes, distances and intervals, as observed in the Field of Vision; the diameter of the Field being the principal measure to which the others may be referred.

## V. Proportions:

The square gives the best standard of reference for Proportion, the height and width of the square being equal. We have in different rectangles the simplest expression of Proportion.

## VI. Shapes:

Recognition of differences of shape: Square, oblong, round, oval, etc.

The definition of all these differences (visual discriminations) by free-hand exercises in drawing and coloring; the exercises being carefully graded; the first being very simple and easy, preparing the pupil for those which follow, which should be increasingly difficult.

## B. Order as observed in Nature and in Works of Art.

The three forms or modes of Order:

1. Continuations, Recurrences or Repetitions.
2. Progressions or Sequences: Different forms of motion.
3. Balances: Different forms of equilibrium or rest. To be appreciated, all balances must be set on the central vertical of the Field of Vision.

These three forms of Order occur in combinations, producing a great variety of phenomena, more or less interesting.

- a. Recurrences and Repetitions in Progressions and Sequences.
- b. Recurrences and Repetitions in Balances.
- c. Sequences in forms of Balance, and Balances in Sequences.
- d. Alternations in Sequences; that is, differences repeated, producing the effect of Rhythm.
- e. Gradations of differences set in Sequences or Progressions.
- f. The Balance of Repetitions and Inversions.
- g. The Balance of different elements which, though they do not correspond in character, are equivalent in their force of appeal in the Sense of Vision.

The Definition and Description of Order in particular instances and examples:

This is to be done in a carefully graded series of exercises in drawing and coloring. The first exercise should be very simple and elementary, the later ones increasingly difficult; from lesson to lesson and from grade to grade. By degrees the whole field of Design should be revealed, and its possibilities, in some measure, realized; beginning with the orders

of plane geometry, ending in the representation of Nature and Life in different geometric systems. As we have time systems in Music and in Poetry so we have space systems in Design. Order, Symmetry and Harmony are in all cases the expression of mathematical laws.

It is very important that the children should see good examples of design; in drawings and paintings, in textiles, in pottery and porcelain, in wood or stone carvings and in metal work. Drawings and paintings, photographs and enlargements of photographs and prints may be used and the children should from time to time be taken to the Natural History Museums and to the Museums of Art. On these occasions they should be encouraged to take notes of what they see that they believe to be beautiful. Tracing designs that interest them with a finger in the air they will often be able to draw it on paper afterwards, making the same movements with the point of the pencil. They will not remember the design but the action describing it.

#### **Materials Used in the Primary and Grammar Grades.**

In the beginning tablets, seeds and colored sticks should be used. When it comes to drawing and coloring, lead pencils and colored crayons will serve the purpose. Water colors may be used instead of colored crayons in the more advanced grades.

#### **Habits.**

Correct habits of sitting are essential to the child's health and sight. The position used in writing is not good for drawing. The paper should be at the reading distance from the eye and so placed that the top and bottom edges appear horizontal and the sides vertical. So far as possible the paper should be at right angles with the direction of vision; not foreshortened.

## **PRIMARY GRADES.**

### **DESIGN.**

#### **First Discriminations and Definitions.**

A. Principal colors.

Principal positions.

Principal directions: Vertical, horizontal and diagonal.

The important angles: Angles of 90 degrees, 45 degrees, 60 degrees, 30 degrees.

Units of measurement and their progressions, arithmetical and geometrical.



Simple geometric shapes: Squares and other rectangles, circles, ellipses and spirals.

Exercises in drawing and coloring to define tones (the six colors), positions, directions, measures and shapes.

- B. The forms of Order, Continuations, Recurrences, Repetitions, Sequences, Balances, and their combinations to be illustrated and explained. Only very simple examples should be given. Exercises in repeating certain colors, in different directions, measures and shapes and setting them in Sequences and in Balances. These are first exercises in Design, Design being the arrangement of lines and spots of color to describe the different modes or forms of Order and combinations of these modes. Sheets of examples and illustrations will be provided for the teachers as soon as possible.

## GRAMMAR GRADES.

### DESIGN.

Same program, with further discriminations and more difficult exercises. Examples and illustrations of work to be done in each grade will be prepared for the use of the teachers.

## DRAWING. PRIMARY AND GRAMMAR GRADES. REPRESENTATION.

### **Aim.**

To develop visual discrimination, memory and imagination, together with an ability to describe visual experience and to express visual knowledge and ideas.

### **Subjects to be Considered and Represented.**

Men, women and children, their attitudes, gestures and movements, their belongings and surroundings, in the city and in the country; care being taken to bring all the subjects suggested well within the experience of all the pupils, so that they will be describing what they have seen, and what they know, or ought to know, of Nature and Life.

### **Mode of Expression.**

Drawing in definite outlines and coloring in flat tones. There is to be no modeling of solid forms either in Black-and-White or in Color. The interest is to be in the Shapes of objects, people and things, and in the differences of color revealed in light.

### **Materials.**

The drawing will be done with lead pencils; the coloring, at first with colored crayons, afterwards, in the more advanced grades, with water colors.

### **Method of Teaching.**

The teacher's part in this, as in all educational work, is to make the pupils think clearly and express themselves well. In this particular course the thinking must be in the terms of vision: Light, color, positions, directions, distances or measures, proportions and shapes. The knowledge and ideas to be expressed by drawing and coloring are in tone-relations and in space-relations. The terms of expression are lines and spots of color. The aim is to induce the pupils to think of Nature and Life in lines and spots of color and to put these lines and spots on paper; just as in other courses of study they think in words and forms of language, using the words in speech and in writing. The knowledge and ideas which are developed and expressed by lines and spots of color are hardly less important than those which are expressed by language. Many ideas which we try to express by speech and by writing can be much better expressed more definitely and more clearly by drawing and painting.

It will be the duty of the teachers in this course to suggest the subjects to be thought about and described; to help the pupils in the comparison, criticism and judgment of their own performances; and, finally, to grade the work done according to the standard to be maintained. The teacher is expected to take a genuine interest in the work of the pupils and to be quick to recognize and appreciate what is good in the work done; what is better, and what is best.

In suggesting subjects to be thought about and described by the pupils the teacher must be very specific and particular. For example, the teacher says, "A man is going out of the door when he remembers that his wife has not told him what to get for dinner. He turns round and calls her. She comes to the door with a little girl, four years old. They stand by the door talking. The little girl is interested in the cat which, seeing a dog across the street, has its fur raised and its back up. The house is built of red bricks. There are stone steps and the door and its jambs are painted white." By these words fairly definite images are suggested and the pupils may proceed to draw and to color the subject, each one following his own imagination and producing his own picture. Taking up any one of the pictures produced it is a question whether it is true as a representation. In what respects is it true? What mistakes, if any, have been made? What changes or corrections should be made? Has anything been left out that is natural and proper to the picture as a whole, or to the people and things represented in it? In other words, is the performance appropriate to the idea which suggested it? Because in Art nothing counts that is unnatural, untimely or inappropriate. When the pictures have been considered and criticised, one after another, they should be put up to be considered together, with a view to making a comparison and selecting the best — the best of all or the best two or three. The children must be encouraged to make comparisons and to pass judgments. The teacher should assist them and encourage them, declaring her own judgment at the end of the lesson.

As to the standard to be maintained: It should be determined always by the best work produced in the grade; the better the work the higher the standard. With this idea in mind, the best work should be selected and kept for reference; and it will be well to have exhibitions of it from time to time. As the work improves, as it should from year to year, insignificant and unimportant

examples may be thrown out. It is always the best that gives the standard. It is proper that the pupils should see what the standard is and for that reason exhibitions are held. No copying should be allowed. When the children have seen the exhibition it should be taken down, and they should then proceed, as before, to think for themselves and to express, each one, his own knowledge and his own ideas.

In the work of the nine grades there should be a steady increase of visual knowledge and of the power of expression which goes along with it. The crude representations of the primary grades must pass away and in the work of the higher grades we must see more and more truth of representation and the representation must be more and more specific and particular. If in the work of the primary grades we recognize the genus, we must presently recognize the species, then the varieties of each species. Last of all we reach the representation of particular people and particular things. Whenever the child is unable to think of anything to draw, that means that he has no visual knowledge appropriate to the subject proposed. He must proceed, at once, to get the required knowledge. A simple way of doing this is to have the child look in Nature for the subject-matter to be represented; to get an idea of it. A good way of doing this is for the child to trace the objects, people or things in the air with the point of his finger. When he has done that he will remember, not the object, but his own action in describing it, and he will probably be able to do with the point of his pencil what he had done with the point of his finger, or something like that.

If the subject of the next lesson is given out before the children leave the room, they will be looking out for the people and things they will have to draw. The younger children can trace what they see with the finger and then draw it. The older children may be able to draw directly from the object, if it is in any sense still life. In most cases, however, our visual knowledge is best secured by quick observation, followed by clear recollection or vivid imagination. Still life is a very small part of Life and the art of drawing and painting in representation must not be limited to it, as it has been, very generally, during the past fifty years. In any case we should be able to imagine and draw the human figure in its principal attitudes and actions before we undertake anything like specific portraiture. The general idea, which is always a thing of the imagination, should take precedence over any specifications of it in the direction of matter-of-fact or statistical

portraiture. We should be able to draw and paint men, women and children, and the objects connected with them, as the old masters did, before we proceed to direct imitation or copying. When the child reaches the end of the ninth grade of this teaching which we propose, and has come up to the standard required, he ought to be well prepared to take up the practice of drawing and painting in a professional school; particularly if he had done well in the practice of Design which has been going on at the same time. The motive of Representation, to achieve the truth of Representation, is not sufficient in itself; nor is the motive of Design self-sufficient, Design being the arrangement and composition of lines and spots of color to illustrate the mathematical principles of Order. The two motives must come together and work together; the ultimate aim being to present the Truth of Representation in forms which will be at least orderly and, so far as possible, beautiful.

It is very important that the children of all grades should see a great many photographs and pictures. By means of photographs and pictures their visual experience and knowledge may be indefinitely increased, particularly if they make drawings from the photographs that interest them and from the pictures that please them. The photographs should represent facts and scenes of Nature and Life. Photographic reproductions of drawings and paintings by good masters should also be used. The half-tone pictures which appear in the daily and weekly papers and magazines will be of interest and serve the purpose in many ways. Photographs and pictures should be used as books are used, and referred to for information as books are referred to. In drawing from the photographs or pictures the children should do what they will naturally and inevitably do if left to themselves. They must follow the outlines of the subject with the eye and the eye with the point of the pencil. In that way they will feel the sizes and the shapes together and draw them together; otherwise the drawing will be a matter of visual triangulation and construction, which is all right when the object is to arrange and state facts or ideas, but it is not the way to get visual knowledge and the power of imagination. We must have knowledge and ideas to express before we proceed to the Art of Arrangement and Composition.

## DRAWING. GRADE I.

**Note.**—There are one hundred and eight exercises in this series to be followed in consecutive order—three twenty-five minute periods each week.

### SEPTEMBER. DESIGN.

1. Teach the children to recognize and distinguish the circle. Let them try to make circles by laying seeds, lentils or pegs, or by cutting or drawing.

2. Find circles in nature and in works of art.

**Note 1.**—References to Nature and to Works of Art.

Shapes found in nature are approximately like but are rarely perfect geometric shapes. The term "art" in these primary exercises refers to things made by man; always things beautiful if possible. The aim of these references is to lead children to recognize nature's wonderful system of order and to note a similar system in works of art.

Although when possible the pupils should see the thing itself, the greater part of these references must be confined necessarily to illustrations and photographs, some of which will be supplied from time to time. A great abundance of material may be found in books already in use and much that is valuable may be collected by teachers and children from newspapers, magazines, and the many periodicals dealing with life and its associations in country and town. Such collected material may be mounted and kept in portfolio form for constant use.

3. An Exercise in **Repetition: Circles.**

Arrange circles at regular intervals (*a*) single, (*b*) grouped, (*c*) near together, (*d*) far apart, in a horizontal or vertical row.

**Note 2.**—In the following exercises in repetition in a row both horizontal and vertical arrangements should be made. These exercises may correlate with busy work in number study, *e. g.*, a row of twos, a row of threes.

4. Teach the children to recognize and distinguish **Standard Yellow.**
5. Fill in a 3-inch circle with standard yellow crayon.
6. Find bright yellow in nature and in works of art.

**Note 3.**—The series of lessons referring to nature and art are observation and conversation exercises and may readily correlate with language in the use of complete statements: "The daisy is round like a circle"; "My canary's eye is round like a circle"; "I saw a yellow butterfly"; "Some apples are red"; or "I have a red cart"; "There is red in those rugs." If possible when each new thought is presented show the pupils examples, either by means of photographs or the things themselves, referring both to nature and to works of art.

7. An Exercise in **Color Repetition: Yellow.**

Repeat Yellow with pegs, tablets, etc., in a row at regular intervals, making several different arrangements.

8. An Exercise in **Measure.**

Teach terms large and small, long and short.

9. An Exercise in **Repetition with Alternation of Size: Circles.**

Repeat circles in a row with alternation of size, large and small, using tablets and other available material, lentils, seeds, split peas, etc.

10. An Exercise in **Balance: Circles.**

(a) **Axial.**—Teach right and left balance on a vertical axis, using circles.

(b) **Central.**—Teach right and left balance on a vertical axis with balance on a center. Use five circles — one for center. Arrange five or more circles around a center.

## OCTOBER. DESIGN.

11. An Exercise in **Sequences of Progression: Circles.**

Arrange circles (a) in a row, (b) in a field, (c) in a circular area, increasing or decreasing in size or number in orderly progression.

12. Find examples of above sequences in nature and in works of art.

13. Teach the children to recognize **Standard Orange.**

14. Fill in a 3-inch circle with standard orange crayon.

15. Find bright orange in nature and in works of art.

16. Teach recognition of the **Square.**

17. Find the square in nature and in works of art. Lay or cut a square.

18. An Exercise in **Sequences of Repetition of Squares.**

Arrange squares in a horizontal or vertical row, at regular intervals, near together, far apart, single or grouped. Make many variations.

19. An Exercise in **Color Repetition: Orange.**  
 Arrange orange tablets, pegs, etc., in a row at regular intervals and balance four on a center. Make many variations.  
**Note.**— See Exercises 3, 10, 18.
20. An Exercise in **Color Alternation: Yellow and Orange.**  
 Repeat yellow and orange with **alternation** in a row and in a field (repetition of rows), using pegs, tablets, seeds, threads, etc.  
**Note 4.**— These simple exercises in harmony building with color may be supplemented by correlation with other primary work, busy work, number work, manual training; in stringing beads, weaving mats, sewing-card exercises.
21. An Exercise in **Sequences of Alternation of Squares.**  
 Repeat squares in a row at regular intervals with the following changes in **alternation**: (*a*) change in attitude, (*b*) change in shape, (*c*) change in size, (*d*) change in number.
22. An Exercise in **Balance: Squares.**  
 (*a*) **Axial.**— Arrange two or more squares in a right and left balance on a vertical axis.  
 (*b*) **Central.**— Balance four squares left and right on a vertical axis with balance on a center. Use five squares, one for the center.
23. An Exercise in **Sequences of Progression: Size, Number.**  
 Arrange squares — small to large, large to small — (*a*) in a row, (*b*) in a field, (*c*) in a square area, increasing or decreasing in size or number in orderly progression or gradation.
24. Teach the children to recognize **Standard Red.**

### NOVEMBER. DESIGN.

25. Fill in a 3-inch circle or square with standard red crayon.
26. Find bright red in nature and in works of art.
27. An Exercise in **Color Repetition: Red.**  
 Repeat red tablets, pegs, etc., in a row at regular intervals. Balance on a center in four. (See Exercises 3, 10, 18, 22.) (See Note 5.)
28. An Exercise in **Color Alternation: Orange and Red.**  
 Repeat orange and red with alternation in a row and in a field (repetition of rows), using tablets, pegs, etc. (See Note 4.)
29. Teach the children to recognize **Standard Violet.**
30. Fill in a 3-inch circle or square with standard violet crayon.
31. Find violet in nature and in works of art.



32. An Exercise in **Color Repetition: Violet.**  
Repeat violet tablets, pegs, etc., in a row at regular intervals.  
Balance four on a center. (See Exercises 3, 10, 18, 22.)  
**Note 5.**— In making arrangements of tablets (circles and squares) four around a center, use five, one for the center.
33. An Exercise in **Color Alternation: Violet and Red.**  
Repeat violet and red with alternation in a row and in a field (repetition of rows), using tablets, pegs, etc. (See Note 4.)
34. Teach the children to recognize **Standard Blue.**
35. Fill in a 3-inch circle or square with standard blue crayon.
36. Find bright blue in nature and in works of art.

### DECEMBER. DESIGN.

37. An Exercise in **Color Repetition: Blue.**  
Arrange blue tablets, pegs, etc., in a row at regular intervals.  
Balance four on a center. (See Exercises 3, 10, 18, 22.)  
(See Note 5.)
38. An Exercise in **Color Alternation: Blue and Violet.**  
Repeat blue and violet with **alternation** in a row and in a field (repetition of rows), using tablets, pegs, etc. (See Note 4.)
39. Teach the children to recognize **Standard Green.**
40. Fill in a 3-inch circle or square with standard green crayon.
41. Find bright green in nature and in works of art.
42. An Exercise in **Repetition: Green.**  
Repeat green tablets, pegs, etc., in a row at regular intervals.  
Balance four on a center. (See Exercises 3, 10, 18, 22.)  
(See Note 5.)
43. An Exercise in **Color Alternation: Green and Blue, Green and Yellow.**  
Repeat with **alternation** green and blue, in a row and in a field.  
Make similar arrangements with green and yellow. Use tablets, pegs, etc. (See Note 4.)
44. Teach the children to recognize **values**, distinguishing **light and dark colors.**  
**Note 6.**— By value is meant quantity of light. We use the terms "light" and "dark." Beginning with white, the highest degree of light, the gradual withdrawal of light will lead us through all degrees of gray to the darkest dark or black, the absence of light.
45. Find lights and darks in nature and in works of art.
46. An Exercise in recognition of **extreme dark: Black.**

## JANUARY. DESIGN.

47. Fill in a 3-inch circle or square with black crayon.
48. Find black or approximate black in nature and in works of art.
49. An Exercise in recognition of **extreme light: White**.
50. Cut out a 3-inch circle or a square from white paper. Mount on gray.
51. Find white or approximate white in nature and in works of art.
52. Teach the children to recognize the **oblong** and to distinguish it from other shapes.
53. Find oblong shapes in nature and in works of art.
54. An Exercise in **Repetition: Oblongs**.  
 Arrange oblongs in a row at regular intervals, near together, far apart, single or grouped. (See Exercise 18.) Find oblongs in works of art.
55. An Exercise in **Sequences of Repetition with Alternation of Oblongs**.  
 Repeat oblongs in a row at regular intervals with the following changes in **alternation**: (a) change in attitude, (b) change in size, (c) change in number, (d) change in shape and proportion.
56. An Exercise in **Balance: Oblongs**.  
 (a) **Axial**.— Arrange two or more oblongs in right and left balance on a vertical axis.  
 (b) **Central**.— Arrange four oblongs in right and left balance on a vertical axis with balance on a center. Arrange eight oblongs balanced around a center.
57. An Exercise in **Sequences of Progression: Oblongs**.  
 Arrange oblongs — small to large, large to small — (a) in a row, (b) in an oblong area, (c) in a field, increasing or decreasing in size or number in orderly progression.
58. Teach recognition of **Straight Line**.

## FEBRUARY. DESIGN.

59. Find "straight lines" in nature and in works of art.
60. Teach the children to recognize **vertical** lines and to distinguish **vertical** from other directions.
61. Find vertical directions in nature and in works of art.
62. An Exercise in **Repetition: Vertical lines**.  
 Arrange vertical lines in a row at regular intervals, near together, far apart, single or grouped.

**Note 7.**— In these straight line exercises pupils may lay arrangements, using pegs, or make lines with colored crayon, or with match sticks and water color or ink. For each exercise use one color only.

63. Find similar line repetition in nature and in works of art.
64. An Exercise in **Sequences of Progression: Vertical lines.**  
 Arrange three or more vertical lines in a vertical row, short to long, narrow to wide.  
 Arrange vertical lines of equal length in a field, in the increasing progression of 1—3—5—7.
65. Teach the children to recognize **horizontal lines** and to distinguish **horizontal** from other directions.
66. Find horizontal directions in nature and in works of art.
67. An Exercise in **Sequences of Repetition: Horizontal lines.**  
 Arrange horizontal lines in a row at regular intervals, near together, far apart, single or grouped. (See note under vertical line repetition.)  
 Find similar arrangements in nature and in works of art.

### MARCH. DESIGN.

68. An Exercise in Repetition with **Alternation** of vertical lines; of horizontal lines.  
 Repeat vertical lines in a row with the following changes in **alternation:** (a) change in attitude, (b) change in width, (c) change in length, (d) change in number.  
 Make similar arrangements, using horizontal lines.  
 Find similar arrangements in nature and in works of art.
69. An Exercise in **Sequences of Progression: Horizontal lines.**  
 Arrange three or more horizontal lines in a horizontal row, short to long and narrow to wide. Arrange horizontal lines long to short, short to long, in a field, parallel and at regular intervals.
70. Find similar sequences in nature and in works of art.
71. Teach the children to recognize oblique lines and to distinguish **oblique** from other directions.
72. Find oblique directions in nature and in works of art.
73. An Exercise in **Sequences of Repetition: Oblique lines.**  
 Arrange oblique lines in a row at regular intervals, near together, far apart, single or grouped. (See note under vertical line repetition.)

74. An Exercise in **Repetition with Alternation of Oblique lines.**  
Repeat oblique lines in a row at regular intervals with the following changes in **alternation**: (a) change in attitude (left and right), touching, forming the zigzag movement, (b) change in width, (c) change in length, (d) change in number.
75. Find the zigzag movement in nature and in works of art. Find examples similar to other arrangements.
76. An Exercise in **Balance: Straight lines.**  
(a) **Axial.**— Arrange two or more vertical, horizontal or oblique lines in right and left balance on a vertical axis.  
(b) **Central.**— Arrange straight lines in "left and right balance" on a vertical axis with balance on a center, using four and multiples of four.  
Balance lines on a center in four and multiples of four; in three and multiples of three; in five and multiples of five. Find similar forms of balance in nature and in works of art.
77. Teach the children to recognize angles. Find angles in nature and in works of art.
78. Teach the children to recognize the **right-angle.**
79. An Exercise in **Repetition: Right-angles.**  
Arrange right-angles in a row at regular intervals.
80. An Exercise in **Repetition with Alternation of Right-angles.**  
Arrange right-angles in a row, touching, alternating a change in attitude to form a continuous movement. (See Greek fret.)  
Find similar examples in works of art.

#### APRIL. DESIGN.

81. An Exercise in **Balance: Right-angles.**  
(a) **Axial.**— Arrange right-angles in left and right balance in twos.  
(b) **Central.**— Arrange right-angles in left and right balance on a vertical axis with balance on a center, using four right-angles. Balance four right-angles, radiating from a center in regular order of repetition, forming the swastika.  
Find similar examples in works of art.
82. Teach the children to recognize the **triangle** and to distinguish it from other shapes. Find the **triangle** in nature and in works of art.
83. Teach the children to recognize the **right-angle triangle** and to distinguish it from other triangles.

84. An Exercise in **Repetition: Right-angle Triangles.**  
Arrange right-angle triangles at regular intervals in a row, near together, far apart, single or grouped.
85. An Exercise in **Repetition with Alternation of Right-angle Triangles.**  
Repeat right-angle triangles in a row with the following changes in alternation: (a) change in attitude, (b) change in shape, (c) change in size, (d) change in number.  
Find similar examples in nature and in works of art.
86. An Exercise in **Balance: Right-angle Triangles.**  
(a) **Axial.**— Arrange two right-angle triangles in right and left balance on a vertical axis.  
Find similar balanced shapes in nature and in works of art.  
(b) **Central.**— Balance four right-angle triangles left and right on a vertical axis with balance on a center. Balance four or more right-angle triangles radiating from a center in regular order of repetition.  
Find similar arrangements in nature and in works of art.
87. An Exercise in **Sequences of Progression: Right-angle Triangles.**  
Arrange right-angle triangles (a) in a row, (b) in an area, (c) in a field, increasing or decreasing in number or size in orderly progression.
88. Teach the children to recognize the **Semicircle.**  
Find similar shapes in nature and in works of art.
89. An Exercise in **Repetition: Semicircle.**  
Arrange semicircles in a row at regular intervals, near together, far apart, single or grouped. Make many variations.
90. An Exercise in **Repetition with Alternation of Semicircles.**  
Arrange semicircles in a row at regular intervals with the following changes in alternation: (a) change in attitude, (b) change in shape, (c) in size, (d) change in number.
91. An Exercise in **Balance: Semicircles.**  
(a) **Axial.**— Arrange semicircles in left and right balance on a vertical axis.  
(b) **Central.**— Balance four semicircles right and left on a vertical axis with balance on a center.  
(c) Balance four semicircles radiating from a center in regular order of repetition.  
Find similar forms of balance in nature and in works of art.

## MAY. DESIGN.

92. An Exercise in **Sequences of Progression: Semicircles.**  
Arrange semicircles — small to large, large to small — (a) in a row, (b) in a semicircular area, (c) in a field, increasing or decreasing in size or number in orderly progression.  
Find similar examples in nature and in works of art.
93. Teach the children to recognize **Curved lines.**  
Find curved lines in nature and in works of art.
94. An Exercise in **Repetition: Simple Curves.**  
Arrange simple curves in a row at regular intervals, near together and touching, making the “scallop.” Use lentils, seeds, split peas, twine.  
Find similar examples of curve repetition in nature and in works of art.  
**Note 8.**— In all curved-line exercises pupils may lay lentils, split peas, bits of twine of equal length, or make lines with crayon or pencil.
95. An Exercise in **Repetition with Alternation of Simple Curves.**  
Repeat simple curves in a row, with alternate change of attitude, producing the meander movement.  
Find similar examples in nature and in works of art.
96. An Exercise in **Balance: Simple Curves.**  
(a) **Axial.**— Arrange simple curves in right and left balance on a vertical axis.  
Find similar balance arrangements in nature and in works of art.  
(b) **Central.**— Arrange four simple curves in a left-and-right balance on a vertical axis with balance on a center. Balance four simple curves radiating from a center in regular order of repetition.  
Find similar examples in nature and in works of art.
97. An Exercise in **Sequences of Progression: Simple Curves.**  
Arrange simple curves in (a) a measure sequence, using two balanced curves and increasing the angle of divergence, small to large; (b) in a size sequence, small to large or large to small, in a row; (c) in a number sequence, three or five, diminish to one.  
Find similar examples in nature and in works of art.
98. Review square.  
Fold and cut a 6-inch square from 6 by 9 sheet of drawing paper.

**99. An Exercise in Repetition in a Field: Squares.**

Arrange sixteen 1-inch square tablets not quite touching in form of a square area.

Repeat the above exercise with colored tablets on a white background, using circles or squares. For each exercise use but one color.

**Note 9.**— These color repetition exercises in “all over” patterns may be of greater value if each row of pupils uses a different color, **pupils being allowed to see the effect in all six colors.**

**100. An Exercise in Repetition: Squares.**

Fold the 6-inch square previously cut to form sixteen small squares.

**101. Exercises in Color Alternation.** (In a square area.)

Repeat with alternation, using colored tablets, squares or circles, the following related colors: Orange and yellow, orange and red, green and blue, green and yellow, violet and red, violet and blue.

**102. Teach the children to recognize Color Sequence in Related Colors, selecting the warm colors — yellow, orange, red.**

Use tablets, pegs, crayons, etc.

**103. Teach the children to recognize Color Sequence in Related Colors, selecting the cool colors — violet, blue, green.**

Use tablets, pegs, crayons, etc.

**JUNE.****104. An Exercise in Repetition — Color Sequences Y. O. R., V. B. G.**

Repeat the sequence Y. O. R. in a row at regular intervals.

Repeat the sequence V. B. G. in a row at regular intervals.

Use tablets, pegs, or crayons. Balance on a center, using pegs.

**105. An Exercise in Tone Balance: Value.**

Repetition with alternation of black and white.

Divide by ruled lines, 1 inch apart, a 4-inch square into sixteen 1-inch squares. Fill in with black crayon every alternate square.

**106. An Exercise in Tone Balance: Color.**

**Repetition with Alternation of Complementary Colors.**

Repeat with alternation in a row and in a square area, warm and cold or complementary colors — red and green, violet and yellow, blue and orange. Use tablets, pegs, etc.

**107. Exercises in Tone Balance: Intensity.**

Repetition of bright and dull color.

Repeat units at regular intervals in a row and in a field. These exercises are rhythmic in character, the class counting aloud in unison while drawing. The counting touches are made with the duller crayons, green, black or brown. A bright color touch is added afterwards without counting. The units may be composed of a combination of elements, and the counting "one-two," "one-two-three" or "one-two-three-four."

**108. An Exercise in Tone Balance and Tone Sequence.**

Arrange the six standard colors in related order in a row and in a circle to form the spectrum. Use crayons or tablets.

Find a similar color arrangement in nature. Prismatic colors. Rainbow.

**DRAWING. GRADE I.****OCTOBER THROUGH JUNE.****REPRESENTATION.****Time.**

There are fifty-six lessons in this course, two twenty-minute lessons each week, leaving out two weeks in January to be devoted to lettering.

**Note.**— The papers should be numbered 1, 2, 3, etc., to show progress. See general note on Representation, pages 8, 9, 10, 11.

**Exercises.**

1. Draw a man.
2. Repeat the exercise.
3. Draw a man standing, front view, with feet close together. Color the face, hands, coat, trousers, etc.
4. Draw a man standing with one arm out straight and one at his side.
5. Draw a man with one arm at his side and one arm bent, with his hand on his hip.
6. Draw two men standing together, looking at you.
7. Draw a woman standing with feet close together.
8. Repeat the exercise.
9. Draw a man and woman standing together, looking at you.
10. Draw a man turned to the right, with feet together.
11. Draw a man turned to the left, with feet together.



12. Draw a woman, side view, turned to the left, with feet close together.
  13. Draw a man and woman talking together.
  14. Repeat the exercise.
  15. Draw a man bowing to a woman and lifting his hat.
  16. Draw a man shaking hands with a woman.
  17. Draw a man, side view, walking to the right.
  18. Draw a man, side view, walking to the left.
  19. Draw a woman, side view, walking to the right.
  20. Draw a woman, side view, walking to the left.
  21. Draw a man and boy standing together, looking at you.
  22. Draw a man and a girl standing together, looking at you.
  23. Draw a man and boy, side view, talking together.
  24. Draw a man and a girl, side view, talking together.
  25. Draw a man and a little girl, side view, both looking to the right.
  26. Draw a man, woman and little girl talking together.
  27. Draw a man, woman and little boy walking together.
  28. Draw a woman with a boy and girl walking together.
  29. Draw a woman, side view, bending over to fix a little girl's hair ribbon.
  30. Draw a woman, side view, bending over to fix a little girl's hat.
- 31 to 56. Continue to draw men, women, boys and girls in various attitudes and easy combinations. Add necessary objects such as tools, utensils and playthings to explain the actions of the figures. Try constantly to improve the shapes and proportions of each figure. Color the faces, hands and clothing to suggest real people. Keep looking at people to get a better and better idea of how they look. Try to remember the shapes and colors so that your pictures will tell the facts.

## DRAWING. GRADE II.

There are seventy-one exercises in this series to be followed in consecutive order, three twenty-five minute periods each week.

### SEPTEMBER. DESIGN.

#### COLOR.

1. Review the **Six Standard Colors**, Red, Orange, Yellow, Green, Blue and Violet.

Arrange six 1-inch squares in a row or six 1-inch circles in the order of a circle, placing the circles in spectrum order. In the circle place yellow at the top.

2. An Exercise in **Sequences of Repetition.**

Select a shape and arrange at regular intervals in a row and in a field, (a) single, (b) grouped, (c) near together, (d) far apart. Make several variations.

**Note 1.**— For arrangements on the desks use pegs, tablets, seeds, etc. For drawing exercises use pencil, colored crayons or match sticks with water color or ink. In all “repetition in a row” exercises there should be vertical and horizontal and diagonal arrangements.

3. Find examples of **repetition** in nature and in works of art.

4 and 5. Exercises in **Sequences of Alternation.**

Select a shape and repeat **in a row** and **in a field** with the following changes in **alternation**: (a) change in attitude, (b) change in size, (c) change in shape, (d) change in number, (e) change in color, (f) change in value, black, white, (g) change in intensity, bright, dull. (See Note 1.)

6. Find examples of sequences of alternation in nature and in works of art.

7. An Exercise in **Sequences of Progression.**

Select a shape and repeat in a row, in an area and in a field, small to large, large to small, increasing or decreasing in size or number in orderly progression. (See Note 1.)

Find examples of similar sequences in nature and in works of art.

## OCTOBER. DESIGN.

8. An Exercise in **Balance.**

(a) **Axial.**— Arrange two or more motives of some chosen shape in right and left balance on a vertical axis.

(b) **Central.**— Select a shape and balance in fours, eights, sixteens, and in threes, sixes and twelves, on a vertical axis with balance on a center.

Select a shape and balance in threes, fours, sixes, sevens, etc., on a center. (See Note 1.)

10. An Exercise in **Sequences of Repetition: Color.**

Arrange colored tablets, circles or squares, at regular intervals in a row and in a square field. Repeat with each of the six standards, using colored pegs, seeds, papers, crayons or match sticks with color.

**Note.**— These simple exercises in harmony building with color may be supplemented by correlation with other primary work, busy work, number work, and manual training in stringing beads, weaving mats, and sewing-card exercises, etc.

11. Teach the children to recognize the Ellipse.  
Find similar shapes in nature and in works of art.
12. An Exercise in **Sequences of Repetition: Ellipses.**  
Arrange ellipses in a row at regular intervals, (a) single, (b) grouped, (c) near together or touching, (d) far apart. Make several variations, using tablets.  
Find similar examples in nature and in works of art.
13. An Exercise in **Sequences of Alternation: Ellipses.**  
Repeat ellipses in a row at regular intervals with the following changes in alternation: (a) change in attitude, (b) change in size, (c) change in number, (d) change in shape.  
Find similar examples in nature and in works of art.
14. An Exercise in **Balance.**  
(a) **Axial.**— Balance two ellipses right and left on a vertical axis.  
Balance six ellipses right and left on a vertical axis.  
Find similar arrangements in nature and in works of art.  
(b) **Central.**— Balance four ellipses right and left on a vertical axis with balance on a center.  
Balance ellipses on a center in threes and sixes, in fours and eights and in fives.
15. Find similar arrangements in nature and in works of art.
16. An Exercise in **Sequences of Progression: Ellipses.**  
Arrange ellipses in a row, in a field and in an elliptical area, increasing or decreasing in number or size in orderly progression.  
Use lentils, seeds, tablets, etc. (See Note 1.)  
Find similar arrangements in nature and in works of art.

### NOVEMBER. DESIGN.

17. An Exercise in **Sequences of Alternation: Related Colors.**  
Repeat circles or squares (colored tablets) in a row and in a field (repetition of rows) with alternation of closely related colors.  
For each exercise use but two colors: Red and Orange, Orange and Yellow, Yellow and Green, Green and Blue, Blue and Violet, Violet and Red.
18. An Exercise in **Sequences of Alternation: Related Colors.**  
Repeat the above exercise, using colored crayons, pegs or match sticks dipped in water color or ink.

19. An Exercise in **Sequences of Alternation: Complementary Colors.**

Repeat with alternation in a row and in a field (repetition of rows) complementary colors, Yellow and Violet, Red and Green, Orange and Blue, using colored tablets, pegs or crayons, or match sticks and water color.

20. An Exercise in **Sequences of Alternation: Value. Extreme Contrasts, Black and White.**

Repeat black and white with alternation in a row and in a square or oblong area. Use white paper and black crayon on a gray background or white and black crayons on gray.

21. Teach the children to recognize the **Oval**. Find similar shapes in nature and in works of art.

22. An Exercise in **Sequences of Repetition: Ovals.**

Arrange oval tablets in a row at regular intervals, near together, far apart, single or grouped. Make several variations. Find similar arrangements in nature and in works of art.

23. An Exercise in **Sequences of Alternation: Ovals.**

Repeat ovals in a row at regular intervals with the following changes in alternation: (a) change in attitude, (b) change in size, (c) change in number, (d) change in shape. Find similar examples in nature and in works of art.

24. An Exercise in **Balance.**

(a) **Axial.**— Arrange two ovals in right-and-left balance on a vertical axis.

Find similar examples in nature and in works of art.

(b) Balance six or more ovals right and left on a vertical axis.

Find similar examples in nature and in works of art.

## DECEMBER. DESIGN.

25. **Central Balance.**— Balance ovals on a vertical axis with balance on a center in fours, eights, sixteens.

Balance ovals on a center in threes, fours, fives, sixes, etc.

Find similar arrangements in nature and in works of art.

26. An Exercise in **Sequences of Progression: Ovals.**

Arrange ovals (a) in a row, (b) in an oval area, and (c) in a field, increasing or decreasing in size or number in orderly progression.

Find similar sequences in nature and in works of art.

27. An Exercise in **Sequences of Progression: Related Colors.**  
 Using colored tablets, select three warm colors. Arrange in the order of close relationship, Yellow, Orange, Red.  
 Select three cold colors, arrange in similar manner, Violet, Blue, Green. Arrange a series, warm to cold. Arrange groups of three related colors in the order of relationship, *e. g.*,
- |          |          |
|----------|----------|
| Y. G. B. | V. R. O. |
| G. B. V. | R. O. Y. |
| B. V. R. | O. Y. G. |
28. An Exercise in **Sequences of Repetition: Color Sequences.**  
 Arrange units, representing a color sequence, at regular intervals in a row, *e. g.*, Y. O. R., Y. O. R., Y. O. R.  
 Use tablets, pegs, colored paper, crayon or match sticks with water color.  
 Repeat the exercise with other color sequences.
29. Teach the children to recognize the **Equilateral Triangles.**  
 Find similar shapes in nature and in works of art.
30. An Exercise in **Sequences of Repetition: Equilateral Triangles.**  
 Arrange equilateral triangles in a row at regular intervals, near together, far apart, single or grouped. Make several variations.  
 Find similar examples in nature and in works of art.

### JANUARY. DESIGN.

31. An Exercise in **Sequences of Alternation: Equilateral Triangle.**  
 Repeat equilateral triangles in a row at regular intervals, with the following changes in alternation: (*a*) change in attitude, (*b*) change in shape, (*c*) change in number, (*d*) change in size.
32. An Exercise in **Balance: Equilateral Triangles.**  
 (*a*) **Axial.**— Arrange two equilateral triangles in left and right balance on a vertical axis. Balance six or more equilateral triangles left and right on a vertical axis.  
 Find similar examples in nature and in works of art.
33. An Exercise in **Central Balance.**  
 (*b*) **Central.**— Balance four equilateral triangles right and left on a vertical axis with balance on a center.  
 Find similar examples in nature and in works of art.  
 Arrange equilateral triangles balanced on a center in threes, fours, fives, sixes, etc.  
 Find similar examples in nature and in works of art.

34. An Exercise in **Sequences of Progression: Equilateral Triangles.**  
 Arrange equilateral triangles (*a*) in a row, (*b*) in an area, and (*c*) in a field, increasing or decreasing the size or number in orderly progression.  
 Find similar sequences in nature and in works of art.
35. An Exercise in **Sequences of Repetition: Tone Balance, Color (Extreme Contrasts, Complementary Colors).**  
 Repeat groups of colored tablets representing any two complementary colors in a row at regular intervals.  
 Repeat the exercise with other pairs of complementary colors, using tablets, pegs, crayons or match sticks with water color.  
 Find similar color balance in nature and in works of art.
36. An Exercise in **Sequences of Repetition: Tone Balance; Values (Extreme Contrasts, Black and White).**  
 Through the middle of a 2-inch wide strip of gray drawing paper, outline a row of 1-inch circles, squares or other shapes in groups of two; with black and white crayons fill in each group.

### FEBRUARY. DESIGN.

- 37 to 40. Exercises in **Sequences of Repetition: Tone Balance (Intensity, Bright and Dull Color).**  
 With colored crayons make units composed of one or more elements, arranging them in a row or in a field by repetition of rows.  
 These exercises are rhythmic in character, the class counting aloud in unison while drawing.  
 The counting touches are made with the duller crayons, greens, black, brown. A touch of bright color is added afterwards without counting.  
 Find similar examples of bright and dull color in nature and in works of art.
41. An Exercise in **Tone Balance and Tone Sequence.**  
 Arrange the six standard colors in related order in a row, and in a circle to form the spectrum, using crayons.  
 Place yellow at the top of the circle.  
 Find similar examples in nature of tone sequence and tone balance.
42. Teach the children to recognize the **Isosceles Triangle.**  
 Find similar shapes in nature and in works of art.

43. An Exercise in **Sequence of Repetition: Isosceles Triangle.**  
 Arrange isosceles triangles in a row at regular intervals, near together, far apart, single and grouped.  
 Make several variations.

### MARCH. DESIGN.

44. An Exercise in **Sequences of Alternation: Isosceles Triangles.**  
 Repeat isosceles triangles in a row at regular intervals with the following changes in alternation: (a) change in attitude, (b) change in size, (c) change in number, (d) change in shape.
45. An Exercise in **Balance: Isosceles Triangles.**  
 (a) **Axial.**— Arrange two isosceles triangles in right and left balance on a vertical axis. Balance six or more isosceles triangles right and left on a vertical axis.  
 Find similar examples in nature and in works of art.
46. (b) **Central Balance.**— Arrange four isosceles triangles in left and right balance on a vertical axis with balance on a center.  
 Repeat with eight.  
 Balance isosceles triangles on a center in threes, fours, fives and multiples.  
 Find similar examples in nature and in works of art.
47. An Exercise in **Sequences of Progression: Isosceles Triangles.**  
 Arrange isosceles triangles (a) in a row, (b) in an area, (c) in a field, increasing or decreasing in size or number in orderly progression.
48. Teach the children to recognize **parallel** directions. Draw parallel, vertical and horizontal lines.  
 Find examples in nature and in works of art.
49. Fold and cut a 6-inch square from 6 by 9 inch sheet of drawing paper.  
 Make three folds forming four parallel strips.  
 Make folds at right angles forming an area of squares.
50. An Exercise in **Sequences of Alternation: Oblique lines.**  
 Repeat oblique lines with left and right **alternation**, in a row, touching, forming the zigzag movement.  
 Repeat the exercise, using long oblique and short vertical.  
 For each line arrangement use but one color. Make several arrangements, each with a different color.  
 Find examples of zigzag movement in nature and in works of art.  
**Note.**— These two-line exercises in Repetition with Alternation may be rhythmic counting exercises, counting "one-two," and drawing with crayons.

51. An Exercise in **Sequences of Alternation: Right Angles, or Vertical and Horizontal lines.**  
Repeat right-angles, touching, with change in attitude forming the Greek fret.  
For each line arrangement use but one color; make several arrangements, each with a different color.  
Find this arrangement in works of art.
52. An Exercise in **Sequences of Alternation: Simple Curves.**  
Repeat simple curves in a row, touching, with up-and-down change in attitude forming the **meander** movement.  
Find examples of the meander movement in nature and in works of art.

### APRIL. DESIGN.

53. Exercises in **Sequences of Repetitions (in a field): Color.**  
Outline sixteen 1-inch squares arranged, not quite touching, in form of a square.  
Repeat with circular tablets, touching.  
Use a white background and fill in each shape, thus outlined, with crayon, using but one color for each exercise.  
**Note:** These color exercises in "all over" patterns may be of greater value if each row of pupils uses a different color, all pupils being allowed to **see the effect in all six colors.**  
Use tablets if drawing is too difficult.
54. An Exercise in **Sequences of Repetition.**  
Using tablets, allow each pupil to choose a shape he likes and to repeat it, single or grouped, at regular intervals, in a row and in a field, forming a square or oblong area.
55. Repeat the above with pegs, seeds, lentils.
56. Repeat the above with colored crayons or match sticks and water color.
57. An Exercise in **Sequences of Alternation.**  
Using tablets, each pupil may select a shape he likes and repeat in a row with his own choice of change in alternation.
58. Repeat the above exercise with pegs, seeds, lentils, etc.
59. Repeat the preceding exercise, using colored crayons or match sticks with water color or ink.

### MAY AND JUNE. DESIGN.

60. Exercises in **Axial Balance**, using (*a*) two tablets, (*b*) six or more tablets. Ask each pupil to make several arrangements of right and left balance on a vertical axis, making his own choice of shapes.



61. Repeat the preceding exercise, using pegs, seeds, lentils, etc.
62. Repeat the preceding exercise, using colored crayons or match sticks with water color.
63. Exercises in **Central Balance** (using tablets). Ask each pupil to make several arrangements of right-and-left-balance on a vertical axis with balance on a center, making his own choice of shapes.
64. Repeat the preceding exercise, using pegs, seeds, lentils, etc.
65. Repeat the preceding exercises, using colored crayons or match sticks with color.
66. Exercises in **Central Balance**.  
Using tablets, the pupils may make several arrangements of balance on a center in threes and multiples of three; fours and multiples of four; fives and multiples of five, making their own choice of shapes.
67. Repeat the preceding exercise, using pegs, lentils, seeds, etc.
68. Repeat the preceding exercise, using colored crayons or match sticks and color.
69. Exercises in **Sequences of Progression** (using tablets).  
Ask the pupils to make their own choice of shapes and arrange them (*a*) in a row, (*b*) in an area, and (*c*) in a field, increasing or decreasing in number or size in orderly progression.
70. Repeat the preceding exercise, using pegs, lentils, seeds.
71. Repeat the preceding exercise, using colored crayons or match sticks and color.

**DRAWING. GRADE II.**  
**OCTOBER THROUGH JUNE.**  
**REPRESENTATION.**

**Time.**

There are sixty-one lessons in this series; two twenty-minute lessons each full week.

October, 8 lessons.

March, 8 lessons.

November, 7 lessons.

April, 6 lessons.

December, 6 lessons.

May, 8 lessons.

January, 8 lessons.

June, 4 lessons.

February, 6 lessons.

**Note.**—The papers should be numbered 1, 2, 3, etc., to show progress.

See general note on Representation, pages 8, 9, 10, 11.

**Exercises.**

1. Draw a mother and a little girl standing together.
2. Draw a little girl walking toward her mother, who is standing still.
3. Draw a mother taking something from a little girl's hand.
4. Draw a father and a little boy standing together.
5. Draw a father and a little boy walking together.
6. Draw a father and a boy and girl standing together.
7. Draw two boys walking together.
8. Draw two girls talking together.
9. Draw a tree.
10. Repeat the exercise, trying to draw a better tree.
11. Go to the window or out of doors to look at a tree. Draw it from memory. Learn the name of the tree; elm, maple or birch.
12. Draw a little girl standing near a tree.
13. Draw a mother and a little girl standing near a tree. Make the picture tell the kind of tree.
- 14 and 15. Draw an elm tree. Draw a mother and two children under the tree.
16. Draw two trees side by side.
17. Draw three boys under the trees playing with a ball.
18. Draw a toy cart.
19. Study a toy cart to learn how to make a wheel. Study the **circle** and practice drawing circles at the blackboard and on paper. Mark the center first. Draw one line out for a **radius** and then carry the line slowly around to make the circle, keeping the same distance from the center all the way. Select the best circle you have made and add enough **radii** to make the spokes of the wheel.
20. Draw a cart wheel. Draw the box or body of the cart. Add the handle, showing how it slants when the handle rests on the ground.
21. Draw a boy pulling a toy cart.
- 22 and 23. Draw a tree. Draw a boy pulling a cart near the tree.
24. Draw a girl sitting in a cart.
- 25 and 26. Draw two or three trees. Near the trees draw a boy giving his little sister a ride in his cart.
27. Study **vertical**, **horizontal** and **oblique** lines. Practice drawing vertical lines at the blackboard and on paper. Draw steadily **down**. Draw steadily **up**, thinking of the direction all the time. Learn to use long vertical lines as keys to all the others. Try to represent the true slant of oblique lines by comparing them with vertical or horizontal ones.

28. Study and draw objects involving long straight lines in various positions.
- 29 and 30. Draw a fence, made of vertical boards fastened to horizontal pieces. Near the fence draw two or three trees. Draw a boy with a cart near the trees.
- 31 to 61. Continue to draw men, women, boys and girls in various attitudes and easy combinations. Make a special study of trees, learning as many kinds as possible. Add appropriate objects such as tools and playthings to explain the actions of the figures. Make study drawings of new objects as they are introduced. Try constantly to improve the shapes and proportions of each object. Color the faces, hands and clothing of figures to suggest real people. Keep looking at people and trees to get a better idea of how they look so that the pictures may improve.

## DRAWING. GRADE III.

### DESIGN.

There are seventy exercises in this series to be followed in consecutive order — two thirty-minute periods each week.

### SEPTEMBER. DESIGN.

1. An Exercise in **the Study of Tone Contrast: Light and dark.**  
Teach the children to recognize light and dark color and to distinguish different degrees of light and different degrees of dark; *e. g.*, select a color — find one lighter; find one darker, etc. Select a light color — find one lighter. Select a dark color — find one darker.
2. An Exercise in **Tone=Study. Value — Middle Gray.**  
Lead the children to recognize **middle gray**, the half-way step between white and black in the standard scale of values. Outline a row of circles, squares or oblongs arranged at regular intervals, and color middle gray with crayon.
3. An Exercise in **Tone=Relations — Sequence — Value, Neutral Gray.**  
Show the pupils the neutral value scale. Find middle gray and arrange a scale white to black (white, middle gray, and black). Use crayons, paper or water-color.

4. An Exercise in **the Study of Tone=Sequence. Color, Yellow.**  
Neutralization to white; yellow — full intensity; yellow — one half neutralized to white, and white.  
Show the pupils standard yellow, neutralized to white. Find a half-way step to white and arrange in a scale of yellow to white, three steps. Use colored paper. Paste on a neutral gray background.
5. An Exercise in **the Study of Tone=Sequence. Color, Yellow. Scale, Yellow, Dark=Yellow and Black.**  
Show the pupils standard yellow neutralized in the scale of nine values to black. Find a half-way step to black and arrange in a scale of three steps, yellow to black — **Yellow, Dark=Yellow and Black.** Paste on a neutral gray background.

### OCTOBER. DESIGN.

6. Find examples of standard yellow, light and dark, in nature and in works of art.
7. An Exercise in **Repetition with Size Alternation. Color, Yellow.**  
With the  $\frac{1}{2}$ -inch and 1-inch circular tablets as patterns, pupils may outline three of each, placing alternately in a row at regular intervals through the middle of a 2-inch wide strip of white drawing paper. "Paint" bright yellow with colored crayon.
8. An Exercise in **Repetition with Tone=Alternation — Value and Intensity. Light Yellow and Normal Yellow.**  
With the circular tablet as a pattern the pupils may outline and cut from colored paper six circles, three light and three normal standard yellow. They may be pasted (alternating the two values) in a row at regular intervals. Use a 2-inch wide strip of white or neutral gray paper.
9. An Exercise in **Repetition with Tone=Alternation — Value, Black and White.**  
Select gray paper and any geometric shape and draw six outlines in a row at regular intervals. Using black and white crayons, "paint" the squares black and white alternating the tones.
10. An Exercise in **Recognition of Tone=Sequence. Color, Orange. Scale, Orange, Light=Orange and White.**  
Show the pupils standard orange, neutralized to white and to black, in the scale of nine values. Find a half-way step to white and arrange in a scale of orange to white. (Three steps.) Use colored paper. Paste on a neutral gray background.

11. An Exercise in **Recognition of Tone=Sequence. Color, Orange. Scale, Orange, Dark=Orange and Black.**

Show pupils standard orange neutralized to black in the scale of nine values. Find a half-way step to black and arrange in a scale of three steps, orange to black. Paste on a neutral gray background.

12. Find examples of **Standard Orange, light and dark**, in nature and in works of art.

13. An Exercise in **Repetition with Size Alternation. Color, Orange.**

With the  $\frac{1}{2}$ -inch and 1-inch square tablets as patterns, pupils may outline three of each, placing large and small alternately in a row at regular intervals through the middle of a 2-inch wide strip of white drawing paper. "Paint" bright orange with colored crayon.

14. An Exercise in **Repetition with Tone=Alternation — Value and Intensity.** (Light and bright orange.)

With the square tablet as a pattern, the pupils may outline and cut from colored paper six squares, three light and three bright orange. Alternate the two values in a row at regular intervals through the middle of a 2-inch strip of white or neutral gray paper.

### NOVEMBER. DESIGN.

15. An Exercise in **Repetition with Tone=Alternation — Value, Middle Gray and White.**

Select any geometric shape and draw six outlines in a row at regular intervals. Using middle gray crayon, "paint" every alternate square middle gray.

16. An Exercise in **Recognition of Tone=Sequence. Color, Red.**

Show the pupils standard red, neutralized to white in the scale of nine values. Find a half-way step to white and arrange in a scale, red to white (three steps). Use colored paper. Paste on neutral gray background.

17. An Exercise in **Recognition of Tone=Sequence. Color, Red.**

Show pupils standard red neutralized to black in the scale of nine values. Find a half-way step to black and arrange in a scale of three steps, red to black. Use colored paper. Paste on a neutral gray background.

18. Find examples of standard red, light and dark, in nature and in works of art.

19. An Exercise in **Repetition with Size=Alternation. Color, Red.**  
 With the  $\frac{1}{2}$ -inch and 1-inch wide oblong tablets as patterns, pupils may outline two or three of each, placing large and small alternately in a row at regular intervals through the middle of a 2-inch wide strip of white drawing paper. "Paint" bright red with colored crayon.
20. An Exercise in **Repetition with Tone=Alternation — Value and Intensity.** (Light and bright red.)  
 With the oblong tablet as a pattern the pupil may outline and cut from colored paper four or five oblongs, two or three bright red and two or three light. Alternate the two values in a row at regular intervals through the middle of a 2-inch strip of white or neutral gray paper.
21. An Exercise in **Repetition with Tone=Alternation — Value, Middle Gray and Black.**  
 Select any geometric shape and draw six outlines in a row at regular intervals. Using middle gray and black crayons, alternate the two tones in a sequence of repetition.
22. Exercise in **Recognition of Tone=Sequence. Color, Violet. Scale, Violet, Light-Violet and White.**  
 Show the pupils standard violet, neutralized to white in the scale of nine values. Find a half-way step to white and arrange in a scale of violet to white (three steps). Use colored paper. Paste on a neutral gray background.

### DECEMBER. DESIGN.

23. Find examples of standard violet, light and dark tones, in nature and in works of art.
24. An Exercise in **Repetition with Size=Alternation. Color, Violet.**  
 With the  $\frac{1}{2}$ -inch and 1-inch wide triangular tablets as patterns, pupils may outline three of each, placing large and small alternately in a row at regular intervals through the middle of a 2-inch wide strip of white drawing paper. "Paint" violet standard, using colored crayon.
25. An Exercise in **Repetition with Tone=Alternation — Value and Intensity.** (Light and normal violet.)  
 With the triangular tablet as a pattern, the pupil may outline and cut from colored paper six violet triangles, three light and three normal violet. Alternate the two values in a row at regular intervals through the middle of a 2-inch strip of white or gray paper.

26. Review **Diameter** by drawing and folding exercises.  
 Fold and cut a square. Fold opposite edges together, forming the diameters. (See Manual Training.)  
 Fold and cut an oblong. Draw the diameters.
27. Exercise in **Recognition of Tone-Sequence. Color, Blue. Scale, Blue, Light=Blue and White.**  
 Show the pupils standard blue neutralized to white, in the scale of nine values. Find a half-way step to white and arrange in a scale of blue to white, three steps. Use colored paper. Paste on a neutral gray background.
28. An Exercise in **Recognition of Tone-Sequence. Color, Blue. Scale, Blue, Dark=Blue and Black.**  
 Show the pupils standard blue neutralized to black in the scale of nine values. Find a half-way step to black, and arrange in a scale of three steps, blue to black (blue, dark-blue and black). Paste on a neutral gray background.

### JANUARY. DESIGN.

29. Find examples of standard blue, light and dark tones, in nature and in works of art.
30. An Exercise in **Repetition with Size=Alternation. Color, Blue.**  
 With the  $\frac{1}{2}$ -inch and 1-inch elliptical tablets as patterns, pupils may outline three of each, placing large and small alternately in a row at regular intervals through the middle of a 2-inch wide strip of white drawing paper. "Paint" bright blue with colored crayon.
31. An Exercise in **Repetition with Tone=Alternation — Value and Intensity.** (Light and bright blue.)  
 With the elliptical tablet as a pattern, the pupil may outline and cut from colored paper five or six ellipses, two or three light and two or three bright blue. Alternate the two values in a row at regular intervals through the middle of a 2-inch strip of white or neutral gray paper.
32. Review **Diagonal** by drawing and folding.  
 Fold and cut a square. Fold one corner to meet the opposite corner, forming a diagonal. Make a second fold, forming the second diagonal. (See Manual Training.)  
 Fold and cut an oblong. Draw the diagonals.

33. Exercise in **Recognition of Tone=Sequence. Color, Green. Scale, Green, Light=Green and White.**

Show the pupils standard green, neutralized to white in the standard scale of nine values. Find a half-way step to white and arrange in a scale of green to white, three steps. Use colored paper. Paste on a neutral gray background.

34. An Exercise in **Recognition of Tone=Sequence. Color, Green. Scale, Green, Dark=Green and Black.**

Show the pupils standard green neutralized to black. Find a half-way step to black and arrange in a scale of three steps, green to black, **green, dark=green and black.** Paste on a neutral gray background.

35. Find examples of standard green, light and dark tones, in nature and in works of art.

36. An Exercise in **Repetition with Size=Alternation. Color, Green.**

With the  $\frac{1}{2}$ -inch and 1-inch oval tablets as patterns, pupils may outline three of each, placing large and small alternately in a row at regular intervals through the middle of a 2-inch wide strip of white drawing paper. "Paint" bright green with colored crayon.

## FEBRUARY. DESIGN.

37. An Exercise in **Repetition with Tone=Alternation — Value and Intensity.** (Light and bright green.)

With the oval tablet as a pattern, the pupil may outline and cut from colored paper five or six ovals, three light and three bright green. Alternate the two values in a row at regular intervals through the middle of a 2-inch strip of white or neutral gray paper.

38. Review horizontal, vertical and diagonal directions.

Using pegs, seeds, lentils, tablets, etc., pencil or crayon, arrange several rows in each of the above directions.

**Note.**— The sequences of order involving arrangements of dots and lines may be made on  $\frac{1}{4}$ -inch smooth squared paper (the  $\frac{1}{4}$ -inch square **web**), using pen and ink, pencil or colored crayons, or they may be made on drawing paper, plain or webbed, with colored crayons, match sticks with water color, or with pencil.

39. Exercises in **Sequences of Repetition: Dots. In a row, vertical, horizontal, diagonal.**



Arrange dots in a row at regular intervals, near together or far apart, single or grouped. These may be counting exercises, the pupils counting aloud while drawing, the sound, movement, and expression occurring simultaneously: 1—2 or 1—2—3 or 1—2—3—4. Use pencil or colored crayons. Use but one color for each separate exercise. Make many arrangements varying the tone, shape, attitude, position or measure for each new arrangement.

**Note.**—“The order of repetition is perfect when all the elements, tone, measure, shape, attitude, intervals, etc., are repeated, with no change or differences, one part being just like another.”

Split peas and lentils are excellent for use in the above arrangements as “busy work.”

40. Find examples of repetition of dots in nature.

41. An Exercise in **Sequences of Repetition: Dots.** In a field (a repetition of rows).

Arrange several rows of repetitions, in a field, left to right, in parallel order, at regular intervals. Arrange rows of repetitions, in an up-and-down or vertical direction and on diagonals.

Find examples of dot-repetition in works of art.

42. Exercise in **Sequences of Alternation: Dots.** In a row — In a field.

Arrange dots at regular intervals in a vertical, horizontal or diagonal row or in a field (repetition of rows), near together or far apart, single or grouped, with the following changes in alternation: measure, attitude, interval, number.

43. Find examples of alternation of dots in nature and in works of art.

44. Exercise in **Sequences of Alternation: Color. Value — The Six Standard Colors and Light and Dark.** (Dots. In a row — In a field.)

Arrange dots in a vertical, horizontal or diagonal row at regular intervals or in a field (repetition of rows), with alternation of the following colors: (a) warm and cold (complementary), **Orange and Blue, Green and Red, Violet and Yellow;** (b) **Light and Dark, Neutral Gray;** (c) **Light and Dark, color, e. g., light red and red, etc.** Use colored crayons or match sticks with water color. For neutral gray use pencil or crayon.

### MARCH. DESIGN.

45. Repeat the above exercise in **Sequences of Alternation of Color. Dots** — In a row and in a field, using related colors: **Orange and Yellow; Yellow and Green; Green and Blue; Blue and Violet; Violet and Red; Red and Orange.**

46. An exercise in **Sequence of Repetition: Lines.** (In a row.)

Arrange vertical, horizontal or oblique lines in a vertical, horizontal or diagonal row at regular intervals, near together, far apart, single or grouped. These may be counting exercises, the pupils counting aloud while drawing, the sound, movement and expression occurring simultaneously. Use pencil or colored crayon and but one color for each separate exercise. Make many arrangements, varying the tone, shape, attitude, position or measure for each new arrangement.

**Note.**— Lines used in these exercises may be straight, curved or angular in shape. In tone they may be red, orange, yellow, green, blue or violet, or neutral gray. In measure, long, short, wide, narrow, and one or more in number. In attitude, the original or its inversions; turned on a center, the original may thus present a great variety of attitudes. In interval, long or short or equal.

47. An Exercise in **Sequences of Repetition: Lines.** (In a field.)

Arrange rows of line-repetitions in parallel order, vertical, horizontal or diagonal in direction.

**Note:** The sequences of line repetition and alternation suggest many ideas for color and design in busy work with "card-sewing" exercises.

Find similar effects of line-repetition in nature and in the handiwork of man. Note the infinite variety of similar effects in the many weaves of fabrics.

48. An Exercise in **Sequences of Alternation: Lines.** (In a row.)

Arrange vertical, horizontal and oblique lines in a vertical, horizontal or diagonal row at regular intervals, near together, far apart, single or grouped, with the following changes in alternation: Measure (size, number and length), shape, interval and attitude.

### APRIL. DESIGN.

49. An Exercise in **Sequences of Alternation of Tone: Color; Six standards. Value, light and dark.** (Lines in a row and in a field.)

Arrange lines in a vertical, horizontal or diagonal row at regular intervals or in a field (repetition of rows), with alternation of the following colors: (a) Warm and Cold Colors (Complementary), **Orange and Blue; Green and Red; Violet and Yellow;** (b) Values, Light and Dark, **Neutral Gray,** (c) Light and Dark, **Color.**

**Note:** In alternating two units of unequal number or size, using the brighter color in the smaller measure gives a greater degree of color balance.

50. An Exercise in **Sequences of Progression of Measure (Dots).**  
Arrange dots at regular intervals in a row, increasing or decreasing in number in orderly progression.
51. Exercises in **Balance: Dots.**  
(a) **Axial.**— Arrange dots left and right on a vertical axis.  
(b) **Central.**— Arrange dots left and right on a vertical axis with balance on a center.
52. Arrange dots around a center at equal distances in threes, fours, fives, sixes, sevens, eights, etc., and multiples.  
Find examples of similar forms of balance in nature and works of art.
- 53, 54, 55. Exercises in **Sequences of Progression: Straight Lines.**  
Arrange straight lines at regular or irregular intervals in a row and in a field, increasing or decreasing in measure in orderly progression.  
Find similar examples in nature and in works of art.

## MAY. DESIGN.

56. Exercise in **Balance: Straight lines.**  
(a) **Axial.**— Arrange two straight lines in a balance of equal opposition of measure, shape, etc. Arrange two straight lines in a right and left balance on a vertical axis.  
(b) **Central.**— Balance six or more straight lines right and left on a vertical axis.
57. **Central Balance — Continued.**  
Arrange four or more straight lines in a right and left balance on a vertical axis with balance on a center.  
Arrange lines balancing on a center radiating at equal diverging angles, in three and multiples of three; four and multiples of four; five and multiples of five.  
Find examples of similar forms of line balance in nature and in works of art.

58. An Exercise in **Axial Balance: Symmetry — Tablet laying.**  
Find two circles. Arrange in right and left balance on a vertical axis. Make many similar arrangements, using different geometric shapes.
59. An Exercise in **Axial Balance: Symmetry.**  
Draw geometric shapes, balanced left and right on a vertical axis. Draw several different pairs. Use square web paper or plain drawing paper.
60. An Exercise in **Central Balance: Tablets.**  
Arrange tablets in left and right balance on a vertical axis with balance on a center. Make arrangements with many different shapes. Use one for center.
61. An Exercise in **Central Balance.**  
Draw geometric shapes balanced left and right on a vertical axis with balance on a center. Make several arrangements, using different shapes. The paper may be plain drawing paper or the "square web."
62. An Exercise in **Central Balance: Tablets.**  
Select a number of circles, ovals, ellipses, triangles, oblongs, semicircles or squares. Arrange a central balance of three, four, five, six, seven or eight. Tablets, same shape and size. Arrange in threes and sixes, four and eights, fives and tens.

### JUNE. DESIGN.

63. An Exercise in **Balance: Drawing.**  
Repeat the preceding lesson, using tablets. Ask each pupil to select the arrangement he likes and make a drawing on paper, in tone, using his own choice of color.
64. An Exercise in **Measure Sequence and Tone Sequence: Warm Colors, Cool colors.**  
Select any geometric shape in the  $\frac{1}{2}$ -inch size. Draw. Use square web paper. Starting with the  $\frac{1}{2}$ -inch size, arrange a symmetrical sequence, small to large, three steps, increasing in ratio 1:2. Paint with colored crayon warm colors, yellow to red, *i. e.*, yellow, orange, red.  
Draw another measure sequence, using a different shape. Paint with colored crayons, using cool colors, green, blue, violet.
65. An Exercise in **Measure Sequence and Tone Sequence: Related color.**

Repeat the preceding exercise, using sequences differing in shape and color. Select three related colors, *e. g.*:

R. O. Y.	G. B. V.
O. Y. G.	B. V. R.
Y. G. B.	V. R. O.

## DRAWING. GRADE III.

### OCTOBER THROUGH JUNE.

### REPRESENTATION.

#### Time.

There are thirty-two lessons in this series, one thirty-minute lesson each week.

October, 5 lessons.	March, 4 lessons.
November, 4 lessons.	April, 3 lessons.
December, 3 lessons.	May, 4 lessons.
January, 4 lessons.	June, 2 lessons.
February, 3 lessons.	

**Note.** The papers should be numbered 1, 2, 3, etc., to show progress. See general note on representation, pages 8, 9, 10, 11.

#### Exercises.

1. Draw a man going to work. Show how he is dressed. Has he anything in his hands?
2. Draw a tipcart.
3. Draw a horse, side view, standing still, without harness.
4. Draw a horse, side view, standing still, with harness.
5. Study a real horse, out of doors. Draw a horse and tipcart or wagon.
- 6 and 7. Draw a man feeding his horse, harnessed to a wagon.
8. Draw a horse, side view, drinking from a pail or watering trough.
9. Draw a horse, side view, standing still while a man loads the wagon.
10. Draw a horse walking, pulling a wagon, with a man driving. Show that the wagon is loaded.
- 11 and 12. Draw a horse trotting, with a light load. Add trees, fence and other things to suggest the surroundings. Color everything its true color.
13. Draw a coal wagon, with the horse standing still.
- 14 and 15. Draw a man unloading the coal. Draw a boy and a girl watching him. Show how they are dressed. Draw the horse with a blanket on.

16. Draw a dog, standing, side view.
17. Draw a boy talking to his dog.
18. Draw a boy and a dog walking together.
19. Draw a boy and a dog running together.
- 20 and 21. Draw a boy giving a horse an apple, with the dog watching him. Draw the man who owns the horses. Add a fence or trees **behind** the group to suggest where they are.
- 22 to 32. Continue to draw people, vehicles and animals, doing various things. Make a special study of animals and introduce them into the pictures. Add appropriate objects such as tools and playthings to explain the actions of the figures. Make study drawings of new objects as they are introduced. Try constantly to improve the drawing of each object. Color the faces, hands and clothing of figures to suggest real people. Keep looking at people and things to get a better and better idea of how they look so that the pictures may improve.

SCHOOL DOCUMENT NO. 9-1918  
BOSTON PUBLIC SCHOOLS

SPECIAL SYLLABUS DRAWING  
AND MANUAL TRAINING

GRADES IV., V., VI., VII., VIII.



1918-1919

The subject matter of the "Special Syllabus Drawing and Manual Training, Grades IV.-VIII." is hereby approved.

FRANKLIN B. DYER,  
*Superintendent of Public Schools.*



## EQUIPMENTS.

Replenished in September on the basis of principals' reports for which blanks are furnished in March.

### DRAWING.

#### Grades IV., V., VI., VII., VIII.

ARTICLE.	Quota.
Water color brushes.....	1 to each pupil.
Water color boxes, long, with red, blue, yellow and black.....	1 to each pupil.
Water cups.....	1 to each pupil.
Pairs scissors, 6-inch (Grades VI. to VIII.).....	1 set to group.
In Grades IV. and V. use 6-inch manual training scissors.....	See Man. Tr.

### MANUAL TRAINING.

#### Cardboard Construction.— Grade IV.

ARTICLE.	Quota. (To be Used in Sets, Each Set Shared by Two Classes.)
Pairs scissors, 6-inch (for Drawing also).....	1 to 2 pupils.
Rules, $\frac{1}{2}$ -inch.....	1 to 2 boys.
Triangles.....	1 to 2 boys.
Compass attachments.....	1 to 2 boys.
Conductor's punches.....	1 to 10 boys.
Trybom's "Cardboard Construction".....	1 to class.

#### Bookbinding.— Grade V.

ARTICLE.	Quota. (To be Used in Sets, Each Set Shared by Two Classes.)
Pairs scissors, 6-inch (for Drawing also).....	1 to 2 pupils.
Rules, $\frac{1}{8}$ -inch.....	1 to 2 boys.
Triangles.....	1 to 2 boys.
Paste brushes.....	1 to 2 boys.
Eyelet punches.....	1 to 25 boys.
"Bookbinding for Beginners".....	1 to class.

## SUPPLIES.

Furnished in September on the basis of principals' reports for which blanks are issued in March. The amounts delivered plus any surpluses reported should equal quotas stated.

If supplies are not received by dates given, inquiry should be made of the master or assistant in charge. If it is found that they have not arrived in the district, inquiry should be made of the Supply Department. The quotas following have been carefully and generously revised, and, if supplies are distributed and used as indicated, there should be no necessity for further requisitions except in the cases where numbers prove larger than estimates or reports last sent in.

## GRADE IV.

## Drawing.

ARTICLE.	Annual Quota. To be Delivered September 13, 1918.
Drawing paper, gray, 9-inch by 12-inch.....	35 sheets to each pupil.
Drawing paper, manila, 9-inch by 12-inch.....	35 sheets to each pupil.
Drawing paper, white, 9-inch by 12-inch.....	12 sheets to each pupil.
Cross section paper, 9-inch by 12-inch, manila.....	4 sheets to each pupil.
Paste, tubes.....	1 to each class.
Pencils, E. Faber's No. 3200 B.....	1 to each pupil.
Cakes of color, yellow, red, blue and charcoal gray.....	1 each to each pupil.
Erasers.....	1 to 2 pupils.
Envelopes, 10-inch by 13-inch.....	1 to each pupil.

## Manual Training.

ARTICLE.	Annual Quota. To be Delivered September 13, 1918.
Gray twine.....	1 ball to 18 boys.
Pencils, Dixon's H.....	1 to each pupil.
Wrapping paper, 24-inch by 36-inch, light brown.....	1 sheet to each boy.
Bristol board, 22-inch by 28-inch, 3 colors.....	6 sheets to each boy.
Tubes of Stixit.....	1 tube to 4 boys.

## GRADE V. Drawing.

ARTICLE.	Annual Quota. To be Delivered September 13, 1918.
Drawing paper, gray, 9-inch by 12-inch.....	35 sheets to each pupil.
Drawing paper, manila, 9-inch by 12-inch.....	35 sheets to each pupil.
Drawing paper, white, 9-inch by 12-inch.....	12 sheets to each pupil.
Cross section paper, 9-inch by 12-inch, manila.....	4 sheets to each pupil.
Paste, tubes.....	1 to each class.
Pencils, E. Faber's No. 3200 B.....	1 to each pupil.
Envelopes, 10-inch by 13-inch.....	1 to each pupil.
Cakes of color, red, blue, yellow and charcoal gray.....	1 each to each pupil.
Erasers.....	1 to 2 pupils.

## Manual Training.

ARTICLE.	Annual Quota. To be Delivered September 13, 1918.
Needles, tapestry.....	1 paper to 25 boys.
Wrapping paper, 24-inch by 36-inch, light brown.....	1 sheet to each boy.
Newsboard, 13-inch by 19-inch.....	4 sheets to each boy.
Vellum de luxe, brown.....	1 yard to 2 boys.
Paper, Trimount Mills.....	1 ream to 25 boys.
Lining paper, brown, 20-inch by 26-inch.....	3 sheets to 2 boys.
Paste, powdered.....	1 pound to 20 boys.
Boxes of eyelets.....	1 box to 25 boys.
Balls macrame cord, brown.....	1 ball to 50 boys.
Cotton tape, $\frac{3}{8}$ -inch, white (4 yards).....	1 piece to 10 boys.
Bookbinders' thread.....	1 skein to 25 boys.
Yards "super".....	1 yard to 50 boys.

## GRADE VI.

## Drawing.

ARTICLE.	Annual Quota. To be Delivered September 13, 1918.
Drawing paper, gray, 9-inch by 12-inch.....	35 sheets to each pupil.
Drawing paper, manila, 9-inch by 12-inch.....	35 sheets to each pupil.
Drawing paper, white, 9-inch by 12-inch.....	12 sheets to each pupil.
Cross section paper, 9-inch by 12-inch, manila.....	4 sheets to each pupil.
Paste, tubes.....	1 to each class.
Pencils, E. Faber's No. 3200 B.....	1 to each pupil.
Cakes of color, red, blue, yellow and charcoal gray.....	1 of each to each pupil.
Envelopes, 10-inch by 13-inch.....	1 to each pupil.
Erasers.....	1 to 2 pupils.
Color charts.....	1 set of 25 to each building.
"Elementary Lettering" sheets.....	1 to each pupil.
"Elementary Lettering" charts.....	1 to each class.

## GRADE VII.

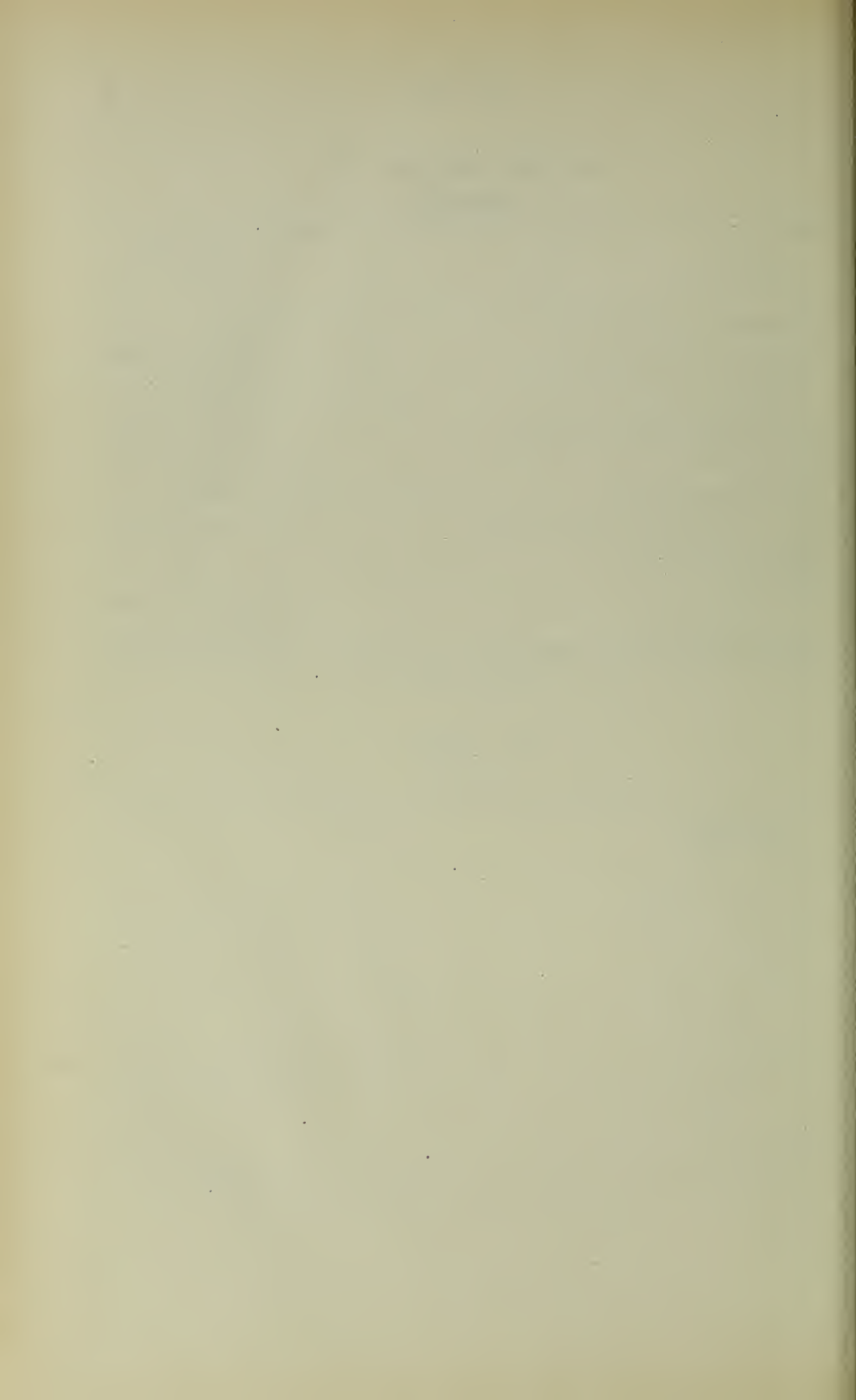
## Drawing.

ARTICLE.	Annual Quota. To be Delivered September 13, 1918.
Drawing paper, gray, 9-inch by 12-inch.....	35 sheets to each pupil.
Drawing paper, manila, 9-inch by 12-inch.....	35 sheets to each pupil.
Drawing paper, white, 9-inch by 12-inch.....	12 sheets to each pupil.
Cross section paper, 9-inch by 12-inch, manila.....	4 sheets to each pupil.
Paste, tubes.....	1 to each class.
Pencils, E. Faber's No. 3200 B.....	1 to each pupil.
Cakes of color, red, blue, yellow and charcoal gray.....	1 of each to each pupil.
Envelopes, 10-inch by 13-inch.....	1 to each pupil.
Erasers.....	1 to 2 pupils.
Color charts.....	1 set of 25 to each building.
Compasses, Eagle No. 576.....	1 set to each building.

**GRADES VIII. AND IX.**  
**Drawing.**

ARTICLE.	Annual Quota. To be Delivered September 13, 1918.
Drawing paper, gray, 9-inch by 12-inch.....	35 sheets to each pupil.
Drawing paper, manila, 9-inch by 12-inch.....	35 sheets to each pupil.
* Drawing paper, manila, 12-inch by 18-inch.....	2 reams each to each group of classes.
Drawing paper, white, 9-inch by 12-inch.....	12 sheets to each pupil.
Cross section paper, 9-inch by 12-inch, manila.....	4 sheets to each pupil.
Paste, tubes.....	1 to each class.
Pencils, E. Faber's No. 3200 B.....	1 to each pupil.
Cakes of color, red, blue, yellow and charcoal gray.....	1 of each to each pupil.
Envelopes, 10-inch by 13-inch.....	1 to each pupil.
Erasers.....	1 to 2 pupils.
Color charts.....	1 set of 25 to each building.
Compasses, Eagle No. 576.....	1 set to each building.

\* For special work.



## DRAWING. PRIMARY AND GRAMMAR GRADES. DESIGN.

### Aim.

To have the children see and feel the difference between Order and Disorder, and appreciate the value and importance of Order; to develop the Love of Order and, so far as possible, the Sense of Beauty.

The beautiful is simply the best of its kind — the supreme instance which gives the standard. To recognize and discover it is one of the chief interests of a civilized life.

### Subjects to be Considered.

A. The impressions of Vision; of light, of color, of positions, directions, measures, proportions and shapes.

B. The forms of Order as observed in Nature and in Works of Art.

A. The Impressions of Vision.

First discriminations:

I. Tones: Different effects of Light and Color.

a. Differences of Color; Red, Orange, Yellow, Green, Blue, Violet, and their intermediates; Violet-Red, Red-Orange, Orange-Yellow, Yellow-Green, Green-Blue, Blue-Violet.

b. Differences of Value in Colors: Colors light and colors dark; colors in different quantities of light.

c. Differences of Intensity in Colors: Colors bright, as in Spectrum Band, and colors dull; more or less neutralized, even completely neutralized.

II. Positions:

Recognition of different positions in the Field of Vision, the principal position being the center of the Field of Vision.

III. Directions:

Recognition of differences of direction in the Field of Vision: the Vertical; Up and Down; the Horizontal; Right and Left and the intermediate diagonal directions.

IV. Measures:

Recognition of different measures (large and small), of different sizes, distances and intervals, as observed in the Field of Vision; the diameter of the Field being the principal measure to which the others may be referred.

## V. Proportions:

The square gives the best standard of reference for Proportion; the height and width of the square being equal. We have in different rectangles the simplest expression of Proportion.

## VI. Shapes:

Recognition of differences of shape: Square, oblong, round, oval, etc.

The definition of all these differences (visual discriminations) by free-hand exercises in drawing and coloring: the exercises being carefully graded; the first being very simple and easy, preparing the pupil for those which follow, which should be increasingly difficult.

## B. Order as observed in Nature and in Works of Art.

The three forms or modes of Order:

1. Continuations, Recurrences or Repetitions.
2. Progressions or Sequences: Different forms of motion.
3. Balances: Different forms of equilibrium or rest. To be appreciated, all balances must be set on the central vertical of the Field of Vision.

These three forms of Order occur in combinations, producing a great variety of phenomena, more or less interesting.

- a. Recurrences and Repetitions in Progressions and Sequences.
- b. Recurrences and Repetitions in Balances.
- c. Sequences in forms of Balance, and Balances in Sequences.
- d. Alternations in Sequences: that is, differences repeated, producing the effect of Rhythm.
- e. Gradations of differences set in Sequences or Progressions.
- f. The Balance of Repetitions and Inversions.
- g. The Balance of different elements which, though they do not correspond in character, are equivalent in their force of appeal in the Sense of Vision.

The Definition and Description of Order in particular instances and examples:

This is to be done in a carefully graded series of exercises in drawing and coloring. The first exercise should be very simple and elementary, the later ones increasingly difficult; from lesson to lesson and from grade to grade. By degrees the whole field of Design should be revealed, and its possi-



bilities, in some measure, realized; beginning with the orders of plane geometry, ending in the representation of Nature and Life in different geometric systems. As we have time systems in Music and in Poetry so we have space systems in Design. Order, Symmetry and Harmony are in all cases the expression of mathematical laws.

It is very important that the children should see good examples of design; in drawings and paintings, in textiles, in pottery and porcelain, in wood or stone carvings and in metal work. Drawings and paintings, photographs and enlargements of photographs and prints may be used and the children should from time to time be taken to the Natural History Museums and to the Museums of Art. On these occasions they should be encouraged to take notes of what they see that they believe to be beautiful. Tracing designs that interest them with a finger in the air they will often be able to draw it on paper afterwards, making the same movements with the point of the pencil. They will not remember the design but the action describing it.

#### **Materials Used in the Primary and Grammar Grades.**

In the beginning, tablets, seeds and colored sticks should be used.

When it comes to drawing and coloring, lead pencils and colored crayons will serve the purpose. Water colors may be used instead of colored crayons in the more advanced grades.

#### **Habits.**

Correct habits of sitting are essential to the child's health and sight. The position used in writing is not good for drawing. The paper should be at the reading distance from the eye and so placed that the top and bottom edges appear horizontal and the sides vertical. So far as possible the paper should be at right angles with the direction of vision; not foreshortened.

## PRIMARY GRADES.

### DESIGN.

#### First Discriminations and Definitions.

- A. Principal colors.  
Principal positions.  
Principal directions: Vertical, horizontal and diagonal.  
The important angles: Angles of 90 degrees, 45 degrees, 60 degrees, 30 degrees.  
Units of measurement and their progressions, arithmetical and geometrical.  
Simple geometric shapes: Squares and other rectangles, circles, ellipses and spirals.  
Exercises in drawing and coloring to define tones (the six colors), positions, directions, measures and shapes.
- B. The forms of Order, Continuations, Recurrences, Repetitions, Sequences, Balances, and their combinations to be illustrated and explained. Only very simple examples should be given. Exercises in repeating certain colors, in different directions, measures and shapes and setting them in Sequences and in Balances. These are first exercises in Design, Design being the arrangement of lines and spots of color to describe the different modes or forms of Order and combinations of these modes. Sheets of examples and illustrations will be provided for the teachers as soon as possible.

## GRAMMAR GRADES.

### DESIGN.

Same program, with further discriminations and more difficult exercises. Examples and illustrations of work to be done in each grade will be prepared for the use of the teachers.

## DRAWING. PRIMARY AND GRAMMAR GRADES.

### REPRESENTATION.

#### Aim.

To develop visual discrimination, memory and imagination, together with an ability to describe visual experience and to express visual knowledge and ideas.

**Subjects to be Considered and Represented.**

Men, women and children, their attitudes, gestures and movements, their belongings and surroundings, in the city and in the country; care being taken to bring all the subjects suggested well within the experience of all the pupils, so that they will be describing what they have seen, and what they know, or ought to know, of Nature and Life.

**Mode of Expression.**

Drawing in definite outlines and coloring in flat tones. There is to be no modeling of solid forms either in Black-and-White or in Color. The interest is to be in the Shapes of objects, people and things, and in the differences of color revealed in light.

**Materials.**

The drawing will be done with lead pencils; the coloring, at first with colored crayons, afterwards, in the more advanced grades, with water colors.

**Method of Teaching.**

The teacher's part in this, as in all educational work, is to make the pupils think clearly and express themselves well. In this particular course the thinking must be in the terms of vision: Light, color, positions, directions, distances or measures, proportions and shapes. The knowledge and ideas to be expressed by drawing and coloring are in tone-relations and in space-relations. The terms of expression are lines and spots of color. The aim is to induce the pupils to think of Nature and Life in lines and spots of color and to put these lines and spots on paper; just as in other courses of study they think in words and forms of language, using the words in speech and in writing. The knowledge and ideas which are developed and expressed by lines and spots of color are hardly less important than those which are expressed by language. Many ideas which we try to express by speech and by writing can be much better expressed more definitely and more clearly by drawing and painting.

It will be the duty of the teachers in this course to suggest the subjects to be thought about and described; to help the pupils in the comparison, criticism and judgment of their own performances; and, finally, to grade the work done according to the standard to be maintained. The teacher is expected to take a genuine interest in the work of the pupils and to be quick to recognize and appreciate what is good in the work done; what is better, and what is best.

In suggesting subjects to be thought about and described by the pupils the teacher must be very specific and particular. For example, the teacher says: "A man is going out of the door when he remembers that his wife has not told him what to get for dinner. He turns round and calls her. She comes to the door with a little girl, four years old. They stand by the door talking. The little girl is interested in the cat which, seeing a dog across the street, has its fur raised and its back up. The house is built of red bricks. There are stone steps and the door and its jambs are painted white." By these words fairly definite images are suggested and the pupils may proceed to draw and to color the subject, each one following his own imagination and producing his own picture. Taking up any one of the pictures produced it is a question whether it is true as a representation. In what respects is it true? What mistakes, if any, have been made? What changes or corrections should be made? Has anything been left out that is natural and proper to the picture as a whole, or to the people and things represented in it? In other words, is the performance appropriate to the idea which suggested it? Because in Art nothing counts that is unnatural, untimely or inappropriate. When the pictures have been considered and criticised, one after another, they should be put up to be considered together, with a view to making a comparison and selecting the best — the best of all or the best two or three. The children must be encouraged to make comparisons and to pass judgments. The teacher should assist them and encourage them, declaring her own judgment at the end of the lesson.

As to the standard to be maintained: It should be determined always by the best work produced in the grade; the better the work the higher the standard. With this idea in mind, the best work should be selected and kept for reference; and it will be well to have exhibitions of it from time to time. As the work improves, as it should from year to year, insignificant and unimportant examples may be thrown out. It is always the best that gives the standard. It is proper that the pupils should see what the standard is and for that reason exhibitions are held. No copying should be allowed. When the children have seen the exhibition it should be taken down, and they should then proceed, as before, to think for themselves and to express, each one, his own knowledge and his own ideas.

In the work of the nine grades there should be a steady increase of visual knowledge and of the power of expression which goes along with it. The crude representations of the primary grades must pass away and in the work of the higher grades we must see more and more truth of representation and the representation must be more and more specific and particular. If in the work of the primary grades we recognize the genus, we must presently recognize the species, then the varieties of each species. Last of all we reach the representation of particular people and particular things. Whenever the child is unable to think of anything to draw, that means that he has no visual knowledge appropriate to the subject proposed. He must proceed, at once, to get the required knowledge. A simple way of doing this is to have the child look in Nature for the subject-matter to be represented; to get an idea of it. A good way of doing this is for the child to trace the objects, people or things in the air with the point of his finger. When he has done that he will remember, not the object, but his own action in describing it, and he will probably be able to do with the point of his pencil what he had done with the point of his finger, or something like that.

If the subject of the next lesson is given out before the children leave the room, they will be looking out for the people and things they will have to draw. The younger children can trace what they see with the finger and then draw it. The older children may be able to draw directly from the object, if it is in any sense still-life. In most cases, however, our visual knowledge is best secured by quick observation, followed by clear recollection or vivid imagination. Still-life is a very small part of Life and the art of drawing and painting in representation must not be limited to it, as it has been, very generally, during the past fifty years. In any case we should be able to imagine and draw the human figure in its principal attitudes and actions before we undertake anything like specific portraiture. The general idea, which is always a thing of the imagination, should take precedence over any specifications of it in the direction of matter-of-fact or statistical portraiture. We should be able to draw and paint men, women and children, and the objects connected with them, as the old masters did, before we proceed to direct imitation or copying. When the child reaches the end of the ninth grade of this teaching which we propose, and has come up to the standard required, he ought to be well prepared to take up the practice of drawing

and painting in a professional school; particularly if he had done well in the practice of Design which has been going on at the same time. The motive of Representation, to achieve the truth of Representation, is not sufficient in itself; nor is the motive of Design self-sufficient, Design being the arrangement and composition of lines and spots of color to illustrate the mathematical principles of Order. The two motives must come together and work together; the ultimate aim being to present the Truth of Representation in forms which will be at least orderly and, so far as possible, beautiful.

It is very important that the children of all grades should see a great many photographs and pictures. By means of photographs and pictures their visual experience and knowledge may be indefinitely increased, particularly if they make drawings from the photographs that interest them and from the pictures that please them. The photographs should represent facts and scenes of Nature and Life. Photographic reproductions of drawings and paintings by good masters should also be used. The half-tone pictures which appear in the daily and weekly papers and magazines will be of interest and serve the purpose in many ways. Photographs and pictures should be used as books are used, and referred to for information, as books are referred to. In drawing from the photographs or pictures the children should do what they will naturally and inevitably do if left to themselves. They must follow the outlines of the subject with the eye and the eye with the point of the pencil. In that way they will feel the sizes and the shapes together and draw them together; otherwise the drawing will be a matter of visual triangulation and construction, which is all right when the object is to arrange and state facts or ideas, but it is not the way to get visual knowledge and the power of imagination. We must have knowledge and ideas to express before we proceed to the Art of Arrangement and Composition.

## GRADE IV. DESIGN.

There are forty-eight exercises arranged for the year under the following topics, two forty-five minute periods each week until January 1 and one forty-five minute period each week from January 1 to June 16: Tones and Tone-Relations, Space-Relations, Balance, Sequences of Repetition, Alternation, and Progression.

### Tones and Tone-Relations.

There are eighteen exercises in Tone-Study. For exercises in the study of Tone-Relations see Sequences of Repetition, Alternation, Progression, and Balance. Two lesson periods are allowed for practice in handling water color material properly, preparatory to painting. Four periods for painting neutral gray in five values, white, light, middle, dark, and black, and learning to recognize and distinguish them from other values. Six periods for painting the six standard colors, red, orange, yellow, green, blue, and violet, full intensity. Six periods for painting neutralization scales, the above six colors neutralized to white and to black.

### Space-Relations.

There are eight lesson periods allowed for this series of exercises.

One period: An exercise in the study and drawing of the Circle, Square, and Oblong with diameters, and of lines representing the directions, "up and down" (vertical), left and right (horizontal), and the angle of 90 degrees (the right angle).

One period: An exercise in drawing the square with diagonals and lines representing the diagonal direction and angle of 45 degrees.

One period: An exercise in drawing the equilateral triangle and lines representing the diagonal direction and angle of 60 degrees.

One period: An exercise in drawing lines and angles representing the diagonal direction and angle of 30 degrees. (Bisection of the angle of 60 degrees.)

**Note.**— In the above exercises make many repetitions of the lines and angles named in order to visualize the directions clearly and to be able to produce them accurately.

Two periods: Exercises in drawing (*a*) the circle, (*b*) the oblong, square, and equilateral triangle by division of the circle into two, three, four, etc., parts.

One period: An exercise in developing (within a 6-inch circle) the "square web" diagram in a sequence of progression of web sizes, 2-inch, 1-inch,  $\frac{1}{2}$ -inch, and  $\frac{1}{4}$ -inch.

One period: An exercise in the repetition of the preceding "square web" diagram. Fill each square with a circle of corresponding diameter.

**Note.**—In the following exercises the shapes may be Lines (straight, curved, or angular), Outlines and Areas or Mass.

**Balance.** (a) Axial. (b) Central.

There are seven lesson periods given to this series.

Two periods: Axial Balance.

Two periods: Central Balance.

One period: Tone Balance (Black and White).

One period: Observation and drawing of similar forms of balance in nature.

One period: Observation and drawing of similar forms of balance in works of art.

**Sequences of Repetition.** (a) In a row. (b) In a field.

There are five periods allowed for this series.

Three periods: Exercises in Sequences of Repetition.

One period: Exercises in Tone-Sequences of Repetition.

One period: Observation and drawing of Sequences of Repetition in nature and in works of art.

**Note.**—In each series make many different arrangements, varying the tone, measure, proportion, shape, attitude, or interval with each new arrangement.

**Sequences of Alternation.** (a) In a row. (b) In a field.

There are six periods allowed for this series.

Three periods: Exercises in Sequences of Alternation.

One period: Exercises in Color Sequences of Alternation.

One period: Observation and drawing of Sequences of Alternation in nature.

One period: Observation and drawing of Sequences of Alternation in works of art.

**Note.**—Make many different arrangements in each series with the following changes in alternation: Tone, measure (size and number), proportion, shape, attitude, and interval. Sequences of Alternation are rhythmical.

**Sequences of Progression.** (a) In a row. (b) In a defined area. (c) In a field.

There are five periods allowed for this series.

One period: Exercises in Sequences of Progression (in a row).



One period: Exercises in Sequences of Progression (in a given area).

One period: Exercises in Sequences of Progression (in a field).

One period: Exercises in Color Sequences of Progression.

One period: Observation and drawing of Sequences of Progression in nature and in works of art.

**Note.**— The movement may be in measure or size from small to large or large to small, or more to less. In tone it may be from light to dark or dark to light; bright to dull or dull to bright; warm to cold or cold to warm, etc.

## DRAWING. GRADE IV. JANUARY THROUGH JUNE. REPRESENTATION.

### Time.

There are twenty-two lessons in this series, one forty-five minute lesson each week.

January, 4 lessons.

February, 3 lessons.

March, 4 lessons.

April, 4 lessons.

May, 4 lessons.

June, 3 lessons.

**Note.**— The papers should be numbered, 1, 2, 3, etc., to show progress.

See general note on Representation, pages 12, 13, 14, 15, 16.

### Exercises.

1. Draw a table, side view.
2. Draw a bowl standing near the edge of the table.
- 3 and 4. Draw a little girl standing near a table, looking to see what is in a bowl on the table. Paint the different parts of the picture, mixing the paints to get true colors.
5. Draw a straight backed chair, side view.
6. Draw a straight backed chair, front view.
- 7 and 8. Draw a table with three chairs placed as for breakfast, one at the farther side of the table.
9. Draw a boy sitting in a chair, side view.
10. Draw a boy sitting in a chair, front view.
11. Draw a boy sitting in a chair, back view.
12. Draw a girl sitting in a chair, side view.
13. Paint the best drawings.
- 14 to 16. Draw and paint a picture of two children sitting at the table, having breakfast.

17 to 22. Continue drawing and painting people, at home, doing various things. Draw furniture, dishes, plants, animals, birds, and other objects necessary to accompany the action of the figures. Make study drawings of new objects as they are introduced. Try constantly to improve the drawing and coloring of objects. Keep looking at people and things to get a better idea of how they look, so that the pictures may improve.

**Note.**—A brief excursion by the class to gather necessary data concerning an object or a place will help more than much discussion or vague supposition as to how things look. Visual memory will be greatly strengthened if observations are made in definite order, beginning with a key line or shape. Work in zones, starting with the most important object or center of interest. Add things immediately associated with the center of interest. Add the background and foreground and things remotely associated with the center of interest. Make some appear nearer than others. Try to make the sizes right according to the distance. Color every part of the picture to help tell the story. Keep the center of interest important by contrast of color, light against dark, bright against dull, etc.

## GRADE V. DESIGN.

There are forty-eight exercises arranged for the year under the following topics, two forty-five minute periods each week until January and one forty-five minute period each week from January 1 to June 16: Tones and Tone-Relations, Space-Relations, Balance, Sequences of Repetition, Alternation and Progression.

### Tones and Tone-Relations.

There are sixteen exercises in Tone-Study. For exercises in Tone-Relations see Sequences of Repetition, Alternation, Progression, etc.

Four periods: Exercises in painting neutral gray in five standard values, white, light, middle, dark, and black, and learning to recognize and distinguish them from other values.

Six periods: Exercises in Color Relationship and Color Sequences, five steps each—orange to red, orange to yellow; green to blue, green to yellow; violet to red and violet to blue.

Six periods: Exercises in painting neutralization scales, the intermediate colors, red-orange, orange-yellow, yellow-green, green-blue, blue-violet, neutralized to black and to white.

**Space-Relations.**

There are eight lesson periods allowed for this series of exercises.

One period: An exercise in the study and drawing of the Circle, Square, Oblong, and Equilateral Triangle, with diameters and diagonals, and of lines representing the directions, up and down (vertical), right and left (horizontal), and the intermediate diagonals and angles of 45 degrees, 60 degrees and 30 degrees.

One period: An exercise in drawing the square with diameters and repeating in separate rows, series of parallel vertical lines, parallel horizontal lines, and angles of 90 degrees.

One period: An exercise in drawing the square with diagonals and repeating in a row a series of parallel diagonal lines (up to the right and down to the left), inclined at an angle of 45 degrees, and a row of angles of 45 degrees.

One period: An exercise in drawing the equilateral triangle and repeating in separate rows series of parallel diagonal lines up to the right, at an angle of 60 degrees, and also another series up to the right at an angle of 30 degrees, a row of angles converging at 60 degrees, and a row of angles converging at 30 degrees.

**Note.**— In the above exercises make many repetitions of the lines and angles named, in order to visualize the directions clearly and to be able to produce them accurately.

Two periods: Exercises in drawing (a) the circle, (b) oblongs, square, equilateral triangle, the pentagon, hexagon, and octagon by division of the circle into two, three, four, five, six, and eight equal parts.

One period: An exercise in drawing within four-inch circles the progression of the oblong and the square, circle, and octagon.

One period: An exercise in developing (within a six-inch circle) the "square web" diagram in a sequence of progression of web sizes, 2 inch, 1 inch,  $\frac{1}{2}$  inch,  $\frac{1}{4}$  inch. Fill each square with a circle of corresponding diameter.

In the following exercises the shapes may be Lines (straight, curved, or angular), Outlines, and Areas or Mass.

**Balance.** (a) Axial. (b) Central.

There are seven lesson periods allowed for this series.

Two periods: Axial Balance.

Two periods: Central Balance.

One period: Tone Balance.

One period: Observation and drawing of similar forms of balance in nature.

One period: Observation and drawing of similar forms of balance in works of art.

**Sequences of Repetition.** (a) In a row. (b) In a field.

There are six lesson periods allowed for this series.

Three periods: Exercises in Sequences of Repetition.

One period: Exercises in Color Sequences of Repetition.

Two periods: Observation and drawing of Sequences of Repetition in nature and in works of art.

Make many different arrangements in each series, varying the tone, measure, shape, proportion, attitude, or interval with each new arrangement.

**Sequences of Alteration.** (a) In a row. (b) In a field.

There are six lesson periods allowed for this series.

Three periods: Exercises in Sequences of Alternation.

One period: Exercises in Color Sequences of Alternation.

One period: Observation and drawing of Sequences of Alternation in nature.

One period: Observation and drawing of Sequences of Alternation in works of art.

Sequences of Alternation are rhythmical.

**Sequences of Progression.** (a) In a row. (b) In a defined area. (c) In a field.

There are five lesson periods allowed for this series.

One period: Exercises in Sequences of Progression (in a row).

One period: Exercises in Sequences of Progression (in an area).

One period: Exercises in Sequences of Progression (in a field).

One period: Observation in Color Sequences of Progression.

One period: Observation and drawing of Sequences of Progression in nature and in works of art.

**Note.**— The movement may be in measure or size from small to large; large to small; more to less; in proportion from wide to narrow or narrow to wide; long to short, short to long, etc. In tone it may be from light to dark or dark to light; bright to dull or dull to bright; warm to cold or cold to warm, etc.

**DRAWING. GRADE V.**  
**JANUARY THROUGH JUNE.**  
**REPRESENTATION.**

**Time.**

There are twenty-two lessons in this series, one forty-five minute lesson each week.

January, 4 lessons.

April, 4 lessons.

February, 3 lessons.

May, 4 lessons.

March, 4 lessons.

June, 3 lessons.

**Note.** The papers should be numbered 1, 2, 3, etc., to show progress. See general note on Representation, pages 12, 13, 14, 15, 16.

**Exercises.**

1. Draw a trolley car. Imagine the trolley car about forty feet away. Discuss results.
- 2 and 3. Look at a trolley car. Notice the proportion of one window, the number of windows, and the space between windows. Draw from memory the row of windows. Think of the reason for so many windows.  
Look at the doors, roof lines, and running gear of a trolley car. Finish the drawing of the trolley car from memory.
- 4 and 5. Draw a group of men, women, boys, and girls waiting to get on the car. Add trees, sidewalk lines, etc., to suggest surroundings.
- 6 and 7. Look at a trolley car to notice the coloring of every part. Paint the car, the people, and other parts of the picture.
8. Choose either a boat or train for study, whichever is convenient. Draw first from memory and imagination. Discuss results.
- 9 and 10. Study and draw details as in trolley cars, thinking of the reasons for openings and spaces between.
- 11 and 12. Draw appropriate groups of people and suggest surroundings. Introduce animals, trees or other objects appropriate to the idea of the picture.
- 13 and 14. Study the coloring and paint every part of the picture.
- 15 to 22. Continue to draw pictures in which vehicles and people furnish the theme.

**Note.**— A brief excursion by the class to gather necessary data concerning an object or a place will help more than much discussion or vague supposition as to how things look. Visual memory will be greatly strengthened if observations are made in definite order, beginning with a key line or shape. Work in zones, starting with the most important object or center of interest. Add things immediately associated with the center of interest. Add the background and foreground and things remotely associated with the center of interest. Make some appear nearer than others. Try to make the sizes right according to the distance. Try to make horizontal things appear to lie flat. Color every part of the picture to help tell the story. Keep the center of interest important by contrast of color, light against dark, bright against dull, etc.

## GRADE VI. DESIGN.

There are fifty exercises arranged for the year under the following topics, two forty-five minute periods each week until January, one period each week from January 1 to June 16: Tones and Tone-Relations, Space-Relations, Balance, Sequences of Repetition, Alternation, and Progression.

### Tones and Tone-Relations.

There are eighteen lesson periods allowed for this series. For study of Tone-Relations see exercises under Sequences of Repetition, Alternation, Progression, and Balance.

Three periods: Exercises painting neutral gray, learning to recognize and distinguish each tone from others in a scale of nine standard values graded from white to black (white, high-light, light, low-light, middle, high-dark, dark, low-dark, and black).

Three periods: Exercises in painting each of the six colors, red, orange, yellow, green, blue, violet, full intensity with its corresponding value in the neutral scale.

Six periods: Exercises in Tone-Sequences. Value scales — six standard colors, R., O., Y., G., B., V., neutralized to white and to black, arranged to correspond in value sequence with the neutral gray standard scale of nine values (including white and black).

Six periods: Exercises in Tone Study: Full intensity and one-half intensity — of the six standard colors, R., O., Y., G., B., V. Select any color, full intensity, and paint a 2-inch square, circle, or oblong shape. Find its corresponding value in the neutral

gray scale, and paint a second square. Mix this gray with the bright color or full intensity, diminishing the brightness to one-half the original intensity without change of value. Arrange the three in a color sequence of bright to dull, full intensity, half-intensity, and neutral gray. All three should be alike in value.

### Space-Relations.

There are eight lesson periods allowed for this series of exercises.

One period: An exercise in the study and drawing of the Circle, Square, Oblong, and Equilateral Triangle, with diameters and diagonals, and of lines representing the directions, Vertical, Horizontal, and the Intermediate Diagonals inclined at angles of 45 degrees, 60 degrees, and 30 degrees.

One period: An exercise in drawing the square with its diameters and diagonals and in repeating in separate rows series of lines of the following directions: Vertical, horizontal, and the diagonals inclined at angles of 45 degrees (up to the right and down to the left, and up to the left and down to the right). Make several repetitions in a row of angles of 90 degrees and 45 degrees.

One period: An exercise in drawing the equilateral triangle and in repeating in separate rows series of lines of the direction of the diagonals inclined at 60 degrees and 30 degrees (up to the right and down to the left, and up to the left and down to the right). Make several repetitions in a row of angles of 60 degrees and 30 degrees.

**Note.**— Make many repetitions of the lines and angles named in order to visualize the directions clearly and to be able to produce them accurately.

Two periods: Exercises in drawing (*a*) the circle, (*b*) oblongs, the square, equilateral triangle, the pentagon, hexagon, heptagon, and octagon, by division of the circle into two, three, four, five, six, seven, and eight parts.

One period: An exercise in drawing within a 4-inch circle the progression of the circle, square, and octagon.

One period: An exercise in developing within a 6-inch circle the "square web" diagram (a harmony of squares) in a sequence of progression of web sizes, 2-inch, 1-inch,  $\frac{1}{2}$ -inch, and  $\frac{1}{4}$ -inch. Fill each square with a circle of corresponding diameter.

One period: An exercise in developing within a 6-inch circle the "triangular web" diagram (a harmony of equilateral triangles) in a sequence of progression of web sizes. Fill each oblong with an ellipse of corresponding diameters.

**Note.**— In the following exercises the shapes may be Lines (straight, curved, or angular), Outlines, and Areas or Mass.

**Balance.** (a) Axial. (b) Central.

There are seven lesson periods allowed for this series.

Two periods: Axial Balance.

Two periods: Central Balance.

One period: Tone Balance.

One period: Observation and drawing of similar forms of balance in nature.

One period: In observation and drawing of similar forms of balance in works of art.

**Sequences of Repetition.** (a) In a row. (b) In a field.

There are six lesson periods allowed for this series.

Three periods: Exercises in Sequences of Repetition.

One period: Exercises in Color Sequences of Repetition.

Two periods: Observation and drawing of Sequences of Repetition in nature and in works of art.

**Note.**— Make many different arrangements in each series, varying the tone, measure, shape, proportion, attitude, or interval with each new arrangement.

**Sequences of Alternation.** (a) In a row. (b) In a field.

There are six lesson periods allowed for this series.

Three periods: Exercises in Sequences of Alternation.

One period: Exercises in Color Sequences of Progression.

One period: Observation and drawing of Sequences of Alternation in nature.

One period: Observation and drawing of Sequences of Alternation in works of art.

Make many different arrangements in each series with the following changes in Alternation: Tone, measure (size and number), shape, proportions, attitude, and interval.

Sequences of Alternation are rhythmical.

**Sequences of Progression.** (a) In a row. (b) In a defined area. (c) In a field.

There are five lesson periods allowed for this series.

One period: Exercises in Sequences of Progression (in a row).

One period: Exercises in Sequences of Progression (in an area).

One period: Exercises in Sequences of Progression (in a field).

One period: Exercises in Color Sequences of Progression.

One period: Observation and drawing of Sequences of Progression in nature and in works of art.



**Note.**— The movement may be in measure or size from small to large or large to small; more to less; in proportion from wide to narrow, narrow to wide; long to short or short to long, etc. In tone it may be from light to dark or dark to light; bright to dull or dull to bright; warm to cold or cold to warm.

## DRAWING. GRADE VI. JANUARY THROUGH JUNE. REPRESENTATION.

### Time.

There are twenty-two lessons in this series, two forty-five minute lessons each week.

January, 4 lessons.

April, 4 lessons.

February, 3 lessons.

May, 4 lessons.

March, 4 lessons.

June, 3 lessons.

**Note.**— The papers should be numbered 1, 2, 3, etc., to show progress.

See general note on Representation, pages 12, 13, 14, 15, 16.

### Exercises.

1. Draw a man standing in a doorway, about twenty feet away. Be careful to make the rectangle of the door the right proportion.
2. Make a careful drawing of a door, showing panels and door frame.
3. Draw a woman and a little girl standing in front of a door which is closed.
4. Look at a front door near the school with the idea of drawing it from memory. Make the memory drawing.
5. Take the drawing to the place where you made the observations, compare the drawing with the door. Make corrections from memory.
- 6 and 7. Using the doorway as a background, draw a picture of two girls playing on the steps in front of the door.
- 8 and 9. Make another picture, showing people grouped around the door.
10. Make a careful drawing of a window. Draw a rectangle of the correct proportion for one pane of glass. Add others to build the window and frame.

11 to 15. Make another drawing of the door previously studied, adding the nearest windows. Draw a boy and his dog in front of the door. Color every part of the picture to help tell the truth. Notice the value and color of windows seen from the outside.

16 to 22. Continue to draw details of buildings as backgrounds for groups of people. Add trees, animals, bushes, fences, etc., appropriate to the idea of the picture.

**Note.**— A brief excursion by the class to gather necessary data concerning an object or a place will help more than much discussion or vague supposition as to how things look. Visual memory will be greatly strengthened if observations are made in definite order, beginning with a key line or shape and noting the relation of other things to this. Work from the center out, in studying as well as in drawing.

## GRADE VII. DESIGN.

There are fifty exercises arranged for the year under the following topics, two forty-five minute periods each week until January 1. One period each week from January 1 to June 16: Tones and Tone-Relations, Space Relations, Balance, Sequences of Repetition, Alternation and Progression.

### Tones and Tone-Relations.

There are eighteen lesson periods allowed for this series. For Tone-Relations see exercises under Sequences of Repetition, Alternation, Progression, and Balance.

Three periods: Exercises in painting neutral gray, learning to recognize and distinguish each tone from others in a scale of nine standard values graded from white to black (white, high-light, light, low-light, middle, high-dark, dark, low-dark, and black).

Three periods: Exercises in painting each of the twelve colors, R., RO., O., OY., Y., YG., G., GB., B., BV., V., VR., full intensity, with its corresponding value in the neutral scale.

Six periods: Exercises in Tone Sequences: Value Scales. Six intermediate colors, RO., OY., YG., GB., BV., VR., neutralized to white and to black, arranged to correspond in value sequence with the neutral gray standard scale of nine values (including white and black).

Six periods: Exercises in Tone-Study: Full intensity and one-half intensity of the six intermediate colors—RO., OY., YG., GB., BV., VR. Select any color full intensity and paint a 2-inch square, circle, or oblong shape. Find its corresponding value in the neutral gray scale and paint a second square. Mix this gray with the bright color (full intensity), diminishing the brilliancy or purity to one-half the original intensity, **without change of value**. Arrange the three color spots in a sequence, — bright or full intensity, half-intensity, and neutral gray. **All three should be alike in value.**

### Space=Relations.

There are eight lesson periods allowed for this series of exercises.

One period: An exercise in the study and drawing of the Circle, Square, Oblong, and Equilateral Triangle, with diameters and diagonals, and of Lines, Vertical, Horizontal, and Diagonals inclined at angles of 45 degrees, 60 degrees, and 30 degrees.

One period: An exercise in drawing the square with its diameters and diagonals and in repeating in separate rows series of lines, Vertical, Horizontal, and the Diagonals inclined at angles of 45 degrees (up to the right and down to the left, up to the left and down to the right). Make several repetitions in a row of angles of 90 degrees and of 45 degrees.

One period: An exercise in drawing the equilateral triangle and in repeating in separate rows series of Lines inclined at angles of 60 degrees and 30 degrees (up to the right and down to the left, and up to the left and down to the right). Make several repetitions in a row of angles of 60 degrees and of 30 degrees.

**Note.**— Make many repetitions of the lines and angles named in order to visualize the directions clearly and to be able to produce them accurately.

Two periods: Exercises in drawing (a) the Circle, (b) Oblongs, the Square, Equilateral Triangle, the Pentagon, Hexagon, Heptagon, Octagon, Decagon, and Duodecagon, by division of the circle into two, three, four, five, six, seven, eight, ten and twelve parts.

One period: Draw within 4-inch circles progressions of the circle, square, and octagon, the equilateral triangle, circle, and hexagon.

One period: An exercise in developing within a 6-inch circle the "square web" diagram (a harmony of squares) in a sequence of progression of web sizes, 2-inch, 1-inch,  $\frac{1}{2}$ -inch,  $\frac{1}{4}$ -inch. Fill two or three squares of each web section with circles of the same diameter and with octagons in the half-inch or 1-inch section, suggesting circular and octagonal "all over" patterns.

One period: An exercise in developing within a 6-inch circle the "triangular web" diagram (a harmony of equilateral triangles) in a sequence of progression of web sizes. Fill each oblong with an ellipse of corresponding diameters. If there is time, repeat the exercise or web series, filling each diamond from left to right with ellipses.

**Note.**— In the following exercises the shapes may be Lines (straight curved, or angular), Outlines, and Areas or Mass.

**Balance.** (a) Axial. (b) Central.

There are seven lesson periods allowed for this series.

Two periods: Axial Balance.

Two periods: Central Balance.

One period: Tone Balance.

One period: Observation and drawing of similar forms of balance in nature.

One period: Observation and drawing of similar forms of balance in works of art.

**Sequences of Repetition.** (a) In a row. (b) In a field.

There are six lesson periods allowed for this series.

Three periods: Exercises in Sequences of Repetition.

One period: Exercises in Color Sequences of Repetition.

Two periods: Observation and drawing of Sequences of Repetition in nature and in works of art.

**Note.**— Make many different arrangements in each series, varying the tone, measure, proportion, shape, attitude, or interval with each new arrangement.

**Sequences of Alternation.** (a) In a row. (b) In a field.

There are six lesson periods allowed for this series.

Three periods: Exercises in Sequences of Alternation.

One period: Exercises in Color Sequences of Progression.

One period: Observation and drawing of Sequences of Alternation in nature.

One period: Observation and drawing of Sequences of Alternation in works of art.

Make many different arrangements in each series with the following changes in alternation: Tone, measure (size and number), shape, proportion, attitude and interval.

Sequences of alternation are rhythmical.

**Sequences of Progression.** (a) In a row. (b) In a defined area. (c) In a field.

There are five lesson periods allowed for this series.

One period: Exercises in Sequences of Progression (in a row).

One period: Exercises in Sequences of Progression (in an area).

One period: Exercises in Sequences of Progression (in a field).

One period: Exercises in Color Sequences of Progression.

One period: Observation and drawing of Sequences of Progression in nature and in works of art.

**Note.**— The movement may be in measure or size from small to large or large to small; more to less; in proportion from wide to narrow or narrow to wide; long to short or short to long. In tone it may be from light to dark or dark to light; bright to dull or dull to bright; warm to cold or cold to warm.

## DRAWING. GRADE VII.

### JANUARY THROUGH JUNE.

### REPRESENTATION.

#### Time.

There are twenty-two lessons in this series, one forty-five minute lesson each week.

January, 4 lessons.

April, 4 lessons.

February, 3 lessons.

May, 4 lessons.

March, 4 lessons.

June, 3 lessons.

**Note.**— The papers should be numbered 1, 2, 3, etc., to show progress. See general note on Representation, pages 12, 13, 14 15, 16.

#### Exercises.

1. Select a building near the school for study. Choose if possible a colonial house, a historic building or a modern building which you think good. Choose a point of View and make first sketches of the building. If sketches cannot be made out of doors or from convenient windows, make the observations from the chosen view point and draw from memory.

First sketches may be made on the Cross slates or on paper in the manner of tracing. Test for correctness as follows:

POSITIONS of objects in relation to each other.

DIRECTIONS of lines as compared with vertical center line.

SIZES of objects in relation to each other.

SIZES of objects with regard to distance from observer.

SHAPES of objects as seen.

PROPORTIONS, as compared with a square.

- 2 to 4. Make study drawings of details, beginning with the most interesting part, as a door, window, or gateway.
  - 5 and 6. Plan the arrangement of a group of people in front of the building, with an idea appropriate to the location. Draw the figures near the center first. Add others at the left and right and behind these to suggest a crowd or large group. Think of the distance of each figure from the observer and make the size right.
  - 7 to 10. Draw the lines of the building as a background, farther away than the people. Keep the interesting features of the building near the center of the picture.
  - 11 to 14. Study the coloring of the objects involved. Decide upon the colors to be used and paint every part of the picture.
  - 15 and 16. Study, by copying, a photograph or half-tone reproduction of a photograph, in which buildings, landscapes, and people are represented. See newspaper prints and illustrations in geographies or magazines. Draw a rectangle of the same size and proportion as the picture. Draw lightly the structural lines of the rectangle, the diagonals, diameters, and lines connecting the ends of the diameters. In copying the picture, movable objects may be slightly changed to bring them into harmony with structural lines of the rectangle. Omit things of no special interest in the picture.
  17. Study and discuss the best available colored illustrations to understand the use of color in good pictures.
  - 18 to 22. Choose a subject similar to the first, illustrating neighborhood interests within the pupils' personal experiences. Draw and color another picture, following the same method used in copying.
- Note.**— A brief excursion by the class to gather necessary visual data will help more than much discussion or vague supposition as to how things look. Visual memory will be greatly strengthened if observations are made in a definite order, beginning with a key line or shape and noting the relation of other things to this. Work from the center out, in studying as well as drawing.

### GRADE VIII. DESIGN.

There are fifty exercises arranged for the year under the following topics, two forty-five minute periods each week until January 1 and one

period each week from January 1 to June 16: Tones and Tone-Relations, Space-Relations, Balance, Sequences of Repetition, Alternation, and Progression.

### Tones and Tone-Relations.

There are eighteen lesson periods allowed for this series.

For study of tone-relations see exercises under Sequences of Repetition, Alternation, Progression, and Balance.

Three periods: Exercises in painting neutral gray, learning to recognize and distinguish each tone from others in a scale of nine standard values graded from white to black (white, high-light, light, low-light, middle, high-dark, dark, low-dark, and black).

Three periods: Exercises in painting. Arrange each of the twelve colors full intensity opposite its corresponding value in the neutral value scale.

Six periods: Exercises in painting **Value Scales** in twelve colors.

Six periods: Exercises in painting **Intensity Scales** in twelve colors.

### Space-Relations.

There are eight lesson periods allowed for this series of exercises.

One period: An exercise in the study and drawing of the Circle, Square, Oblong, and Equilateral Triangle, with diameters and diagonals, and of lines Vertical, Horizontal, and the Diagonals inclined at angles of 45 degrees, 60 degrees, and 30 degrees.

One period: An exercise in drawing the square with its diameters and diagonals, and in repeating in separate rows series of lines Vertical, Horizontal, and the Diagonals inclined at angles of 45 degrees (up to the right and down to the left, up to the left and down to the right). Make several repetitions in a row of angles of 90 degrees and 45 degrees.

One period: An exercise in drawing the equilateral triangle and in repeating in separate rows series of lines inclined at angles of 60 degrees and 30 degrees (up to the right and down to the left and up to the left and down to the right). Make several repetitions in a row of angles of 60 degrees and 30 degrees.

**Note.**— Make many repetitions of the lines and angles named in order to visualize the directions clearly and to be able to produce them accurately.

Two periods: Exercises in drawing (*a*) the Circle, (*b*) Oblongs, the Square, Equilateral Triangles, the Pentagon, Hexagon, Heptagon, Octagon, Decagon, and Duodecagon by division of the circle into two, three, four, five, six, seven, eight, ten, and twelve parts.

One period: Draw within 4-inch circles progressions of the circle, square, and octagon, the equilateral triangle and circle and hexagon.

One period: An exercise in developing within a 6-inch circle the "square web" diagram (a harmony of squares) in a sequence of progression of web sizes, 2-inch, 1-inch,  $\frac{1}{2}$ -inch, and  $\frac{1}{4}$ -inch.

### Optional.

(1) Draw the square web diagram in the  $\frac{1}{2}$ -inch size within a 6-inch circle. Fill each square with a circle of corresponding diameter, making an "all over" pattern.

(2) Fill each square with a lightly sketched circle of same diameter, from which develop an octagon, making an "all over" pattern.

(3) Fill each square with a lightly sketched circle. From these develop an ogee curve "all over" pattern.

**Note.**—Strengthen the lines of the pattern developed, or emphasize it by tracing with colored crayon.

One period: An exercise in developing within a 6-inch circle the "triangular web" diagram (a harmony of equilateral triangles) in a sequence of progression of web sizes. Fill each "diamond" from left to right with an ellipse, making an "all over" elliptical pattern.

### Optional.

(1) Repeat the "triangular web" in next to smallest size. Fill each oblong with an ellipse of corresponding diameters, making an "all over" pattern.

(2) Repeat the web in the middle size within a 6-inch circle. Strengthen lines of the web to form an "all over" hexagonal pattern.

(3) Repeat the "triangular web" in middle size. Fill each oblong with a lightly sketched ellipse. From these develop an elliptical ogee curve pattern. (See note under preceding exercise.)

**Note.**—In the following exercises the shapes may be lines (straight, curved, or angular), Outlines, and Areas or Mass.

### Balance. (a) Axial. (b) Central.

There are seven lesson periods allowed for this series.

Two periods: Axial Balance.

Two periods: Central Balance.

One period: Tone Balance.

One period: Observation and drawing of similar forms of balance in nature.

One period: Observation and drawing of similar forms of balance in works of art.



**Sequences of Repetition.** (a) In a row. (b) In a field.

There are six lesson periods allowed for this series.

Three periods: Exercises in Sequences of Repetition.

One period: Exercises in Color Sequences of Repetition.

Two periods: Observation and drawing of Sequences of Repetition in nature and in works of art.

**Note.**— Make many different arrangements in each series, varying the tone, measure, shape, attitude, or interval with each new arrangement.

**Sequences of Alternation.** (a) In a row. (b) In a field.

There are six lesson periods allowed for this series.

Three periods: Exercises in Sequences of Alternation.

One period: Exercises in Color Sequences of Progression.

One period: Observation and drawing of Sequences of Alternation in nature.

One period: Observation and drawing of Sequences of Alternation in works of art.

Make many different arrangements in each series, with the following changes in alternation: Tone, measure (size, number), shape, proportion, attitude, and interval.

Sequences of Alternation are rhythmical.

**Sequences of Progression.** (a) In a row. (b) In a defined area. (c) In a field.

There are five lesson periods allowed for this series.

One period: Exercises in Sequences of Progression (in a row).

One period: Exercises in Sequences of Progression (in an area).

One period: Exercises in Sequences of Progression (in a field).

One period: Exercises in Color Sequences of Progression.

One period: Observation and drawing of Sequences of Progression in nature and in works of art.

**Note.**— The movement may be in measure of size, from small to large or large to small; more to less; in proportion from wide to narrow or narrow to wide; long to short or short to long; in tone it may be from light to dark or dark to light; bright to dull or dull to bright; warm to cold or cold to warm.

**DRAWING. GRADE VIII.  
JANUARY THROUGH JUNE.  
REPRESENTATION.**

**Time.**

There are twenty-two lessons in this series, one forty-five minute lesson each week.

January, 4 lessons.

April, 4 lessons.

February, 3 lessons.

May, 4 lessons.

March, 4 lessons.

June, 3 lessons.

**Note.**— See general note on Representation, pages 12, 13, 14, 15, 16.

**Exercises.**

1. Select a building or a bit of landscape near the school for study. Choose if possible a colonial house, a historic building or a modern building which you think good, a tree or group of trees, a bit of the river or harbor, or nearby park. Choose a definite point of view and make first sketches. If sketches cannot be made out of doors or from convenient windows, make the observations from the chosen view point and draw from memory.

First sketches may be made on the Cross slates or on paper in the manner of tracing. Test for correctness as follows:

POSITIONS of objects in relation to each other.

DIRECTIONS of lines as compared with vertical center line.

SIZES of objects in relation to each other.

SIZES of objects with regard to distance from the observer.

SHAPES of objects as seen.

PROPORTIONS, as compared with a square.

- 2 to 4. Make study drawings of details of objects included in the picture, beginning with the most interesting part.
- 5 to 8. Plan the composition, using the structural lines of the rectangle as guides in locating important objects.
9. Add people to help the composition and increase the interest.
- 10 to 13. Study the coloring of the objects involved. Decide upon the colors to be used and paint every part of the picture.

- 14 to 16.** Study, by copying, a photograph or half-tone reproduction of a photograph in which buildings, landscapes, and people are represented. See newspaper prints and illustrations in geographies or magazines. Draw a rectangle of the same size and proportion as the picture. Draw lightly the structural lines of the rectangle, the diagonals, diameters, and lines connecting the ends of the diameters. In copying the picture, movable objects may be slightly changed to bring them into harmony with structural lines of the rectangle. Omit things of no special interest in the picture.
- 17 to 19.** Study the best available colored illustrations or Japanese prints to understand the use of color in good pictures. Copy freely with a brush and color any parts of special interest.
- 20 to 22.** Draw and color another picture similar to the first, illustrating neighborhood interests within the pupils' personal experience. Use the structural lines of the rectangle as a guide in placing important parts of the composition.

**Note.**— A brief excursion by the class or by an individual to gather necessary data for the pictures will help more than much discussion or vague supposition as to how things look. An appreciation of order and a sense of beauty should form increasingly important results of the pupils' observations.

## MANUAL TRAINING. GRADE IV. CARDBOARD CONSTRUCTION.

Two one-hour lessons a week are allowed for this work.

### Aims.

1. To acquaint the pupils with plain lettering and the simplest conventions of the working drawing.
2. To develop some accuracy in the use of the pencil, rule, triangle, compasses and scissors.
3. To lead to the appreciation of a few fundamental principles of construction applicable to sheet metal and wood.
4. To inculcate good ideas of simple design in (a) borders, (b) contours, (c) space division.
5. To develop individual initiative, especially during the latter part of the year.
6. To promote coöperative effort.

### Means.

1. Lettering on drawings and on finished problems.
2. Making simple working drawings.
3. Constructing simple geometric figures, boxes, trays, furniture and mechanical devices.
4. (a) Decorating with simple borders, (b) cutting templates for modification of rectangles and for parts of furniture, (c) placing sandpaper and pictures on mounts.
5. Deciding questions of size, proportions, contour and decoration in some of the later problems.
6. Working in groups on different objects of a set, and on different parts of one object.

### Minimum Requirements.

To letter one's own name well.

To draw and dimension correctly a rectangle, a circle, a hexagon, and a few developments.

To construct from such drawings articles of familiar use.

To measure and lay off with rule graduated to eighths of an inch.

To use scissors, compasses and triangles correctly.

To apply one border, to cut and use one acceptable template, to mount one rectangle.

To assist in working out a group project.

To construct a mechanical device, individually or in a group.

### General Directions.

1. Before beginning the drawing of each model, present the finished object and discuss its shape and utility with a view to creating all possible interest in it.

2. **Distribution of Equipment.**—The problem of prompt distribution and collection of equipment should receive careful consideration. With a little system five minutes should be ample time.

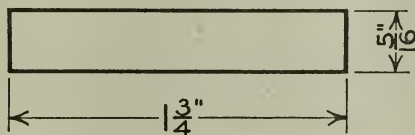
3. **Blackboard Work.**—Each teacher should have a blackboard rule, triangle and compass, which can be secured from the master. The rule, if not graduated, should be sent to the manual training teacher, who will properly mark it if requested.

In placing work on the board, draw roughly a rectangle, the irregular outline of which will represent the torn edges of the cardboard. Draw as you wish the children to draw, using the same tools and working to scale. Use all the conventions properly, and make careful distinction between construction, extension, dimension, folding and cutting lines. The work on the board should generally precede that of the pupils, a line at a time in the first half year, and follow rather than precede in the last half. The dictation of measurements should be immediately supplemented by the proper placing of the dimensions on the drawing. Be careful in your conversation to use accurately the nomenclature of the subject.

4. **Drawing.**—Use the special hard pencils furnished for this work. Compass attachments may be used thereon. Insist on light lines and small dots. In the use of the triangle it may be found well in erecting perpendiculars to place the inner edge on the line and the outer edge at the point. All lines should be drawn longer than required dimensions,

#### CONVENTIONS FOR WORKING DRAWINGS, GR. IV-V

—————	CONSTRUCTION LINES
—————	OUTLINES OF OBJECT
- - - - -	FOLDING LINES
———	EXTENSION LINES
———	DIMENSION LINES



and these dimensions should then be laid off on the lines. Avoid the use of the term measure when lay off is meant. Do not allow the boys to mark on the rules. Impress upon them at the outset that measurements are spaces, not lines, and encourage them to use the middle portion of the rules instead of the ends. Use special rules provided, with blank ends,

unless better ones are available. If the thick edge of the rule is used for laying off distances, the rule should stand upon that edge. (See, also, page 10, Trybom's "Cardboard Construction," "Drawing.")

**5. Lettering.**—Teach forms of letters by groups which should be placed on the blackboard as shown on Plate I. For the first seven weeks at least devote about fifteen minutes of each week to lettering. Throughout the year insist upon careful lettering, plain capitals ("upper case") only to be used.

**6. Cutting.**—Care is necessary at first to see that pupils hold the shears properly, a simple matter frequently overlooked.

Left-handed pupils should be encouraged to cut with right hand, as shears are made "right-handed." In the beginning, specific directions should generally be given for the cutting of each line. Have cardboard held in the left hand and cut on the right side of the object. Begin to cut near the joint of the shears, making as long cuts as possible, but not closing the shears. Cut past corners where possible instead of attempting to make sharp turns. In cutting long lines the hand should be below the cardboard.

**7. Scoring.**—This should be done, with the first folded model. The shears, a pocket knife or a pin may be used. Score on working side and bend so as to leave drawing on outside. This makes a desirable demand on the pupils for careful and neat drawing.

**8. Punching.**—Allow each child to punch his own work.

**9. Tying.**—To get a number of equal lengths of twine, wind around book and cut.

**10. Disposition of Completed Work.**—It is desired that work be kept for the inspection of the assistant in manual arts as follows:

1. A full set of the last model made.
2. A full set of the last working drawing made.
3. One or two specimens of each model and each drawing made since the last visit of the assistant.
4. Several examples of any work correlating with drawing or other subjects, outlined or original.

Otherwise it is recommended that, with the permission of the principal, the work be returned to the children soon after its completion, but not at the end of the lesson in which it is completed.

### Methods.

Much of the value of the training and the quality of the results depends upon the methods employed by the teacher. Not only should she be familiar with the finished product but with the best methods of

producing it. Suggestions given under general directions should be carefully noted and special attention given to correct methods. In the earlier lessons a certain amount of dictation is necessary; care should be taken, however, that the dictation is entirely clear and logical, and that the following is exact.

As soon as possible the class should be questioned concerning the work at hand, and when feasible several pupils sent to the blackboard to work out with the help of the class the problem which later is to be done by individuals at their desks, under the direction of the teacher. This independence of thought should be guided toward the original work which is to come later.

## SEPTEMBER.

### FIRST WEEK.

**Triangles.** Read General Directions 1, 2, 3, 4, 6 and 10.

On top of a sheet of drawing paper have each pupil draw two light guide lines about  $\frac{1}{4}$  of an inch apart. This space may be secured by standing the rule up on the thick edge and drawing against the two faces with the pencil held vertically. Between these lines each boy should letter his own name to the best of his ability, using only capitals. This incidentally establishes the top of the sheet.

Have each pupil observe the wooden triangle, giving special attention to its right angle. Some of them will know that this angle is sometimes called a "square corner."

Near the bottom of the sheet have a line drawn from edge to edge and three points laid off on the line, the first one 1 inch from the left edge of the paper, the next 4 inches from it to the right, and the third 4 inches farther to the right. At the left point have a perpendicular erected by means of the wooden triangle. On these lines which form a right angle have 2 inches laid off and the triangle completed. At the center point have an angle drawn smaller than a right angle by placing the "square corner" of the wooden triangle at the point, but with its lower edge extending below the horizontal line. From this angle lay off 2 inches on each adjacent line and complete the triangle. At the right point have an angle drawn larger than a right angle, using the wooden triangle with its lower edge extending above the line. Complete this triangle in the same manner as the previous one. Interest in right-angled triangles will be increased by having the pupils discover those to be found in the room.

## SECOND WEEK.

### Mounting Triangles.

Have at least one right-angled triangle cut from cardboard and mounted on paper. If time permits, others with varying lengths of sides may be drawn and cut. In mounting they may serve as tents, roofs of houses, sails of boats, etc.; other parts to be drawn with pencil or crayon.

In the upper right corner of the sheet just made have each pupil letter his own name. (See General Directions, 5.)

On all following articles and drawings have each child letter his name and when instructive the name of the object.

### Lettering.

Teach the first group (see Plate I.), aiming to secure good verticals and horizontals. In teaching all groups the letters should be placed between horizontal lines as well as balanced on the verticals.

## THIRD WEEK.

### Rectangles.

Several rectangles should be shown to the class, each designed for a different purpose, such as bookmark, label, tag, mount or postcard. Have the class decide which they will make and determine good proportions and size for the same. Working drawings should be made and used as guides in constructing the rectangles of cardboard. It is better not to attempt any decoration of the rectangle on the working drawings, leaving these to be made on the bristol board.

### Lettering.

Teach the second group, having it drawn on a vertical line with good modifications of the basic "O."

## OCTOBER.

NOTE.—Page numbers in the following directions refer to Trybom's "Cardboard Construction."

## FIRST WEEK.

### Circular Card.

Before making circular card ask each child to choose what his circle is to represent, whether a target, alternate rings to be filled in with pencil or crayon, a mariner's compass, a clock face properly marked out and lettered, or any other article of circular shape.



\*Give each child a sheet of drawing paper and compasses. Allow each pupil to experiment with compasses and to draw on the paper several circles of different radii; then have him decide upon the one best suited to his purpose. Teach correct way to dimension this circle. Have constructed and cut from cardboard a card of the size indicated by the drawing, with lines and lettering added as previously decided upon. The best method of cutting a circle should be shown to the class and insisted upon.

**Lettering.** Teach the third group.

### SECOND AND THIRD WEEKS.

**Hexagonal Card and Star.** (Pages 18 and 19.)

Have working drawings of hexagon made on paper. Have drawing dimensioned and review triangle and circle. Require the pupils to make the hexagon (preferably at a subsequent lesson), working from their own drawings, the blackboard drawing having been erased.

When the hexagons are completed the best of the class work may be fitted together to form a linoleum or tile pattern. The effect is better when two or more colors of bristol board are used. Such fitting incidentally makes a great demand for accurate work.

In connection with star, review triangles and hexagons by asking pupils to recognize the various forms into which the star is divided by the construction lines.

**Lettering.** Teach the fourth group.

**Lettering.** Teach the fifth group.

### FOURTH WEEK.

**Bookmark (page 26) and Octagonal Card.**

On wrapping paper have a rectangle 2 inches by 4 inches drawn and placed with long edges horizontal. Show how the lower line may be bisected with the compasses. Have the rectangle cut out and the two upper corners folded to central point on the lower edge and folds creased very hard. Holes should be punched in these corners for tying them together. Teach the bow and square knots. A piece of stout cord is useful for illustration.

For the octagonal card have a circle drawn of  $1\frac{1}{2}$ -inch radius, with one diameter. Have the resulting semicircles bisected, which may be done by using the triangle, but results are better with the compasses. Have each quadrant divided into halves with the compasses, and the octagon completed by connecting the ends of the diameters. The cards should then be cut out and properly lettered.

**Lettering.** Teach the sixth group and spacing. Notice that horizontal divisions should be about two fifths down from upper guide line.

## NOVEMBER.

### FIRST WEEK.

**“Tangram ” or “T=puzzle.”**

(See “War Time Occupations,” pp. 21–23.)

**Lettering.** Teach the seventh group. Notice that horizontal divisions should be about two fifths up from lower guide line.

### SECOND WEEK.

**Envelope.**

(See “War Time Occupations,” pp. 18–21.)

### THIRD AND FOURTH WEEKS.

**Dominoes.**

(See “War Time Occupations,” pp. 26–28.)

It is recommended that sets be made to run only as high as double 6's.

Each pupil should not be required to make a full set, but so divide the dominoes among the class that when completed there will be 5 to 10 full sets.

## DECEMBER.

### FIRST AND SECOND WEEKS.

**Candy Basket.**

Present a completed basket and have several pupils work out its development at the blackboard. The finished drawing will resemble that on page 31. Have construction begun by drawing two concentric circles with radii of  $1\frac{1}{4}$  and  $2\frac{3}{4}$  inches, respectively. Across these have two diameters drawn at right angles to each other. The intersection of the diameters with the circumference of the inner circle should be connected to form the square base. From each outer end of the two diameters have  $\frac{3}{4}$  of an inch laid off in both directions on the circumference and these points connected with the corners of the square base. Have baskets laid out on cardboard cut, scored, folded and tied at the corners.

### THIRD WEEK.

#### Candle Shade. (Page 32.)

Present candle shade and discuss its shape (conical surface) and dimensions in its completed form. Spread it out and discuss shape of the development (semicircle).

Review characteristics of the circle and note the concentric arcs. Have working drawings made on paper and require pupils to make the model (preferably at a subsequent lesson), working from their own drawings, the blackboard drawing having been erased.

Before the cutting is done have a border applied with crayon. A simple band is recommended. Complete by punching holes and tying.

### JANUARY.

#### FIRST WEEK.

#### Rectangular Box. Read General Directions 7, 8 and 9.

The base and cover of this box should not be larger than 4 inches by  $2\frac{1}{2}$  inches, with sides  $\frac{3}{4}$  of an inch or an inch in height. The development should be in one piece, having the cover attached to a long side and without laps.

In presenting the box discuss its shape and dimensions in its completed form. Spread it out and have some pupils at blackboard and others at desks working out its development. Follow this with careful working drawings made on paper. Require pupils to make the model (preferably at a subsequent lesson), working from their own drawings, the blackboard drawing having been erased. Holes should be punched and the box completed by tying at the corners.

#### SECOND AND THIRD WEEKS.

#### Hexagonal Tray.

Treat this as a problem in constructive design, requiring each pupil to determine the dimensions of his own tray and contour of its sides. Diameter of base should not exceed 6 inches.

Review methods of constructing hexagon. (See page 18.) Let each pupil design the sides of his tray. Have hexagon drawn on paper and outward from each angle have lines extended at right angles to the sides of the hexagon. When the height of the sides of the tray has been decided upon, lay off the correct distance on one of these lines. Then with the center of the hexagon as a center and a radius equal to the distance from the center of the hexagon to an outer corner of one side describe a circle which will cut off equal distances on all extended lines. Dimension the circles used for the hexagon and for cutting off the heights of the sides. From this drawing have the trays drawn on cardboard. Before cutting, the tops should be modified. To secure a pleasing modification the teacher should first show some desirable curves obtained by cutting in the presence of the class. Each child should then prepare a strip of paper of the same width as one side of his hexagon and of any length. Have this strip folded lengthwise through the center and cuts made from the fold toward the free edges, in imitation of those shown. Each child should use his best shape as a templet in marking out the tops, but the length of the sides already indicated by the outer circle should not be changed. Have trays cut, folded and tied.

#### FOURTH WEEK.

##### Original Work.

The very general response to the request for original constructive work two years ago produced results so satisfactory to both pupils and teacher that it was greatly to be regretted that the circumstances of last year compelled the omission of such work. But it is desired that this year it be resumed and if possible with even greater results.

The object of this lesson is to interest and encourage the children in constructing articles of their own conception; some of the work may be done at home and some at school. Specimens of work from last year should be shown and a conversational lesson should follow, during which any pupils who have ideas should be encouraged to express them. Articles suggested by history, geography, or reading lessons are desirable; also those which may be observed in surrounding life.

The tangible results of this week's work may be small, but the teacher should be satisfied with arousing an interest in original planning and construction, the value of which shall be shown in later products.

Do not hesitate to make suitable suggestions as to construction, proportion of parts, materials, etc. The happiest results are those where teacher and pupils have planned together, and where the finished products have been developed from several minds.

Materials in general should be those that the boy can procure for himself, not alone to prevent undue encroachment on school supplies, but also for the far more educational reason of inducing self-reliance and the utilization of materials at hand. Pasteboard boxes, wire, brads, screws, paper fasteners are desirable accessories. Thin wood from egg, fruit, or cigar boxes is easily obtained and is a satisfactory material. This work at first should be voluntary, but it should be directed toward a satisfactory completion of the lessons outlined for May and June.

There is no objection to home assistance provided it is honestly acknowledged by the boy. A few suggestions from some one at home may assist the boy very much, but the finished article should be child's work, not adult's work in which the child has taken a minor part.

Encourage the pupils to bring in at each lesson, throughout the remainder of the year, any original work done outside. This should be exhibited to the class and the thought commended even though the work be crude. Some of the mechanical toys in the market are very suggestive. Ideas may also be obtained from many of the current magazines, such as "Something-to-do," "Popular Mechanics," etc.

The following volumes, which have been used successfully by pupils of various schools, may be found in some of the branch libraries:

"Toy Making in School and Home,"

B. K. and M. I. B. Polkinghorne.

"Home Made Toys,"

William Hall.

"Boys' Make-at-home Things,"

Carolyn Sherwin Bailey.

It is not necessary that this lesson be extended through the two hours allowed. Any time remaining may be used for the completion of unfinished work or for beginning the next problem.

## FEBRUARY.

Be careful, throughout the rest of the year, to refrain from mere dictation. Directions should be given by the pupils in response to questions, and blackboard work should generally follow rather than precede the work of the pupils. The analogy between cardboard work and sheet metal work is very marked, and should be brought

to the attention of the children. It will be found that work is most substantial when fingers have not touched the surfaces to be pasted, and when but thin layers of paste are applied. It is hoped that by the end of the year the pupils will be able to image and draw the development of simple objects, add necessary dimension lines, and neatly letter the sheet.

### FIRST WEEK.

#### Match Scratcher. (Original Design.)

Treat the match scratcher as a problem in design. From the manual training teacher obtain a sheet of No.  $\frac{1}{2}$  sandpaper, which should be cut into long narrow strips of suitable size and distributed. Have each child place his sandpaper on a piece of paper, and plan a rectangle of suitable proportions for the mount. Let pupils experiment individually in making modifications of the top of this rectangle. To accomplish this each child should have a piece of paper of same width as rectangle above referred to, but much longer. This should be folded with long edges together and the top cut in a simple curve, avoiding corners, abrupt turns and complicated curves. Have this top cut off and placed on desk for a sample. Several different tops should be so made and cut off. When satisfactory results are obtained, have rectangle constructed on cardboard with top traced from selected pattern, and then cut out, sandpaper pasted on, and a hole punched to complete the model.

### SECOND WEEK.

#### Paper Bag.

Make the bag and present it in its completed state with other bags to the class. On a piece of screenings have each pupil lay out a rectangle 9 inches by 13 inches and cut it out. On each long edge have points located 5 and 6 inches, respectively, from one short edge. Have short edges carefully folded to farthest points and resultant folds well creased, producing a lap which should then be pasted.

At each open end have a point located 2 inches from one fold. Have the bag opened and a crease made connecting these points; now have the bag flattened to make the opposite crease. Between each pair of creases have a reverse crease made by folding the pair together. On the jointed face, 1 inch from and parallel to one open end, have a line drawn and cut; cuts should also be made along the nearest folds sufficient to remove the piece.

The portions of the other board face and the folds below this line should be folded over and pasted to close the bottom. If desired, the upper edge may be "pinked" (cut in points).

### THIRD WEEK.

#### Model of Great Pyramid.

NOTE.—This pyramid was built by Kheops, who called it "Khuit," meaning "Horizon." Kheops so named it, as he was going to rest in it, as his father, the sun, was accustomed to set in the horizon.

The height of the pyramid was originally about 480 feet, with a square base about 750 feet on a side and an edge of about 715 feet. The models resulting from this lesson will be about 1-2000 size, as nearly as the necessity for even fractions of an inch will permit.

Present a finished model and discuss shape of faces, etc. (See Geographies, King's Elementary, page 190; Tarbell's Introductory, page 176, and Redway and Hinman's New, page 133.) Have development worked out on paper, each isosceles triangle to have base of  $4\frac{1}{2}$  inches and sides of  $4\frac{1}{4}$  inches. The simplest method of drawing this development is to strike about three fourths of the circumference of a circle of  $4\frac{1}{4}$  inches radius; to lay off, on this arc, five points,  $4\frac{1}{2}$  inches apart, and to connect these points with each other and with the center of the circular arc. The square base may be added or omitted as desired. Have proper laps and dimension lines added. Have models made from these drawings.

### FOURTH WEEK.

#### Square Lamp Shade.

Present a finished shade and discuss the similarity between it and the pyramid. The size may be varied. Have two concentric circles drawn with radius of outside circle not more than 6 inches and that of the inside circle about one third as large. The outer circumference should then be divided into six equal parts and these points connected with center. Have outer and inner circles cut out, and also one sector. If straight edges are preferred, cuts should be made on straight lines drawn between points on both outer and inner circumferences. A simple border parallel to the edge should be applied but not until after the study of borders is completed in the drawing lessons. Then have pupils score and fold on all radii, after which one end section should be pasted over the other.

## MARCH.

### FIRST WEEK.

#### Tray with Flaring Sides.

Treat tray as a problem in development. Call the attention of the class to the close similarity in shape between it and a baking tin. Present model, which has a square base and flaring sides, and discuss its shape and development in its completed form. Lead the pupils to imagine the development for themselves, and to make sketches of it on the board and at their desks. Discuss the subject of laps, and have them and the dimensions added to the board drawing.

First the tray should be drawn as given on page 48. Then from each outside corner of large square have  $\frac{1}{2}$  inch laid off on adjacent sides of square. The dots thus made should be connected with inner corners of small squares.

After large square is cut out have the diagonals of small squares cut. Be certain that scoring is done only on sides of inner square and on the oblique lines in small squares. Have sides of tray turned up to position. In each small square there will now be two scored lines. Have these two scored lines brought together with one fitted exactly inside the other. This will result in a single edge with an outer and an inner lap at each corner. After these corners are pasted and dried the projecting laps should be trimmed off.

### SECOND AND THIRD WEEKS.

#### Box with Cover (page 57, Trybom's "Cardboard Construction").

Present in same manner as square tray. Have the cover  $\frac{1}{8}$  of an inch larger than the box instead of  $\frac{1}{16}$  of an inch as given in the book.

### FOURTH AND FIFTH WEEKS.

#### Handkerchief Box.

This box is similar to the one which precedes it, having a base  $4\frac{1}{2}$  inches square with sides  $1\frac{1}{2}$  inches high, and a cover  $4\frac{5}{8}$  inches square with sides 1 inch high.



Present a finished box to the class and have several pupils draw on the blackboard developments of both box and cover, together with the necessary laps and dimensions. Have accurate working drawings made on paper and from these at a subsequent lesson the boxes should be laid out on cardboard, cut, scored, folded and pasted.

The covers may be decorated with designs resulting from drawing lessons; in case this is done have designs applied with crayon before pasting.

## APRIL.

### FIRST AND SECOND WEEKS.

#### Table. (Individual design.)

Treat this model as a problem in development and design. Present one or more completed models to the class, and, by means of blackboard sketches, have development of parts worked out. Square, oblong or circular tops should be planned not to exceed 5 inches in diameter.

Have height of table decided upon, and a rectangle drawn whose width equals this height and whose length is indefinite. On this rectangle have four sides marked off — all of same length (square or circular top) or two long and two short (oblong top). To this have laps added at one end and at the upper edge of each side for attachment to the top of the table. On each side of the vertical dividing lines have width of legs (about  $\frac{1}{4}$  inch) marked off; have a horizontal line drawn parallel to upper edge a short distance below it to form a top rail. Have the whole rectangle cut to form legs and rails as indicated and the end laps pasted. Have another rectangle of proper size to exactly fit the space, drawn, cut and pasted to the under side of the top laps. This secures the rectangle shape of the support and strengthens the table. The visible top, which should (in the case of an oblong) have more overhang at the ends than at the sides, should now be drawn, cut and pasted. While this is drying it is well to lay a small book on the top to prevent curling or pulling away.

## THIRD WEEK.

## Cylinder.

This lesson is a problem in the development of cylindrical objects such as the round box on page 54, and should illustrate the adaptability of sheet materials (tin, zinc, cardboard) to such forms. The following suggestions illustrate some of the modifications which should be substituted for the typical cylinder. By turning over the box already referred to and adding a handle to the top it becomes a model of a cookie cutter; by altering its proportions and adding a handle to the side it becomes the model of a measuring or drinking cup; by adding a handle to the open end it becomes the model of a pail; by altering the proportions again and adding square bases it becomes a column or pedestal and admirably shows the strength of sheet material so treated. Attention should also be called to such objects as ink fillers, funnels, etc.

Before having any work done with cardboard, call attention to the "grain." A little experimenting shows that the cardboard rolls easily in one direction, while in the other direction there is resistance, causing the cardboard to break. In cutting cardboard which is to be used for a curved surface this characteristic should be considered. When two pieces are to be pasted together as in the base of a cylinder, if the grain of one is placed at right angles to that of the other there is equal stiffness in both directions and less tendency to curl.

The development of a cylinder consists of two circles and a rectangle; the dimensions of the latter are: in one direction the height of the cylinder, and in the other the circumference of the circle. On cardboard have drawn a circle of a given diameter and a rectangle whose width is equal to height of contemplated cylinder and whose length is more than long enough to fold around the circle and lap over. On the side of the rectangle to which the circular base is to be attached have a quarter-inch lap drawn. When all pieces have been cut have this lap scored and cut in points; then have rectangle wrapped closely around the base and a pencil mark drawn to indicate how far one end laps over the other. Using a rule have a line drawn from this mark across the cardboard to show the width of the lap. Do not allow scoring on this line. If the lap is more than a quarter of an inch have additional length cut off. Call attention to the fact that the distance around the circle is a little more than three times its diameter. Have this proved by measuring with the rules.

When the rectangle has been pasted into cylindrical form have the circle pasted on the inside; then have a second circle drawn the width of a pencil line larger than the first circle, and cut and pasted outside. Have cylinder completed by the addition of a handle, cover, or other modification.

## MAY.

### FIRST WEEK.

**Cylinder.** Complete.

### SECOND AND THIRD WEEKS.

#### Group Project.

Encourage the production of models of simple and familiar articles of furniture, such as bureaus, desks, beds, stands, cradles, tabourets, chairs, etc. Plan the work so that the different articles will be related to each other in size and purpose; and, while not introducing the use of actual scale, see that it is felt by the class. Satisfactory articles should be retained from one year to the next and used as suggestive material. Encourage original thought but do not demand it. The first suggestions should come from the teacher.

In making furniture of cardboard have it based on such rectangular construction as already indicated for the table. The four sides should be laid off on one strip of cardboard with a lap at one end for joining. Laps should also be placed along the upper edge of each face to which a top may be pasted. The proportion of these sides may be varied to accord with the article it is desired to make. Modifications of the sides by cutting (such as legs for a table) or drawing (such as panels for a desk) or by both (such as cutting legs for a sideboard and drawing the compartments) should be carefully planned and executed. Tops of tables and stools should have an overhang on all four sides; those of desks, sideboards, bureaus, cabinets, chairs, etc., on three sides only, that is, having no overhang at the back. Cylindrical construction may also be used either separately or in connection with rectangular construction.

From the finished products one or more sets of toy furniture should be obtained. These are more effective if assembled as in a room, perhaps using a box placed on its side for the room, or placing the furniture on a "rug" made in the drawing lessons.

**FOURTH WEEK.****Mechanical Device.**

Many children will already have constructed mechanical devices in their "home work" (See January, Fourth Week) and the success of this lesson depends largely on such previous work. This should be displayed to the class and used as suggestive material. It is not necessary that each child have an article different from the rest of the class, but every pupil should make something, according to his ability, that will "work." Carts, wheelbarrows, windmills, whirligigs, derricks, etc., are suggested. In addition to the bristol board other materials furnished by the children may be used, such as pins, toothpicks, skewers, wire, twine, button molds, and empty spools. Emphasis should be laid on having the object correctly designed and workable rather than on accuracy of measurement and finish of workmanship.

**JUNE.****FIRST AND SECOND WEEKS.****Transportation.**

Have the principles developed in the last lesson carried still further and applied to a familiar adjunct of transportation, such as automobiles, trucks, boats, airplanes, elevated tracks, trains, a station, or an escalator. This may also be given for group work, different parts of the system being worked up by different pupils.

**SPECIAL, SPECIAL ENGLISH AND UNGRADED CLASSES.**

Since children of these classes particularly need drill in language and number work, attention is called to the fact that, aside from its intrinsic educational value, manual training is an excellent medium for concrete work in both subjects. In most cases the work of Grade IV. will probably best meet the needs of the pupils, but in some instances it may be advisable to select problems from each grade.

Whatever the problem the work should be carried on slowly and with regard to what most interests the children. Special attention is called to the postcard, circles, tangram and candy basket in the first part of Grade IV.; and for more difficult problems to the paper bag, lamp shade, tabouret and mechanical problems in the last part of the same grade.

## MANUAL TRAINING. GRADE V. BOOKBINDING.

Two hours a week are allowed for this work.\*

### Aims.

1. To develop ability to plan simple constructive work.
2. To give practice in making the simplest working drawings.
3. To develop greater accuracy in the use of the rule, triangle and scissors.
4. To give some experience in elementary bookbinding.
5. To teach practical application of design and good lettering through correlation with drawing.
6. To develop inventional ability.

### Means.

1. Planning, construction of simple articles made of bookbinding materials.
2. Making working sketches of parts, correctly dimensioned.
3. Accurately laying out and cutting these parts.
4. Assembling these parts, using technical processes.
5. Applying good lettering, correct space division, pleasing proportions and simple decorations.
6. Working out original problems.

### Minimum Requirement.

To plan and make correct working sketches of six simple articles.

To construct these articles of bookbinding materials with reasonable skill.

To bind one book.

To plan and construct one original article.

### General Directions.

The work is designated as bookbinding, although it includes models which, strictly speaking, are not books. It is of an elementary character and logically follows the work in cardboard construction, employing similar processes.

To develop individual initiative and the ability to plan and to complete simple constructive work is one of the most important aims of manual training, and the one most likely to be overlooked by the conscientious grade teacher. Therefore, as far as possible, all models are presented as projects to be worked out by each pupil individually, and it is

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\* One half of this time is, in boys' schools, devoted to clay modeling.

hoped that many classes will be able to attain satisfactory results, the teacher giving directions no more specific than those which follow. It is not expected that these directions will be entirely clear to teachers conducting the work for the first time, without the additional information and especially the demonstration which will be given at the teachers' meetings, but a little experimenting with the actual materials, with the outline at hand, will do much toward making them intelligible.

It is desired that work be kept for the inspection of the assistant in manual arts, as follows:

1. A full set of the last model made.
2. A full set of the last working drawing made.
3. One or two specimens of each model and each drawing made since the last visit of the assistant.
4. Several examples of any work correlating with drawing or other subjects, outlined or original.

Otherwise it is recommended that, with the permission of the principal, the work be returned to the children soon after its completion, but not at the end of the lesson in which it is completed.

One copy of "Bookbinding for Beginners" has been furnished for each teacher and the problem numbers refer to that book.

## SEPTEMBER.

### FIRST WEEK.

**Envelope.** (Problem II.) Materials: "Wrapping Paper."

NOTE.— Before giving this lesson the teacher should place on the blackboard a sketch of the envelope without dimensions. Talk over with the class the dimensions desired and add the figures to the drawing. The face should not be larger than 10 by 13 inches, with laps of about  $1\frac{1}{2}$  inches at each end, onto which the back is to be pasted. At one side plan an opening with a narrow flap. Smaller envelopes may be made if desired.

**Directions.**— From the blackboard sketch lay out the envelope on the wrapping paper, cut fold and paste. This should be used to hold individual materials throughout the year.

### SECOND AND THIRD WEEKS.

**Blotter or Pocket Memorandum Pad.** (Problem III., C. or D.)  
Materials: "Newsboard" for body; "Vellum" for covering; white or blotting paper for filling.

## OCTOBER.

### FIRST WEEK.

**Paper Book Cover.** Material: "Wrapping Paper."

Select a book for which the cover is to be made. Plan a strip of screenings which shall be wide enough to extend about 2 inches beyond the top and bottom edges of the book and long enough to extend around the back and sides and to fold back over edges with a lap of about 3 inches.

Make a dimensioned sketch of this piece. Draw it on the screenings and cut out. Leaving outside spaces approximately equal, draw two parallel lines, lengthwise of this piece, the distance between which shall be  $\frac{1}{4}$  of an inch more than the distance from the top to the bottom of the book. Fold along these two lines to form laps. Lay the back of the book on the center of the strip at right angle to the folded edges, with the laps up. Wrap the strip around this book and fold the projecting ends inside the cover but not so tight that the book will not close easily. Remove screenings and crease all folds very hard. At each corner where the second fold is pressed back on the first, place a little paste, avoiding surfaces which are to touch the book. After pasting, dry the covers flat, under weight. To apply the paper covers fold both stiff covers backward and insert them in the pockets. The name of the book should then be carefully printed on the paper cover.

### SECOND, THIRD AND FOURTH WEEKS.

**Needle Case or Pencil Holder.** (Problem IV.) Materials: "Newsboard" for body; "Vellum" for face covering and pockets; and "Lining Paper" for back covering.

## NOVEMBER.

### FIRST AND SECOND WEEKS.

**Checker Board.** (See "War Time Occupations," pages 33-36.) *One only* should be done by each pupil.

### THIRD AND FOURTH WEEKS.

**Calendar Stand.** (Problem V.) Materials: "Newsboard," "Vellum," and "Lining Paper."

## DECEMBER.

### FIRST, SECOND AND THIRD WEEKS.

**Hinged Covers for Cook Book.** (Problem VI. Materials: "Newsboard" for body of covers; "Oil-cloth" for covering; "Lining Paper" for inside of covers; "Eyelets"; "Macrame Cord.")

These covers should be made for the cook books used in girls' classes. Secure a copy from the cooking teacher to use in planning. See that the covers project at least  $\frac{1}{8}$  of an inch beyond the book. Cover them entirely with oilcloth. When the covers are completed all the books to be covered should be obtained from the cooking teacher, the covers attached to the books by the boys in manual training time, and the books returned to the cooking teacher.

## JANUARY.

### FIRST, SECOND AND THIRD WEEKS.

**Domino Case.** (See "War Time Occupations," pages 29-33.)

### FOURTH WEEK.

Optional.

## FEBRUARY.

### FIRST, SECOND AND THIRD WEEKS.

**Box with Covers.** (Problem VII.) (For Grades I., II. and III.)  
Materials: "Newsboard," "Vellum" and "Lining Paper."

The bottom should be 3 inches by  $4\frac{1}{2}$  inches and the sides  $1\frac{5}{8}$  inches in height. The cover should be  $\frac{1}{8}$  inch larger in both directions than bottom, and its sides  $\frac{5}{8}$  inch in width. When completed, these boxes are to be turned over to the master of the district for distribution in Grades I., II. and III. If not needed the number available should be reported to the Department of Manual Arts for use in girls' schools.

### FOURTH WEEK.

**Post-Card Holder or "Scholar's Companion."** (Problem VIII.)  
Materials: "Newsboard," "Vellum" and "Lining Paper."

## MARCH.

### FIRST AND SECOND WEEKS.

**Post-Card Holder or "Scholar's Companion."** Complete.



**THIRD, FOURTH AND FIFTH WEEKS.**

**Portfolio or Magazine Cover.** (Problem IX.) Materials: "Newsboard," "Vellum," "Lining Paper" and "Tape."

Make this for a definite purpose, such as holding the Palmer Writing Book, a notebook, composition papers or maps. The size should not be larger than 8 inches by 10 inches.

Use lining paper for the outside, and line the inside with drawing paper decorated with a surface pattern. (See Drawing Lesson.)

**APRIL.****FIRST WEEK.**

**Portfolio or Magazine Cover.** Complete.

**SECOND AND THIRD WEEKS.**

**Book.** (Problem X. or XI.) Materials: "Newsboard," "Vellum," "Lining Paper," 8½-inch by 11-inch "Paper," "Tape," "Sewing Linen" and "Super." This may be sewed either with or without the frame — the latter method being found easier by most teachers who have tried it. Those who desire more frames (not to exceed three to a class) should consult with the department not later than March 1, preferably sooner.

Use lining paper for outside of the "case." If desired, fly-leaves may be made of drawing paper decorated with a surface pattern.

**MAY.****FIRST AND SECOND WEEKS.**

**Book.** Complete.

**THIRD AND FOURTH WEEKS.**

**Original Project.**

Design and construct some object which may be based on an article previously made but having different dimensions, such as pad, calendar, box or covers. It is also suggested that in individual cases some mechanical construction be attempted. In such cases the newsboard may be used as a foundation for structural work, such as inclined railways, elevated stations, towers, etc. Eyelets are excellent for fastening the various parts together.

**JUNE.****FIRST AND SECOND WEEKS.**

Complete original project.

**SPECIAL NOTE.**

Pupils in boys' schools should make at least the following articles:

Blotter.

Checker board.

Calendar.

Hinged covers for cook book.

Box with cover.

Book.

SCHOOL DOCUMENT NO. 10-1918  
BOSTON PUBLIC SCHOOLS  
A SCHEDULE OF COMPENSATION FOR  
JANITOR SERVICE OF SCHOOL BUILDINGS  
SEPTEMBER, 1918



BOSTON  
PRINTING DEPARTMENT  
1918

IN SCHOOL COMMITTEE, September 4, 1918.

The following report and schedule of compensation were accepted, the orders appended thereto passed, and three thousand (3,000) copies of the report were ordered to be printed as a school document.

Attest:

THORNTON D. APOLLONIO,  
*Secretary.*

# REPORT.

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OFFICE OF THE BUSINESS AGENT, June 24, 1918.

*To the School Committee:*

In compliance with the order of the School Committee I submit herewith a schedule of compensation for the janitor service of school buildings.

The first schedule of compensation for janitor service of school buildings went into effect January 1, 1904, and at the time of its adoption was applied to all school buildings owned and occupied by the city for school purposes, with the exception of the high schoolhouses, the Chapman and the Horace Mann Schoolhouses.

At the time of its adoption there was no schedule in existence, the salary of the janitor of each building having been fixed arbitrarily by the School Committee. The result had been that some janitors were much better paid than others, and a general feeling of dissatisfaction existed.

The schedule of 1904 effected a great improvement over conditions existing at that time, and its adoption resulted in an increase in the amount of compensation to the janitors of about \$10,000 per year. It gave general satisfaction at the time and has since been used largely by other cities, towns and institutions as a basis for fixing the salaries of janitors or devising schedules to suit their special conditions.

In December, 1912, the School Committee decided that, on account of the higher standards of cleanliness required, with the additional work imposed upon the janitors, and with the increased cost of living so generally felt even at that date, the time appeared to have arrived when the amount of compensation for janitor service should be increased.

As a result the existing schedule of compensation for janitors was adopted and went into effect December 20, 1912. This schedule has been in force since that date.

The schedule of 1912 follows along the same lines as the schedule of 1904, taking into account the same factors as the former schedule, viz.:

1. Cleaning.
2. Heating, Ventilation and Superintendence.
3. Washing of Windows.
4. Care of Yards and Sidewalks.
5. Care of Lawns.

The compensation in all cases was based upon areas, that for *Cleaning and Heating, Ventilation and Superintendence* being based upon the areas of the floors of the building, while the compensation for the *Washing of Windows, Care of Yards and Sidewalks, and Care of Lawns* was based upon the areas of such items.

The adoption of the schedule of 1912 effected an increase in the compensation of the janitors over that of 1904 by about \$28,600.

In a recent inquiry into the methods of paying for services of janitors of school buildings, out of fifty-three answers received it appeared that six used the floor area as a basis for determining compensation, five used the number of rooms, one used the floor area as a basis for cleaning and the cubic contents as a basis for heating, while forty-one had no system at all.

In the schedule submitted herewith no departure has been made from the number of factors which have been used as a basis upon which to compute the compensation, viz.:

1. Cleaning.
2. Heating, Ventilation and Superintendence.
3. Washing of Windows.
4. Care of Yards and Sidewalks.
5. Care of Lawns.

No change has been made in the method of computing the compensation for *Washing of Windows, Care of Yards and Sidewalks, and Care of Lawns*, although the rate per square foot has been increased.

The method of fixing compensation for *Cleaning and Heating, Ventilation and Superintendence* has been changed to that of the cubic contents of the building.

It would appear that the cubic contents of a building would more closely indicate the size of the building and the labor and responsibility involved in its care than its floor area, for the reason that there may be a substantial difference in the sizes of two buildings which have the same floor area but one of which may be very much larger, due to the greater height of the rooms, of the basement, and of halls, gymnasias, work shops, etc.

While it may be held by some that the floor area is a more accurate basis for the compensation for *Cleaning* it should be borne in mind that the volume of the building is a much more logical basis of measurement of the size of the building and in consequence of the amount of labor involved in the care of its heating and ventilating apparatus and in the amount of supervision required.

In the older schedules one of the means adopted for the determination of the compensation for *Heating, Ventilation and Superintendence* has been that of classifying the buildings into three groups, all furnace and stove-heated buildings having been put into Class C. While it is generally admitted that the training necessary to operate such plants does not have to be as long, nor the skill required of such a high degree, as that for steam-heated buildings, the additional labor necessary for their operation is so great that it has been claimed that the compensation for the *Heating, Ventilation and Superintendence* of such buildings should be as great as for the steam-heated buildings in Class B. In consequence, Class C has been eliminated from the proposed schedule and all such buildings included with the steam-heated buildings of Class B.

This report contains a table showing the buildings at present occupied for school purposes, the compensation for each building under the existing and the proposed schedules, and the increases resulting from the adoption of the proposed schedule. Although extreme care has

been exercised in the preparation of this table it is possible that errors may exist therein, and I therefore recommend that the compensation for the janitor service of each building be established in accordance with the provisions of the appended orders.

The adoption of the proposed schedule would result in an increase of about \$52,000 over the present annual expenditure for janitor service.

Very truly yours,

WILLIAM T. KEOUGH,  
*Business Agent.*



## SCHEDULE.

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### SECTION 1. FACTORS USED.

The total compensation for janitor service is based on the following five factors:

1. Cleaning.
2. Heating, Ventilation and Superintendence.
3. Washing of Windows.
4. Care of Yards and Sidewalks.
5. Care of Lawns.

### SECTION 2. OTHER FACTORS.

Because many other factors do not appear in this schedule, it does not mean that they are not paid for, but that in order to get a simple, workable formula the payment has been reduced to the basis of these five, and is established at a rate sufficiently high to cover the compensation for all others.

### SECTION 3. CUBIC CONTENTS.

Wherever the term "cubic contents" is used in this schedule it is intended to mean the total cubic contents of the building computed in accordance with the rule of the National Association of School Accounting and Business Officials, and endorsed by the American Institute of Architects, which establishes a standard method of computing such cubic contents for the purpose of making comparisons of the costs of school buildings, and which is as follows:

The area of the outside of the building at the first floor shall be multiplied by the height of the building from the under side of the general basement floor to the mean height of the roof. Where portions of the

building are built to different heights, each portion is to be taken as an individual unit and the foregoing rule applied.

In applying this rule, however, the following modifications shall be made:

In the case of pitch-roof buildings with unused attics, deduction will be made of a volume such as would reduce the cubic contents of the building to that which it would have if fitted with a flat roof.

For the purpose of applying this schedule, the cubic contents of the buildings shall be such as shall have been certified by the Schoolhouse Commission.

#### SECTION 4. RATES.

It should be thoroughly understood that no matter how large the building the compensation for *Cleaning* for the first 10,000 cubic feet shall be at the rate of \$0.004, for the second 10,000 cubic feet at the rate of \$0.0038, for the third 10,000 cubic feet at the rate of \$0.0036, and so on as per schedule up to the total cubic contents of the building.

In the same way for the *Heating, Ventilation and Superintendence* of a building of Class A, no matter how large, the compensation for the first 10,000 cubic feet shall be at the rate of \$0.005, for the next 10,000 cubic feet at the rate of \$0.0047, for the next 10,000 cubic feet at the rate of \$0.0044, and so on as per schedule up to the total cubic contents of the building.

For the *Heating, Ventilation and Superintendence* of a building of Class B, no matter how large, the compensation for the first 10,000 cubic feet shall be at the rate of \$0.005, for the next 10,000 at the rate of \$0.0047, for the next 10,000 at the rate of \$0.0044, and so on as per schedule up to the total cubic contents of the building.

TABLE NO. 1.  
NORMAL GROUP TO BENJAMIN POPE, INCLUSIVE.



TABLE SHOWING EXISTING AND PROPOSED SALARIES.

TABLE NO. 1.

NAME OF SCHOOL.	CLASS.	PRESENT SCHEDULE.									PROPOSED SCHEDULE.									NAME OF SCHOOL.			
		AREAS (SQUARE FEET).				COMPENSATION.					CUBICAL CONTENTS.			COMPENSATION.									
		Floors.	Windows.	Yards and Sidewalks.	Lawns.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.	Type of Roof.	Entire Cubical Contents.	Minus Unused Attic Space.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.		Total.	Yearly Increase.	Per Cent.
Normal Group.....	A	174,254	23,940	22,068	14,935	\$6,680 10†	\$359 12	\$44 14	\$44 80	\$7,128 16	Flat and pitch.	3,488,232	.....	\$3,643 59	\$3,707 41	\$395 01	\$86 20	\$49 29	\$7,861 50	\$733 34	10.2	Normal Group.	
Brighton High.....	A	54,111	15,323	11,902	46,623	\$1,098 78	\$1,221 11	229 85	23 80	139 87	2,713 41	Flat.	1,020,163	1,009,100	1,262 10	1,377 10	252 83	35 71	153 86	\$3,081 60	368 19	13.5	Brighton High.
Charlestown High.....	A	59,792	9,230	3,913	.....	1,189 67	1,329 05	138 45	7 83	.....	2,665 00	Flat.	1,098,693	.....	1,351 69	1,466 69	152 30	11 74	.....	2,982 42	317 42	11.9	Charlestown High.
Dorchester High.....	A	122,000	28,750	26,811	44,988	2,185 00	2,511 00	431 25	53 62	134 96	5,315 83	Pitch and flat.	2,307,518	.....	2,560 52	2,644 77	474 38	80 43	148 46	5,908 56	592 73	11.1	Dorchester High.
East Boston High.....	A	62,119	9,973	9,924	832	1,226 90	1,373 26	149 60	19 85	2 50	2,772 12	Flat.	1,080,041	.....	1,333 04	1,448 04	164 55	29 77	2 75	2,978 15	206 03	7.4	East Boston High.
English High and Public Latin.....	B	166,595	22,802	39,918	.....	2,898 52	2,219 14	342 03	79 84	.....	5,539 53	Pitch.	3,435,271	3,333,191	3,519 55	2,154 60	376 23	119 75	.....	6,170 13	630 60	11.3	English High and Public Latin.
Girls' High.....	A	110,210	21,299	16,458	.....	1,996 52	2,286 99	319 49	32 92	.....	4,635 92	Flat.	1,974,918	.....	2,227 92	2,342 92	351 43	49 37	.....	4,971 64	335 72	7.2	Girls' High.
High School of Commerce.....	A	109,103	14,048	20,172	31,350	1,978 65	2,265 96	210 72	40 34	94 05	4,589 72	Pitch.	1,971,619	1,953,897	2,206 90	2,321 90	231 79	60 52	103 46	4,924 57	334 75	7.2	High School of Commerce.
High School of Practical Arts.....	A	82,000	21,785	12,803	8,489	1,545 00	1,751 00	326 78	25 61	25 47	3,673 86	Flat.	1,428,890	.....	1,681 89	1,796 89	359 45	38 41	28 01	3,904 65	230 79	6.2	High School of Practical Arts.
High School of Practical Arts Annex.....	B	6,789	629	.....	.....	201 38*	241 18*	9 44	.....	.....	452 00*	Pitch.	84,039	.....	215 91*	249 51*	10 38	.....	.....	475 80*	23 80	5.2	High School of Practical Arts Annex
Hyde Park High.....	A	59,868	7,434	23,894	4,790	1,190 89	1,330 49	111 51	47 79	14 37	2,695 05	Pitch and flat.	1,028,133	964,890	1,217 89	1,332 89	122 66	71 68	15 81	2,760 93	65 88	2.7	Hyde Park High.
Mechanic Arts High.....	A	115,380	32,795	7,155	.....	2,079 08	2,385 22	491 93	14 31	.....	4,970 54	Flat.	2,211,613	.....	2,464 61	2,558 45	541 12	21 47	.....	5,585 65	615 11	12.3	Mechanic Arts High.
Roxbury High.....	A	89,875	18,760	15,154	4,335	1,671 00	1,900 63	281 40	30 31	13 01	3,896 35	Pitch and flat.	1,753,993	1,518,302	1,771 30	1,886 30	309 54	45 46	14 31	4,026 91	130 56	3.3	Roxbury High.
South Boston High.....	A	72,298	16,717	35,893	63,211	1,389 77	1,566 66	250 76	71 79	189 63	3,468 61	Flat and pitch.	1,470,508	1,406,293	1,659 29	1,774 29	275 83	107 68	208 60	4,025 69	557 08	16.0	South Boston High.
West Roxbury High.....	A	65,307	17,150	11,677	23,002	1,277 91	1,433 83	257 25	23 35	69 01	3,061 35	Pitch.	1,227,735	1,183,005	1,436 01	1,551 01	282 98	35 03	75 91	3,380 94	319 57	10.4	West Roxbury High.
Aaron Davis.....	B	16,012	1,724	13,750	.....	450 24	412 14	25 86	27 50	.....	915 74	Mansard.	273,019	.....	526 02	533 72	28 45	41 25	.....	1,129 44	213 70	23.3	Aaron Davis.
Abby W. May.....	B	10,550	3,434	6,612	658	336 10	346 60	51 51	13 22	1 97	749 40	Pitch.	219,927	204,282	457 28	471 85	56 66	19 84	2 17	1,007 80	258 40	34.4	Abby W. May.
Abraham Lincoln.....	A	67,635	11,084	23,565	7,790	1,315 16	1,478 07	166 26	47 13	23 37	3,029 99	Flat.	1,149,645	.....	1,402 65	1,517 65	182 89	70 70	25 71	3,199 60	169 61	5.5	Abraham Lincoln.
Abram E. Cutter.....	B	6,293	1,279	10,774	.....	191 47*	236 42*	19 19	21 55	.....	468 63*	Pitch.	93,354	88,068	223 00*	256 60*	21 10	32 32	.....	533 02*	64 39	13.7	Abram E. Cutter.
Agassiz.....	A	30,941	8,463	26,673	5,346	726 00	780 88	126 95	53 35	16 04	1,703 22	Pitch.	629,641	622,756	875 76	990 76	139 64	80 02	17 64	2,103 82	400 60	23.5	Agassiz.
Albert Palmer.....	B	10,812	3,296	13,292	.....	341 86	349 74	49 44	26 58	.....	767 62	Pitch.	228,091	199,348	452 02	467 19	54 38	39 88	.....	1,013 47	245 85	32.0	Albert Palmer.
Amos Webster.....	B†	8,383	1,039	9,176	.....	288 43	288 83	15 59	18 35	.....	611 20	Pitch.	126,955	119,455	332 18	367 32	17 14	27 53	.....	744 17	132 97	21.7	Amos Webster.
Andrews.....	A	21,400	6,316	9,981	.....	555 60	599 60	94 74	19 96	.....	1,269 90	Flat.	388,720	.....	641 72	728 90	104 21	29 94	.....	1,504 77	234 87	18.4	Andrews.
Asa Gray.....	B	14,515	3,825	9,428	310	419 77	394 16	57 38	18 86	0 93	891 10	Pitch.	276,036	244,407	497 41	507 97	63 11	28 28	1 02	1,097 79	206 69	23.1	Asa Gray.
Atherton.....	B	12,097	2,593	21,077	.....	369 03	365 16	38 90	42 15	.....	815 24	Pitch.	250,080	231,845	484 85	496 66	42 78	63 23	.....	1,087 52	272 28	33.3	Atherton.
Auburn.....	B†	6,542	984	11,600	.....	196 44*	214 50*	14 76	23 20	.....	448 90*	Pitch.	99,634	.....	241 82*	273 87*	16 24	34 80	.....	566 73*	117 83*	26.2	Auburn.
Austin.....	B†	6,433	1,550	3,348	.....	242 83	266 50	23 25	6 70	.....	539 28	Pitch.	101,247	95,448	293 90	334 81	25 58	10 04	.....	664 33	125 05	23.1	Austin.
Bailey Street.....	B	6,528	818	19,674	13,320	245 20	298 34	12 27	39 35	39 96	635 12	Pitch.	105,101	103,106	307 66	346 83	13 50	59 02	43 96	771 02	135 90	21.3	Bailey Street.
Benedict Fenwick.....	B	21,493	3,781	19,784	17,661	557 37	477 92	56 72	39 57	52 98	1,184 56	Flat.	318,492	.....	571 49	574 64	62 39	59 35	58 28	1,326 15	141 59	11.9	Benedict Fenwick.
Benjamin Cushing.....	B	15,296	5,328	20,133	.....	435 92	403 55	79 92	40 27	.....	959 66	Pitch.	310,984	276,683	529 68	537 01	87 91	60 40	.....	1,215 00	255 34	26.6	Benjamin Cushing.
Benjamin Dean.....	B	14,500	4,446	7,847	.....	419 50	394 00	66 69	15 69	.....	895 88	Flat.	239,174	.....	492 17	503 26	73 36	23 54	.....	1,092 33	196 45	21.9	Benjamin Dean.
Benjamin Pope.....	B	13,012	2,608	16,974	.....	388 25	376 14	39 12	33 95	.....	837 46	Pitch.	268,582	210,879	463 88	477 79	43 03	50 92	.....	1,035 62	198 16	23.5	Benjamin Pope.

\* 80 per cent of compensation on cleaning, heating, ventilating and superintendence.

† Formerly Class C.

‡ Special salary.



TABLE NO. 2.  
B. F. TWEED TO DWIGHT, INCLUSIVE.





TABLE SHOWING EXISTING AND PROPOSED SALARIES.—Continued.

NAME OF SCHOOL.	CLASS.	PRESENT SCHEDULE.									PROPOSED SCHEDULE.									NAME OF SCHOOL.			
		AREAS (SQ. FEET).				COMPENSATION.					CUBICAL CONTENTS.			COMPENSATION.									
		Floors.	Windows.	Yards and Sidewalks.	Lawns.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.	Type of Roof.	Entire Cubical Contents.	Minus Unused Attic Space.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.		Total.	Yearly Increase.	Per Cent.
B. F. Tweed.....	B	11,258	2,142	11,811	2,030	\$351 41	\$355 10	\$32 13	\$23 62	\$6 09	\$768 35	Flat.	194,692	.....	\$445 04	\$461 37	\$35 34	\$35 43	\$6 70	\$983 88	\$215 53	28.0	B. F. Tweed.
Bennett.....	B	21,036	2,598	17,342	4,359	548 68	472 43	38 97	34 68	13 08	1,107 84	Mansard.	381,469	363,751	616 75	615 38	42 87	52 03	14 38	1,341 41	233 57	21.0	Bennett.
Bennett Annex.....	B	9,990	3,159	5,900	1,103	259 02*	271 90*	47 39	11 80	3 31	593 42*	Pitch.	193,874	172,098	328 92*	346 50*	52 12	17 70	3 64	748 88*	155 46	26.1	Bennett Annex.
Bigelow.....	A	44,224	8,520	17,266	.....	940 58	1,033 26	127 80	34 52	.....	2,136 17	Flat.	842,147	.....	1,095 15	1,210 15	140 58	51 80	.....	2,497 68	361 51	16.8	Bigelow.
Blackinton.....	A	29,127	6,206	36,171	943	695 16	746 41	93 09	72 34	2 83	1,609 83	Flat.	502,528	.....	755 53	870 53	102 40	108 51	3 11	1,840 08	230 25	14.3	Blackinton.
Bowditch.....	A	30,521	7,785	12,725	3,949	718 86	772 90	116 78	25 45	11 85	1,645 84	Pitch.	594,092	568,018	821 02	936 02	128 45	38 18	13 03	1,936 70	290 86	17.6	Bowditch.
Bowdoin.....	A	31,949	9,141	5,318	.....	743 13	800 03	137 12	10 64	.....	1,690 92	Flat.	584,957	566,492	819 49	934 49	150 83	15 95	.....	1,920 76	229 84	13.5	Bowdoin.
Bunker Hill.....	B	25,582	3,108	13,318	.....	631 93	526 93	46 62	26 64	.....	1,232 12	Mansard.	407,898	.....	660 90	655 11	51 28	39 95	.....	1,407 24	175 12	14.2	Bunker Hill.
Canterbury Street.....	B†	3,163	378	20,011	.....	175 00	175 00	5 67	40 02	.....	395 69	Pitch.	51,578	49,788	225 00‡	225 00‡	6 24	60 03	.....	516 27‡	120 58	30.4	Canterbury Street.
Capen.....	B	11,910	1,745	11,008	.....	365 11	362 92	26 18	22 02	.....	776 23	Mansard.	173,092	.....	412 64	434 37	28 79	33 02	.....	908 82	132 59	17.0	Capen.
Chapman.....	A	40,515	11,421	19,084	.....	881 24	962 79	171 32	38 17	.....	2,053 52	Pitch.	742,167	728,153	981 15	1,096 15	188 45	57 25	.....	2,323 00	269 48	13.1	Chapman.
Charles Bulfinch.....	B	22,215	3,729	19,911	14,574	571 09	486 58	55 94	39 82	43 72	1,197 15	Flat.	361,263	.....	614 26	613 14	61 53	59 73	48 09	1,396 75	199 60	16.6	Charles Bulfinch.
Charles E. Daniels.....	D†	4,461	696	5,757	.....	186 75	223 83	10 44	11 51	.....	432 53	Pitch.	69,346	67,608	230 54	271 06	11 48	17 27	.....	530 35	97 82	22.6	Charles E. Daniels.
Charles C. Perkins.....	B†	17,711	4,515	9,539	2,175	484 22	382 11	67 73	19 08	6 53	959 67	Pitch.	364,842	287,452	540 45	546 71	74 50	28 62	7 18	1,197 46	237 79	24.7	Charles C. Perkins.
Charles Sumner.....	B	22,271	4,536	22,366	3,025	572 15	487 25	68 04	44 73	9 08	1,181 25	Pitch.	380,637	.....	633 64	630 57	74 84	67 10	9 98	1,416 13	234 88	19.8	Charles Sumner.
Chestnut Avenue.....	B†	4,312	488	12,840	.....	181 98	219 36	7 32	25 68	.....	434 34	Pitch.	58,779	56,510	225 00‡	225 00‡	8 05	38 52	.....	496 57‡	62 23	14.3	Chestnut Avenue.
Choate Burnham.....	B	13,395	4,463	12,822	.....	396 30	380 74	66 95	25 64	.....	869 63	Pitch.	280,426	241,624	494 62	505 46	73 64	38 47	.....	1,112 19	242 56	27.9	Choate Burnham.
Christopher Gibson.....	A	36,098	6,397	27,825	2,976	810 57	878 86	95 96	55 65	8 93	1,849 97	Pitch.	792,370	655,026	908 03	1,023 03	105 55	83 48	9 82	2,129 91	279 94	15.1	Christopher Gibson.
Clinch.....	B	10,205	2,548	12,578	.....	328 51	342 46	38 22	25 16	.....	734 35	Mansard.	164,197	.....	399 30	423 25	42 04	37 73	.....	902 32	167 97	22.8	Clinch.
Comins.....	B	22,488	1,963	20,264	.....	576 27	489 86	29 45	40 53	.....	1,136 11	Pitch.	348,357	332,540	585 54	587 29	32 39	60 79	.....	1,266 01	129 90	11.4	Comins.
Commodore Barry.....	A	23,801	2,989	18,563	.....	600 42	645 22	44 84	36 73	.....	1,327 21	Pitch.	444,417	421,909	674 91	770 39	49 32	55 69	.....	1,550 31	223 10	16.8	Commodore Barry.
Copley.....	A	15,095	3,986	20,029	.....	431 90	479 81	59 79	40 06	.....	1,011 56	Flat.	296,769	266,312	519 31	575 89	65 77	60 09	.....	1,221 06	209 50	20.7	Copley.
Cottage Place.....	B†	4,387	366	7,066	.....	184 38	221 61	5 49	14 13	.....	425 61	Pitch.	86,480	85,683	273 50	315 50	6 04	21 20	.....	616 24	190 63	44.7	Cottage Place.
Cudworth.....	A	19,116	5,550	21,320	.....	512 20	556 20	83 25	42 64	.....	1,194 29	Pitch.	403,360	376,646	629 65	713 81	91 58	63 96	.....	1,499 00	304 71	25.5	Cudworth.
Cyrus Alger.....	B	14,236	3,501	11,976	784	413 96	390 83	52 52	23 95	2 35	883 61	Pitch.	296,090	230,440	483 44	495 40	57 77	35 93	2 59	1,075 13	191 52	21.6	Cyrus Alger.
Damon.....	B	15,171	1,904	45,636	.....	433 42	402 05	28 56	91 27	.....	955 30	Pitch.	249,544	227,004	480 00	492 30	31 42	136 91	.....	1,140 63	185 33	19.4	Damon.
Dearborn.....	A	63,406	8,450	24,438	.....	1,247 50	1,397 71	168 33	36 84	.....	2,850 38	Pitch.	980,948	876,523	1,129 52	1,244 52	139 43	73 31	.....	2,586 78¶	263 60¶	9.2	Dearborn.
Dillaway.....	B	25,969	4,771	17,213	784	639 44	531 63	71 57	34 43	2 35	1,279 42	Pitch.	497,778	443,714	696 71	687 34	78 72	51 64	2 59	1,517 00	237 58	18.5	Dillaway.
Dillaway Annex.....	B†	1,000§	100	6,000	.....	51 00	60 00	1 50	12 00	.....	124 50	Pitch.	36,576	20,000§	78 00	97 00	1 65	18 00	.....	194 65	70 15	56.3	Dillaway Annex.
Dorchester Avenue.....	B	7,507	893	13,897	21,209	268 66	310 08	13 47	27 79	63 63	683 63	Pitch.	113,791	107,564	314 35	352 46	14 82	41 69	69 99	793 31	109 68	16.0	Dorchester Avenue.
Drake.....	B	8,416	1,176	9,728	.....	289 15	320 99	17 64	19 46	.....	647 24	Pitch.	152,596	139,170	361 76	391 96	19 40	29 18	.....	802 30	155 06	23.9	Drake.
Dudley.....	B	40,160	6,092	13,909	3,178	875 56	701 92	91 38	27 82	9 53	1,706 21	Mansard.	772,480	720,579	973 58	848 29	100 52	41 73	10 49	1,974 61	268 40	15.7	Dudley.
Dwight.....	B	21,805	3,540	16,778	.....	618 49	517 66	53 10	33 56	.....	1,222 81	Pitch.	413,166	391,042	644 04	639 94	58 41	50 33	.....	1,392 72	169 91	13.8	Dwight.

\* 80 per cent of compensation on cleaning, heating, ventilating and superintendence.

† Formerly Class C.

‡ Sec order No. 7.

§ Portion of building.

¶ Decrease.



**TABLE NO. 3.**  
**EDMUND P. TILESTON TO GRANT, INCLUSIVE.**



TABLE SHOWING EXISTING AND PROPOSED SALARIES.—Continued.

NAME OF SCHOOL.	CLASS.	PRESENT SCHEDULE.									PROPOSED SCHEDULE.									NAME OF SCHOOL.			
		AREAS (SQ. FEET).				COMPENSATION.					CUBICAL CONTENTS.			COMPENSATION.									
		Floors.	Windows.	Yards and Sidewalks.	Lawns.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.	Type of Roof.	Entire Cubical Contents.	Minus Unused Attic Space.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.		Total.	Yearly Increase.	Per Cent.
Edmund P. Tileston.....	B	39,904	9,116	26,841	36,874	\$871 46	\$698 85	\$136 74	\$53 68	\$110 02	\$1,871 35	Flat.	679,514	.....	\$932 51	\$827 76	\$150 41	\$80 52	\$121 68	\$2,112 88	\$241 53	12.9	Edmund P. Tileston.
Edward Everett.....	A	25,073	4,065	16,630	15,565	623 31	669 39	60 98	33 26	76 70	1,463 64	Pitch.	511,633	476,859	729 86	839 07	67 07	49 89	51 36	1,737 25	273 61	18.6	Edward Everett.
Elbridge Smith.....	B	13,808	2,034	6,603	49,679	404 96	385 70	30 51	13 21	149 04	983 42	Mansard.	220,086	212,256	465 26	479 03	33 56	19 81	163 94	1,161 60	178 18	18.1	Elbridge Smith.
Elihu Greenwood.....	B	20,096	2,136	41,030	1,973	530 82	461 15	32 04	82 06	5 92	1,111 99	Mansard.	337,951	.....	590 95	592 16	35 24	123 09	6 51	1,347 95	235 96	21.2	Elihu Greenwood.
Eliot and Christopher Columbus.....	B	63,035	9,443	6,952	2,475	1,241 56	976 42	141 65	13 90	7 43	2,380 96	Flat and pitch.	1,207,561	1,153,663	1,406 67	1,064 83	155 81	20 86	8 17	2,656 34	269 38	11.3	Eliot and Christopher Columbus.
Elizabeth Peabody.....	B†	7,495	1,730	4,611	.....	268 39	279 95	25 95	9 22	.....	583 51	Pitch.	123,050	114,646	324 97	361 31	28 55	13 83	.....	728 66	145 15	24.8	Elizabeth Peabody.
Ellen H. Richards.....	A	14,500	3,399	16,037	11,031	419 50	468 50	50 99	32 07	33 09	1,004 15	Flat.	225,437	.....	478 44	524 80	56 08	48 11	36 40	1,143 83	139 68	13.9	Ellen H. Richards.
Ellis Mendell.....	B	26,505	4,176	17,258	8,369	649 09	538 06	62 64	34 52	25 11	1,309 42	Flat.	529,994	497,873	750 87	736 09	68 90	51 77	27 62	1,635 25	325 83	24.8	Ellis Mendell.
Emerson.....	B	32,327	4,358	23,715	12,992	749 56	607 92	65 37	47 43	38 98	1,509 26	Pitch.	560,282	543,583	796 58	759 79	71 91	71 15	42 87	1,742 30	233 04	15.4	Emerson.
Emily A. Fifield.....	A	26,100	5,237	26,704	2,481	641 80	688 90	78 56	53 41	7 44	1,470 11	Flat.	437,871	.....	690 87	790 34	86 41	80 11	8 19	1,655 92	185 81	12.6	Emily A. Fifield.
Everett.....	B	29,378	3,577	24,164	.....	699 43	572 54	53 66	48 33	.....	1,373 96	Flat.	515,102	.....	768 10	745 55	59 02	72 49	.....	1,645 16	271 20	19.7	Everett.
Everett Street.....	B†	2,011	446	16,210	.....	175 00	175 00	.....	.....	.....	350 00	Pitch.	34,625	.....	225 00†	225 00†	7 36	48 63	.....	505 99†	155 99	44.5	Everett Street.
Fairmount.....	B	19,614	2,064	40,856	1,800	521 67	455 37	30 96	81 71	5 40	1,095 11	Mansard.	324,881	.....	577 88	580 39	34 06	122 57	5 94	1,320 84	225 73	20.6	Fairmount.
Farragut.....	A	29,564	3,819	19,468	2,021	702 59	754 72	57 29	38 94	6 06	1,559 60	Flat.	611,913	.....	864 91	979 91	63 01	58 40	6 67	1,972 90	413 30	26.5	Farragut.
Florence Nightingale.....	A	16,212	2,968	21,041	32,783	454 24	501 03	44 52	42 08	98 35	1,140 22	Flat.	256,715	.....	509 72	563 89	48 97	63 12	108 18	1,293 88	153 66	13.4	Florence Nightingale.
Florence Street.....	B	9,874	1,175	23,661	.....	321 23	338 49	17 63	47 32	.....	724 67	Pitch.	160,696	155,209	385 81	412 01	19 39	70 98	.....	888 19	163 52	22.5	Florence Street.
Frances E. Willard.....	B	7,351	1,156	6,141	.....	265 07	308 21	17 34	12 28	.....	602 90	Pitch.	117,608	.....	329 41	365 01	19 07	18 42	.....	731 91	129 01	21.3	Frances E. Willard.
Francis Parkman.....	A	28,258	4,331	23,787	9,859	680 39	729 90	64 97	47 57	29 58	1,552 41	Flat.	466,737	.....	719 74	826 42	71 46	71 36	32 53	1,721 51	169 10	10.8	Francis Parkman.
Franklin.....	B	26,504	3,274	14,964	.....	649 07	538 05	49 11	29 93	.....	1,266 16	Pitch.	432,029	401,834	654 83	649 65	54 02	44 89	.....	1,403 39	137 23	10.8	Franklin.
Frederic A. Whitney.....	A	18,873	3,333	15,678	.....	507 46	551 59	50 00	31 36	.....	1,140 41	Flat.	342,776	312,448	565 45	633 56	54 99	47 03	.....	1,301 03	160 62	14.0	Frederic A. Whitney.
Frederic W. Lincoln.....	A	24,029	3,345	19,480	1,500	604 52	649 65	50 18	38 96	4 50	1,347 71	Mansard.	446,228	402,392	655 39	745 99	55 19	58 44	4 95	1,519 96	172 25	12.7	Frederic W. Lincoln.
Freeman.....	B†	7,918	1,352	3,274	.....	278 11	284 18	20 28	6 55	.....	589 12	Pitch.	144,760	130,660	348 99	381 33	22 31	9 82	.....	762 45	173 33	29.4	Freeman.
Frothingham.....	B	31,701	5,845	11,772	875	738 92	600 41	87 68	23 54	2 63	1,453 18	Pitch.	575,918	543,311	796 31	759 66	96 44	35 32	2 89	1,690 62	237 44	16.3	Frothingham.
Frothingham Annex.....	B†	1,981	313	.....	.....	76 12*	95 09*	4 70	.....	.....	175 91*	Pitch.	37,151	.....	110 65*	135 68*	5 16	.....	.....	251 49*	75 58	42.9	Frothingham Annex.
Gaston.....	B	40,439	5,435	23,266	5,773	880 02	705 27	81 53	46 53	17 32	1,730 67	Pitch.	656,400	.....	909 40	816 20	89 68	69 80	19 05	1,904 13	173 46	10.0	Gaston.
George Bancroft.....	B	19,146	3,230	14,107	.....	512 77	449 75	48 45	28 21	.....	1,039 18	Mansard.	336,770	315,262	568 26	571 74	53 30	42 32	.....	1,235 62	196 44	18.9	George Bancroft.
George Frisbie Hoar.....	A	18,987	3,389	18,077	.....	509 74	553 75	50 84	36 15	.....	1,150 48	Flat.	302,503	.....	555 50	621 13	55 92	54 23	.....	1,286 78	136 30	11.8	George Frisbie Hoar.
George Putnam.....	B	22,464	4,175	16,038	10,467	575 81	489 57	62 63	32 08	31 40	1,191 49	Pitch.	448,665	424,754	677 75	670 28	68 89	48 11	34 54	1,499 57	308 08	25.8	George Putnam.
George T. Angell.....	B	13,052	2,522	29,645	13,436	389 09	376 62	37 83	59 29	40 31	903 14	Flat.	206,259	.....	459 26	473 63	41 61	88 94	44 34	1,107 78	204 64	22.6	George T. Angell.
Germantown.....	B	6,429	1,208	5,307	16,649	242 73	297 15	18 12	10 61	49 95	618 56	Pitch.	86,198	.....	274 64	316 64	19 93	15 92	54 94	682 07	63 51	10.2	Germantown.
Gilbert Stuart.....	A	31,086	8,153	19,702	2,920	728 46	783 63	122 30	39 40	8 96	1,682 55	Flat.	599,282	581,248	834 25	949 25	134 52	59 11	9 64	1,986 77	304 22	18.0	Gilbert Stuart.
Glenway and Glenway Annex.....	B	4,806	846	35,302	.....	224 14	328 15	12 70	71 60	.....	636 59	Pitch.	95,450	.....	293 90	334 81	13 96	107 41	.....	750 08	113 49	17.8	Glenway and Glenway Annex.
Grant.....	B†	5,179	873	2,003	.....	209 01	243 58	13 10	4 01	.....	469 70	Pitch.	81,032	76,112	251 67	293 28	14 40	6 01	.....	565 36	95 66	20.3	Grant.

\* 80 per cent cleaning, heating, ventilating and superintendence.

† Formerly Class C.

‡ See order No. 7.



TABLE NO. 4.  
HANCOCK TO JOSEPH TUCKERMAN, INCLUSIVE.





TABLE SHOWING EXISTING AND PROPOSED SALARIES.—Continued.

NAME OF SCHOOL.	CLASS.	PRESENT SCHEDULE.										PROPOSED SCHEDULE.										NAME OF SCHOOL.	
		AREAS (SQUARE FEET).				COMPENSATION.						CUBICAL CONTENTS.			COMPENSATION.								
		Floors.	Windows.	Yards and Sidewalks.	Lawns.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.	Type of Roof.	Entire Cubical Contents.	Minus Unused Attic Space.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.	Yearly Increase.		Per Cent.
Hancock †	B	53,919	6,184	37,758	.....	\$1,348 90	\$1,146 14	\$92 76	\$75 52	.....	\$2,663 32	Flat.**	873,603	847,261	\$1,100 26	\$911 63	\$102 04	\$113 27	.....	\$3,053 33	\$390 01‡	14.6‡	Hancock.
Harbor View Street	B†	6,523	967	19,484	8,608	245 08	267 85	14 51	38 97	\$25 82	592 23	Pitch.	103,442	.....	308 16	347 30	15 96	58 45	\$28 41	758 28	166 05	28.0	Harbor View Street.
Harris	B	19,469	2,002	30,478	5,281	518 91	453 63	30 03	60 96	15 84	1,079 37	Mansard.	296,636	.....	549 64	554 97	33 03	91 43	17 43	1,246 50	167 13	15.4	Harris.
Harvard	B	30,048	2,818	9,754	.....	710 32	580 58	42 27	19 51	.....	1,353 18	Pitch.	609,899	543,015	796 02	759 51	46 50	29 26	.....	1,631 29	278 11	20.5	Harvard.
111 Harvard Street	B†	2,500	418	.....	.....	116 00	170 00	6 27	.....	.....	292 27	Flat.	29,379	.....	111 76	138 27	6 90	.....	.....	256 93	35 34‡	12.0‡	111 Harvard Street.
141 Harvard Street	B	4,033	750	975	.....	173 06	210 99	11 25	1 95	.....	397 25	Flat.	50,989	.....	182 97	220 16	12 38	2 93	.....	418 44	21 19	5.3	141 Harvard Street.
Hawes Hall	B†	12,102	1,010	14,187	.....	369 14	326 02	15 15	28 37	.....	738 68	Pitch.	204,837	195,881	446 82	462 85	16 67	42 56	.....	968 90	230 22	31.1	Hawes Hall.
Hemenway	B†	3,940	384	11,797	.....	169 84	207 60	5 76	23 59	.....	406 79	Pitch.	69,440	57,977	225 00‡	225 00‡	6 34	35 39	.....	491 73‡	84 94	20.8	Hemenway.
Henry Grew	B	25,338	3,679	31,767	2,414	628 08	524 06	55 19	63 53	7 24	1,278 10	Mansard.	398,253	.....	651 25	646 43	60 70	95 30	7 97	1,461 65	183 50	14.0	Henry Grew.
Henry L. Pierce	B†	37,263	7,028	46,404	10,735	829 29	577 68	105 42	92 81	32 21	1,637 41	Pitch.	815,320	689,067	942 07	832 53	115 96	139 21	35 43	2,065 20	427 79	26.1	Henry L. Pierce.
Henry Vane	B	9,564	1,956	10,704	7,450	314 41	334 77	29 34	21 41	22 85	722 28	Pitch.	169,689	155,758	386 64	412 70	32 27	32 11	24 59	888 31	166 03	22.9	Henry Vane.
Hillside	B	10,204	1,325	17,511	.....	328 49	342 45	19 88	35 02	.....	725 84	Pitch.	170,760	164,582	399 87	423 73	21 86	52 53	.....	897 99	172 15	23.7	Hillside.
Hohart Street	B	7,367	947	28,765	4,404	265 44	308 40	14 21	57 53	13 21	658 79	Pitch.	108,780	103,391	308 09	347 24	15 63	86 30	14 53	771 79	113 00	17.1	Hohart Street.
Howard Avenue	B	10,422	2,843	22,308	5,116	266 63*	276 05*	42 65	44 62	15 35	645 30*	Pitch.	205,360	174,370	331 65*	348 77*	46 91	66 92	16 88	811 13*	165 83	25.6	Howard Avenue.
Howard Avenue Annex	B†	1,608	480	.....	.....	78 36	96 48	7 20	.....	.....	182 04	Pitch.	35,090	.....	105 05*	129 09*	7 92	.....	.....	242 06*	60 02	32.9	Howard Avenue Annex.
Hugh O'Brien	B	39,790	7,873	24,585	5,520	869 64	697 48	118 10	49 17	16 56	1,750 95	Pitch.	845,712	760,305	1,013 31	868 15	129 90	73 76	18 22	2,103 34	352 39	20.1	Hugh O'Brien.
Hugh O'Brien Annex	B†	2,066	369	.....	.....	78 91*	98 64*	5 54	.....	.....	183 09*	Pitch.	35,090	.....	105 05*	129 09*	6 09	.....	.....	240 23*	57 14	31.2	Hugh O'Brien Annex.
Hull	B	13,742	1,762	15,192	3,411	403 38	384 90	26 43	30 38	10 23	855 52	Pitch.	269,023	239,431	492 43	503 49	29 07	45 58	11 26	1,081 83	226 31	26.4	Hull.
24 Hull Street	B	1,143	162	.....	.....	175 00	175 00	.....	.....	.....	350 00	.....	14,300	.....	225 00‡	225 00‡	2 67	.....	.....	452 67‡	102 67	29.3	24 Hull Street.
Hyde	B	33,923	8,047	12,839	.....	775 77	627 06	120 71	25 68	.....	1,549 24	Pitch.	628,195	585,061	838 06	780 33	132 78	38 52	.....	1,789 89	240 65	15.5	Hyde.
Ira Allen	A	15,989	2,517	18,892	.....	449 78	496 79	37 76	37 78	.....	1,022 11	Flat.	287,726	272,741	525 74	583 93	41 53	56 68	.....	1,207 88	185 77	18.1	Ira Allen.
Jacob Foss	B†	2,696	1,109	20,599	.....	175 00	175 00	16 64	41 20	.....	407 84	Pitch.	49,667	44,867	225 00‡	225 00‡	18 30	61 80	.....	530 10‡	122 26	29.9	Jacob Foss.
James Otis	A	29,100	4,725	32,340	.....	694 70	745 90	70 88	64 68	.....	1,576 16	Flat.	520,517	.....	773 52	888 52	77 96	97 02	.....	1,837 02	260 86	16.5	James Otis.
Jefferson	B	40,060	7,021	18,953	8,430	873 96	700 72	105 32	37 91	25 29	1,743 20	Flat.	839,446	.....	1,092 45	907 72	115 85	56 86	27 82	2,200 70	457 50	26.2	Jefferson.
John A. Andrew	B	33,715	6,714	16,531	1,753	772 44	624 58	100 71	33 06	5 27	1,536 06	Pitch.	588,113	576,068	829 07	776 03	110 78	49 59	5 80	1,771 27	235 21	15.3	John A. Andrew.
John Boyle O'Reilly	B	24,114	4,037	14,304	6,105	606 05	509 37	60 56	28 61	18 32	1,222 91	Flat.	442,652	418,787	671 79	664 91	66 61	42 91	20 15	1,466 37	243 46	19.9	John Boyle O'Reilly.
John Cheverus	B	31,628	4,861	19,484	28,896	737 68	599 54	72 92	38 97	86 69	1,535 80	Flat.	528,581	.....	781 58	752 29	80 21	58 45	95 36	1,767 89	232 09	15.1	John Cheverus.
John D. Philbrick	A	16,316	2,948	9,133	2,734	456 32	503 00	44 22	18 27	8 20	1,030 01	Flat.	300,973	.....	553 97	619 22	48 64	27 40	9 02	1,258 25	228 24	22.1	John D. Philbrick.
John G. Whittier	B	17,299	3,293	19,220	24,516	475 98	427 59	49 40	38 44	73 55	1,064 96	Flat.	305,598	.....	558 60	563 04	54 33	57 66	80 90	1,314 53	249 57	23.4	John G. Whittier.
John J. Williams	A	19,176	4,135	15,878	.....	513 34	557 34	62 03	31 76	.....	1,164 47	Flat.	300,474	.....	553 47	618 59	68 23	47 63	.....	1,287 92	123 45	10.6	John J. Williams.
John L. Motley	B	5,877	1,532	7,748	59,552	228 56	290 52	22 98	15 50	178 66	736 22	Flat.	98,155	.....	299 31	339 68	25 28	23 24	196 52	884 03	147 81	20.0	John L. Motley.
John Winthrop	A	34,281	4,755	19,017	6,628	781 50	844 34	71 33	38 03	19 88	1,755 08	Flat.	593,557	.....	846 56	961 56	78 46	57 05	21 87	1,965 50	210 42	11.9	John Winthrop.
Joseph Tuckerman	B	17,371	2,935	17,780	2,634	477 42	428 45	44 03	35 56	7 90	993 36	Pitch.	317,733	300,413	553 41	558 37	48 43	53 34	8 69	1,222 24	228 88	23.0	Joseph Tuckerman.

\* 80 per cent of cleaning, heating, ventilating and superintendence.

\*\* Also Pitch and Mansard.

† Formerly Class C.

‡ See order No. 7.

§ Decrease.

¶ Including Cushman and Hancock Annex.



**TABLE NO. 5.**  
**JOSHUA BATES TO OAK SQUARE, INCLUSIVE.**



TABLE SHOWING EXISTING AND PROPOSED SALARIES.—Continued.

NAME OF SCHOOL.	CLASS.	PRESENT SCHEDULE.									PROPOSED SCHEDULE.										NAME OF SCHOOL.		
		AREAS (SQUARE FEET).				COMPENSATION.					CUBICAL CONTENTS.			COMPENSATION.									
		Floors.	Windows.	Yards and Sidewalks.	Lawns.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.	Type of Roof.	Entire Cubical Contents.	Minus Unused Attic Space.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.		Yearly Increase.	Per Cent.
Joshua Bates.....	A	14,011	2,904	11,552	.....	\$409 23	\$459 21	\$43 56	\$23 10	.....	\$935 10	Pitch.	264,165	217,402	\$470 40	\$514 75	\$47 92	\$34 66	.....	\$1,067 73	\$132 63	14.1	Joshua Bates.
Julia Ward Howe.....	A	23,349	3,779	20,146	.....	592 28	636 63	56 69	40 29	.....	1,325 89	Flat.	373,980	.....	626 98	710 48	62 35	60 44	.....	1,460 25	134 36	10.1	Julia Ward Howe.
Lafayette.....	B	13,646	2,669	13,696	8,046	401 57	383 75	40 04	27 39	\$24 14	\$76 89	Pitch.	217,382	211,608	464 61	478 45	44 04	41 09	\$26 55	1,054 74	177 85	20.2	Lafayette.
Lawrence.....	B	24,647	3,192	11,949	.....	615 65	515 76	47 88	23 90	.....	1,203 19	Pitch.	415,616	373,679	626 68	624 31	52 67	35 85	.....	1,339 51	136 32	11.3	Lawrence.
Lewis.....	A	36,000	6,208	13,799	14,245	809 00	877 00	93 12	27 60	42 74	1,849 46	Flat.	634,628	.....	887 63	1,002 63	102 43	41 40	47 01	2,081 10	231 64	12.5	Lewis.
Longfellow.....	A	36,868	7,509	29,684	.....	822 89	893 49	112 64	59 37	.....	1,888 39	Pitch.	665,541	.....	918 54	1,033 54	123 90	89 05	.....	2,165 03	276 64	14.6	Longfellow.
Louis Prang.....	B†	7,899	1,034	5,802	.....	222 15*	227 19*	15 51	11 60	.....	476 45*	Pitch.	130,712	127,292	275 15*	301 69*	17 06	17 41	.....	611 31*	134 86	28.3	Louis Prang.
Louisa May Alcott.....	B†	18,958	1,765	7,422	.....	509 16	394 52	26 48	14 84	.....	945 00	Pitch.	284,208	269,768	522 77	530 79	29 12	22 27	.....	1,104 95	159 95	16.9	Louisa May Alcott.
Lowell.....	B	36,280	6,413	24,159	3,567	813 48	655 36	96 20	48 32	10 70	1,624 06	Pitch.	696,540	630,208	883 21	803 10	105 81	72 48	11 77	1,876 37	252 31	15.5	Lowell.
Lowell Annex.....	B†	2,158	396	.....	.....	81 86*	102 32*	5 94	.....	.....	190 12*	Pitch.	40,786	.....	120 41*	147 06*	6 53	.....	274 00*	83 88	44.1	Lowell Annex.	
Lucretia Crocker.....	A	13,339	2,575	27,340	.....	395 12	446 44	38 63	54 68	.....	934 87	Pitch.	264,911	213,604	466 60	510 01	42 49	82 02	.....	1,101 12	166 25	17.7	Lucretia Crocker.
Lyceum Hall.....	B	13,823	3,104	25,701	.....	324 22*	308 70*	46 56	51 40	.....	730 88*	Pitch.	210,862	199,347	361 62*	373 74*	51 22	77 10	.....	863 68*	132 80	18.1	Lyceum Hall.
Margaret Fuller.....	A	10,329	4,338	10,050	918	331 24	389 25	65 07	20 10	2 75	808 41	Flat.	192,158	.....	441 24	481 24	71 58	30 15	3 03	1,027 24	218 83	27.0	Margaret Fuller.
Marshall.....	A	42,321	5,943	24,180	3,295	910 14	997 10	89 15	48 36	9 89	2,054 64	Pitch and flat.	837,931	794,793	1,047 79	1,162 79	98 06	72 54	10 87	2,392 05	337 41	16.4	Marshall.
Martha A. Baker.....	B	7,666	1,133	9,668	16,753	272 32	311 99	17 00	19 34	50 26	670 91	Flat.	125,523	.....	341 28	374 90	18 69	29 00	55 28	819 15	148 24	22.0	Martha A. Baker.
Martin.....	A	29,457	4,047	23,083	1,335	700 77	752 68	60 71	46 17	4 01	1,564 34	Pitch.	542,272	511,298	764 30	879 30	66 78	69 25	4 41	1,784 04	219 70	14.0	Martin.
Mary Hemenway.....	A	29,385	8,050	20,180	4,367	699 54	751 32	120 75	40 36	13 10	1,625 07	Pitch.	614,023	592,368	845 37	960 37	132 83	60 54	14 41	2,013 52	388 45	23.9	Mary Hemenway.
Mary L. Brock.....	B	5,444	1,057	11,244	12,836	216 43	285 33	15 86	22 49	38 51	578 62	Pitch.	115,358	95,570	294 14	335 03	17 44	33 73	42 36	722 70	144 08	24.9	Mary L. Brock.
Mary Lyon.....	A	11,643	2,271	14,110	23,592	359 50	414 22	34 07	28 22	70 78	906 79	Flat.	186,097	.....	432 15	472 15	37 47	42 33	77 85	1,061 95	155 16	17.1	Mary Lyon.
Mather.....	A	66,347	10,293	29,811	16,297	1,294 55	1,453 59	154 40	59 62	48 89	3,011 05	Flat.	1,267,043	.....	1,520 04	1,635 04	169 83	89 43	53 78	3,468 12	457 07	15.1	Mather.
Mayhew.....	A	28,472	4,255	8,310	.....	684 02	733 97	63 83	16 62	.....	1,498 44	Pitch.	551,538	501,894	754 89	869 89	70 21	24 93	.....	1,719 92	221 48	14.7	Mayhew.
Miles Standish.....	B	15,514	2,705	9,124	923	440 28	406 17	40 58	18 25	2 77	908 05	Pitch.	283,334	260,825	513 83	522 74	44 63	27 37	3 05	1,111 62	203 57	22.4	Miles Standish.
Minot.....	A	18,429	3,849	19,731	7,354	498 58	543 15	57 74	39 46	22 06	1,160 99	Pitch.	344,796	322,328	575 33	645 91	63 51	59 19	24 27	1,368 21	207 22	17.8	Minot.
Mozart.....	B	6,768	1,457	7,832	20,816	251 20	301 22	21 86	15 66	62 45	652 39	Flat.	107,328	.....	313 84	352 04	24 04	23 50	68 69	782 11	129 72	19.7	Mozart.
Mt. Pleasant Avenue.....	B†	2,674	390	8,821	.....	175 00	175 00	5 85	17 64	.....	373 49	Pitch.	35,274	34,827	225 00§	225 00§	6 44	26 46	.....	482 90§	109 41	29.2	Mt. Pleasant Avenue.
Nahum Chapin.....	B†	6,377	1,026	5,631	248	241 42	265 66	15 39	11 26	74	534 47	Pitch.	97,708	94,175	291 35	332 52	16 93	16 89	82	658 51	124 04	23.2	Nahum Chapin.
Nathan Hale.....	B	18,778	2,984	11,096	29,550	505 56	445 34	44 76	22 19	88 65	1,106 50	Pitch.	329,683	299,376	552 38	557 44	49 24	33 29	97 52	1,289 87	183 37	16.5	Nathan Hale.
Nathaniel Hawthorne.....	B	15,519	2,813	.....	.....	440 38	406 23	42 20	.....	.....	888 81	Flat.	276,739	258,382	511 38	520 54	46 41	.....	1,078 33	189 52	21.3	Nathaniel Hawthorne.	
Noble.....	B	13,183	2,434	15,151	.....	391 84	378 20	36 51	30 30	.....	836 85	Pitch.	247,792	201,389	454 39	469 25	40 16	45 45	.....	1,009 25	172 40	20.6	Noble.
Noble Annex.....	B†	1,964	370	.....	.....	75 50*	94 27*	5 55	.....	.....	175 32*	Pitch.	49,667	44,867	130 86*	158 82*	6 10	.....	295 78*	120 46	68.7	Noble Annex.	
Norcross.....	B	29,124	3,529	8,063	.....	695 11	569 49	52 94	16 13	.....	1,333 67	Mansard.	528,149	507,383	760 38	741 60	58 23	24 19	.....	1,584 49	250 82	18.8	Norcross.
North Harvard Street.....	B	6,903	756	17,725	1,075	203 67*	242 27*	11 34	35 45	3 23	495 96*	Pitch.	94,368	90,168	226 67*	260 24*	12 47	53 18	3 55	556 11*	60 15	12.1	North Harvard Street.
Oak Square.....	B	5,940	1,576	12,806	6,705	230 32	291 28	23 64	25 61	20 12	590 97	Pitch.	109,682	91,059	285 12	326 91	26 00	38 42	22 13	698 58	107 61	18.2	Oak Square.

\* 80 per cent cleaning, heating, ventilating and superintendence.

† Formerly Class C.

§ See order No. 7.



**TABLE NO. 6.**  
**OLD AGASSIZ TO SAMUEL G. HOWE, INCLUSIVE.**





TABLE SHOWING EXISTING AND PROPOSED SALARIES.—Continued.

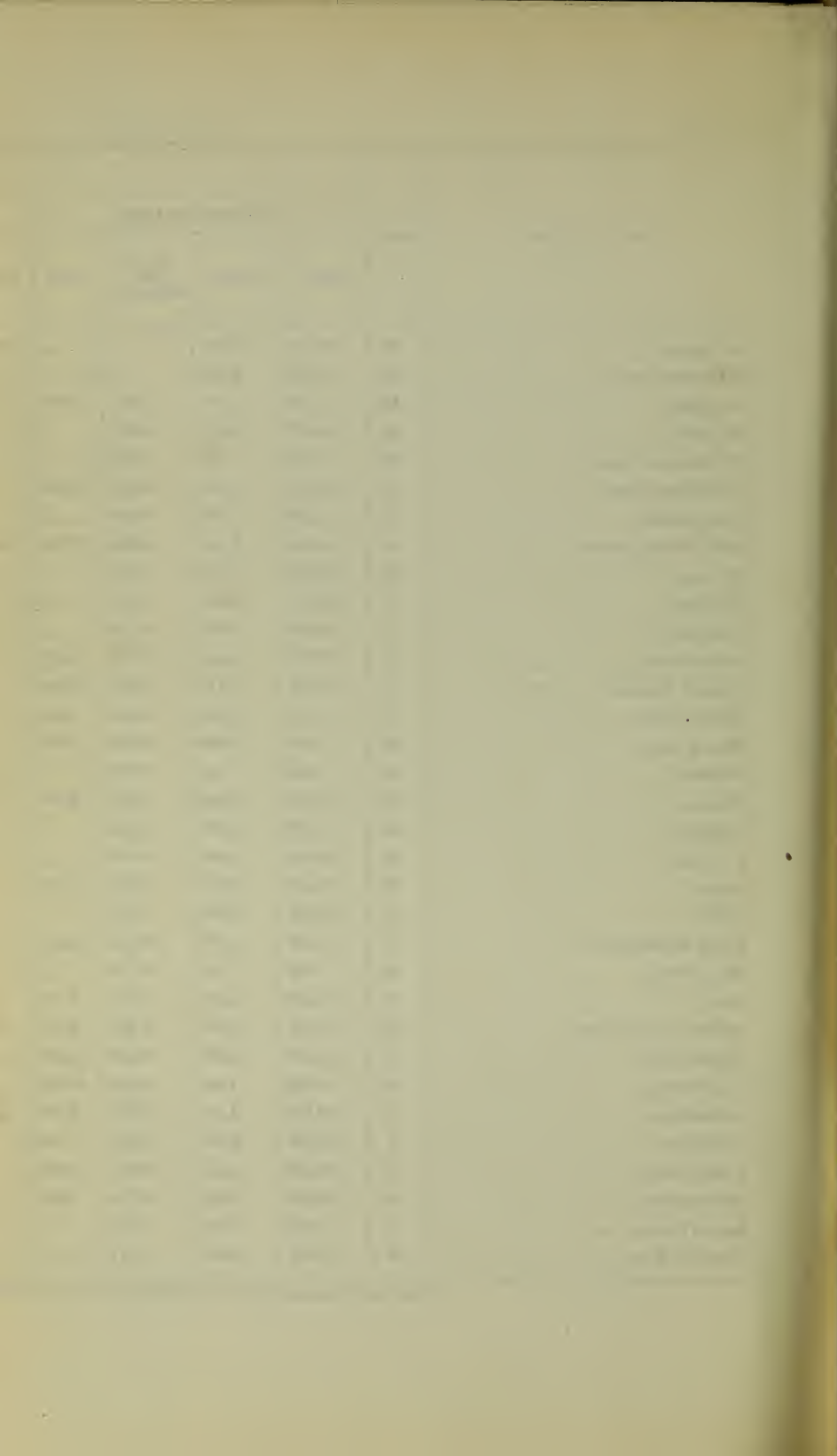
NAME OF SCHOOL.	CLASS.	PRESENT SCHEDULE.									PROPOSED SCHEDULE.									NAME OF SCHOOL.			
		AREAS (SQ. FEET.)				COMPENSATION.					CUBICAL CONTENTS.			COMPENSATION.									
		Floors.	Windows.	Yards and Sidewalks.	Lawns.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.	Type of Roof.	Entire Cubical Contents.	Minus Unused Attic Space.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.		Total.	Yearly Increase.	Per Cent.
Old Agassiz.....	B†	11,253	1,946			\$281 04*	\$254 02*	\$29 19			\$564 25*	Pitch.	193,473	182,228	\$341 07*	\$356 63*	\$32 11			\$729 81*	\$165 56	29.3	Old Agassiz.
Old Edward Everett.....	B†	9,851	1,578			256 58*	242 81*	23 67			523 06*	Pitch.	168,420	157,104	310 93*	331 50*	26 04			668 47*	145 41	27.7	Old Edward Everett.
Old Gibson.....	B†	8,379	1,175	4,024	2,796	288 34	288 79	17 63	\$8 05	\$8 39	611 20	Pitch.	146,886	143,489	368 23	397 36	19 39	\$12 07	\$9 23	806 28	195 08	31.9	Old Gibson.
Old Mather.....	B	21,867	4,207	49,768		564 47	482 40	63 11	99 54		1,209 52	Pitch.	403,855	343,125	596 13	596 81	69 42	149 30		1,411 66	202 08	16.7	Old Mather.
Old Thornton Street.....	B†	2,805	327	5,248		102 56*	128 20*	4 91	10 50		246 17*	Pitch.	42,000	41,400	121 98*	148 83*	5 40	15 74		291 95*	45 78	18.5	Old Thornton Street.
Oliver Hazard Perry.....	A	32,516	5,198	23,537	14,600	752 77	810 80	77 97	47 07	43 80	1,732 41	Flat.	596,672		849 67	964 67	85 77	70 61	48 18	2,018 90	286 49	16.5	Oliver Hazard Perry.
Oliver Holden.....	B	4,800	588	9,830		197 60	274 00	8 82	19 66		500 08	Pitch.	76,261	75,578	250 39	291 95	9 70	29 49		581 53	81 45	16.2	Oliver Holden.
Oliver Wendell Holmes.....	A	50,886	9,506	16,369	17,054	1,047 18	1,159 83	142 59	32 74	51 16	2,433 50	Flat.	975,429		1,228 43	1,343 43	156 85	49 11	56 28	2,834 10	400 60	16.4	Oliver Wendell Holmes.
Parkman.....	B†	13,227	1,575	7,420		392 77	337 27	23 63	14 84		768 51	Pitch.	210,047	202,180	455 18	469 96	25 99	22 26		973 39	204 88	26.6	Parkman.
Paul Jones.....	B	27,317	3,601	6,762	1,862	663 71	547 80	54 02	13 52	5 59	1,284 64	Flat.	457,011		710 01	699 31	59 42	20 29	6 14	1,495 17	210 53	16.3	Paul Jones.
Paul Revere.....	A	38,472	9,744	8,416		848 55	923 97	146 16	16 83		1,935 51	Flat.	684,978		937 98	1,052 98	160 78	25 25		2,176 99	241 48	12.4	Paul Revere.
Peter Faneuil.....	B	27,129	4,515	13,771	5,017	600 32	545 55	67 73	27 54	15 05	1,316 19	Flat.	427,952		680 95	673 16	74 50	41 31	16 56	1,486 48	170 29	12.9	Peter Faneuil.
Philip H. Sheridan.....	A	20,946	4,116	19,494	4,652	546 97	590 97	61 74	38 99	13 96	1,252 63	Flat.	334,774		587 77	661 46	67 91	58 48	15 35	1,390 97	138 34	11.0	Philip H. Sheridan.
Phillips Brooks.....	A	34,196	6,998	30,948	975	780 14	842 72	104 97	61 90	2 93	1,792 56	Pitch.	714,519	639,377	892 38	1,007 38	115 47	92 84	3 22	2,111 29	318 74	17.7	Phillips Brooks.
Phineas Bates.....	B†	8,004	3,169	27,892	7,076	280 09	285 04	47 54	55 78	21 23	689 68	Pitch.	157,031	137,152	358 73	389 44	52 29	83 68	23 35	907 49	217 81	31.5	Phineas Bates.
Pierpont.....	B	4,365	761	3,022		183 68	260 95	11 42	6 04		462 09	Pitch.	73,980		246 55	287 95	12 56	9 07		556 13	94 04	20.3	Pierpont.
Plummer.....	B	27,076	5,566	27,331	2,489	659 37	544 91	83 49	54 66	7 47	1,349 90	Pitch.	523,949	483,232	736 23	722 91	91 84	81 99	8 21	1,641 18	291 28	21.5	Plummer.
Pormort.....	B†	7,787	1,153	2,740		220 08*	226 30*	17 30	5 48		469 16*	Pitch.	108,974	103,684	246 82*	278 09*	19 02	8 22		552 15*	82 99	17.6	Pormort.
Prescott.....	B	38,740	5,460	28,866		947 66	837 37	81 91	57 73		1,924 67	Pitch.	773,622	681,180	934 18	828 59	90 09	86 60		1,939 46	14 79	00.7	Prescott.‡
Prince.....	B	36,190	7,958	12,035	4,399	812 04	654 28	119 37	24 07	13 20	1,622 96	Flat.	611,225		804 23	793 61	131 31	36 11	14 52	1,839 78	216 82	13.3	Prince.
Quincy.....	B	27,987	3,808	7,685		675 77	555 84	57 12	15 37		1,304 10	Pitch.	491,418	463,718	716 72	705 35	62 83	23 06		1,507 96	203 86	15.6	Quincy.
Quincy E. Dickerman.....	A	21,109	4,170	20,518	15,761	551 78	595 78	62 55	41 04	47 28	1,298 43	Flat.	389,789		642 79	730 23	68 80	61 55	52 01	1,555 38	256 95	19.7	Quincy E. Dickerman.
Quincy Street.....	B†	4,028	577	15,747		172 90	210 84	8 66	31 49		423 89	Pitch.	57,273		225 00§	225 00§	9 52	47 24		506 76§	82 87	19.5	Quincy Street.
Rice.....	B	35,666	3,448	15,392	3,780	803 66	647 99	51 72	30 78	11 34	1,545 49	Mansard.	623,612	591,522	844 52	783 76	56 89	46 18	12 47	1,743 82	198 33	12.8	Rice.
Richard C. Humphreys.....	B	21,772	3,976	27,850	1,050	562 67	481 26	59 64	55 70	3 15	1,162 42	Pitch.	359,942		612 94	611 95	65 60	83 55	3 47	1,377 51	215 09	18.5	Richard C. Humphreys.
Richard Olney.....	A	21,602	5,405	19,075	14,200	559 44	603 44	81 08	38 15	42 60	1,324 71	Pitch.	397,194	346,343	599 34	675 93	89 18	57 23	46 86	1,468 54	143 83	10.8	Richard Olney.
Robert Swan.....	B	16,429	2,490	15,091	10,900	458 58	417 15	37 35	30 18	32 70	975 96	Pitch.	314,778	273,698	526 70	534 33	41 08	45 27	35 97	1,183 35	207 39	21.2	Robert Swan.
Rochambeau.....	A	27,456	4,163	26,312	4,508	666 21	714 66	62 45	52 62	13 52	1,509 46	Flat.	431,524		684 52	782 41	68 70	78 94	14 88	1,629 45	119 99	7.9	Rochambeau.
Roger Clap.....	A	23,220	6,554	14,467	806	589 96	634 18	98 31	28 93	2 42	1,353 80	Pitch.	472,342	409,367	662 37	754 71	108 14	43 40	2 66	1,571 28	217 48	16.0	Roger Clap.
Roger Wolcott.....	A	36,209	7,541	24,918	8,520	812 34	880 97	113 12	49 84	25 56	1,881 83	Pitch.	716,784	671,081	924 08	1,039 08	124 43	74 75	28 12	2,190 46	308 63	16.4	Roger Wolcott.
Samuel Adams.....	A	35,550	5,209	23,788	7,969	801 80	868 45	78 14	47 58	23 91	1,819 88	Flat.	602,066		855 07	970 07	85 95	71 36	26 30	2,008 75	188 87	10.3	Samuel Adams.
Samuel Dexter.....	B	9,611	1,460	2,614		315 44	335 33	21 90	5 23		677 90	Pitch.	174,860	168,735	406 10	428 92	24 09	7 84		866 95	189 05	27.8	Samuel Dexter.
Samuel G. Howe.....	B	15,747	3,486	7,111		444 94	408 96	52 29	14 22		920 41	Pitch.	277,339	247,088	500 09	510 38	57 62	21 33		1,089 32	168 91	18.3	Samuel G. Howe.

\* 80 per cent cleaning, heating, ventilating and superintendence.

† Formerly Class C.

‡ Includes James A. McDonald and Polk Street.

§ See order No. 7.



**TABLE NO. 7.**  
**SAMUEL W. MASON TO WELLS, INCLUSIVE.**

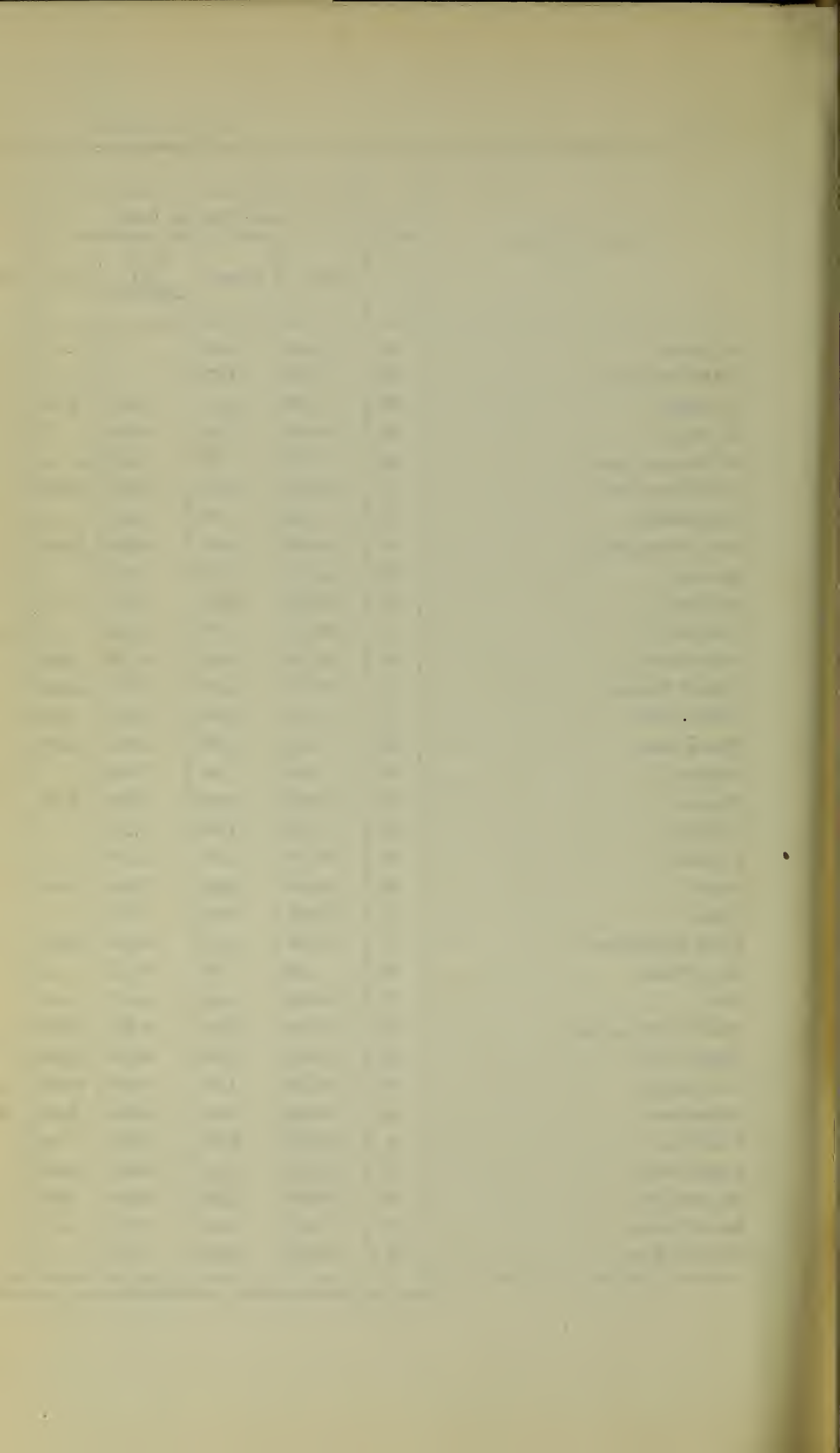


TABLE SHOWING EXISTING AND PROPOSED SALARIES.—Continued.

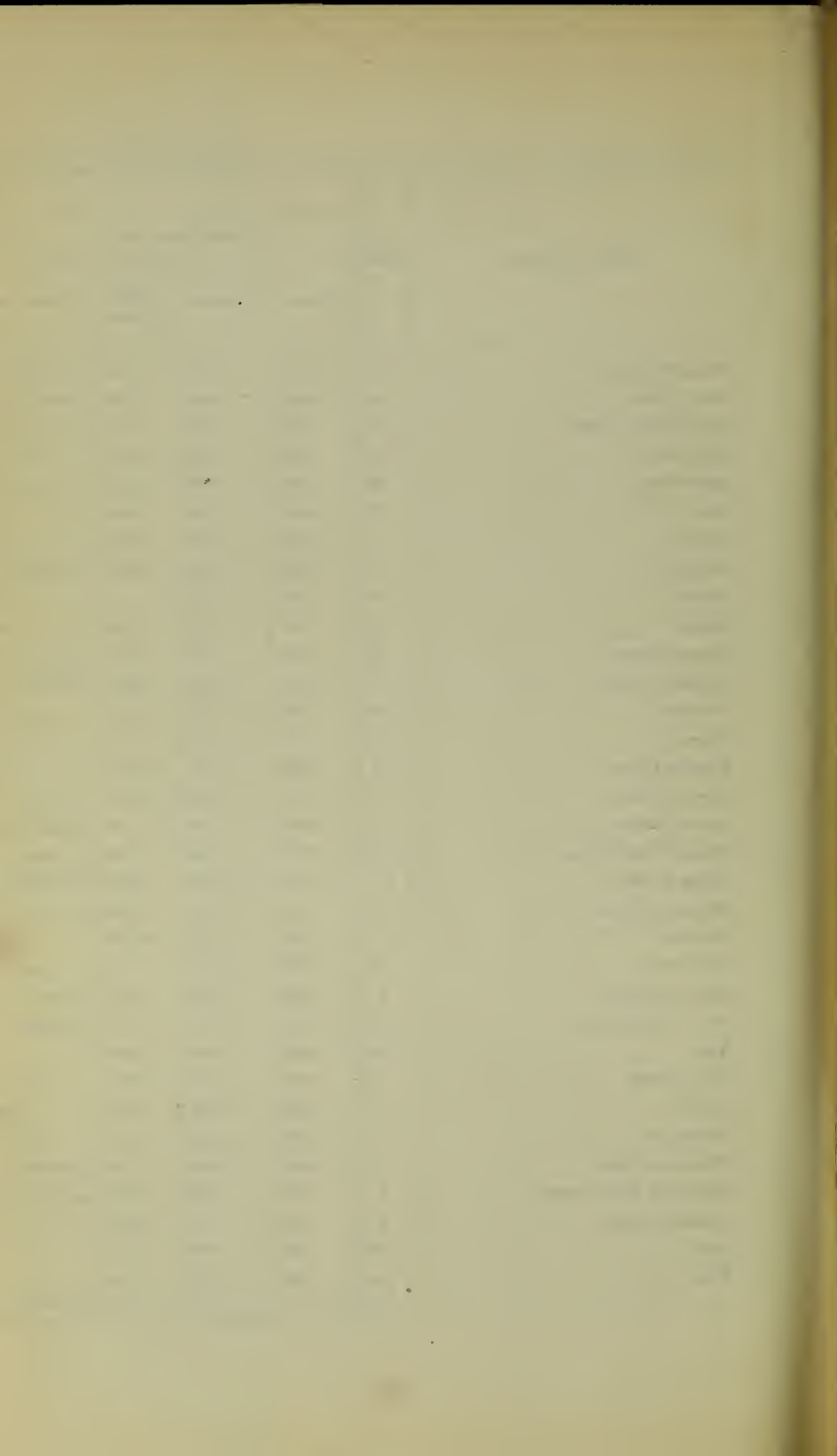
NAME OF SCHOOL.	CLASS.	PRESENT SCHEDULE.									PROPOSED SCHEDULE.										NAME OF SCHOOL.		
		AREAS (SQUARE FEET).				COMPENSATION.					CUBICAL CONTENTS.			COMPENSATION.									
		Floors.	Windows.	Yards and Sidewalks.	Lawns.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.	Type of Roof.	Entire Cubical Contents.	Minus Unused Attic Space.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.		Yearly Increase.	Per Cent.
Samuel W. Mason.....	B	21,934	4,125	49,234	4,100	\$565 75	\$483 21	\$61 88	\$98 47	\$12 30	\$1,221 61	Pitch.	432,544	392,413	\$645 41	\$641 17	\$68 06	\$147 70	\$13 53	\$1,515 87	\$294 26	24.0	Samuel W. Mason.
Sarah J. Baker.....	A	35,625	6,844	17,825	7,337	803 00	869 88	102 66	35 65	22 01	1,833 20	Flat.	674,872	647,527	900 53	1,015 53	112 93	53 48	24 21	2,106 68	273 48	14.9	Sarah J. Baker.
No. 66 Saratoga Street.....	B†	4,500	500	280		188 00	225 00	7 50	56		421 06	Pitch.	50,288		180 86	217 92	8 25	84		407 87	13 19†	3.1†	No. 66 Saratoga Street.
Savin Hill.....	B†	6,533	734	19,479		245 32	268 00	11 01	38 96		563 29	Pitch.	97,587	93,242	289 48	330 84	12 11	58 44		690 87	127 58	22.6	Savin Hill.
School Street.....	B†	2,004	449	18,055		79 81*	99 76*	6 74	36 11		222 42*	Pitch.	42,014		123 55*	150 60*	7 41	54 17		335 73*	113 31	50.9	School Street.
Sharp.....	B†	10,485	1,788	4,034		334 67	309 85	26 82	8 07		679 41	Pitch.	178,573	175,087	415 63	436 86	29 50	12 10		894 09	214 68	31.5	Sharp.
Sherwin.....	B	35,458	3,226	24,676		800 33	645 50	48 39	49 35		1,543 57	Pitch.	682,585	627,462	880 46	801 73	53 23	74 03		1,809 45	265 88	17.2	Sherwin.
Shurtleff.....	B	33,379	3,108	27,269	6,228	767 06	620 55	46 62	54 54	18 68	1,507 45	Mansard.	631,215	582,660	835 66	779 33	51 28	81 81	20 55	1,768 63	261 18	17.3	Shurtleff.
Simonds.....	B†	2,795	400			102 24*	127 80*	6 00			236 04*	Pitch.	39,096	37,388	111 30*	136 44*	6 60			254 34*	18 30	7.7	Simonds.
Skinner.....	B†	7,949	1,370	3,586		278 83	284 49	20 55	7 17		591 04	Pitch.	154,940	140,716	364 07	393 90	22 61	10 76		791 34	200 30	33.8	Skinner.
Somerset Street.....	B†	8,024	1,268	5,791		280 53	285 24	19 02	11 58		596 37	Pitch.	97,441	94,944	292 89	333 90	20 92	17 37		665 08	68 71	11.5	Somerset Street.
Stephen M. Weld.....	B	10,610	3,595	23,893	7,342	337 42	347 42	53 93	47 79	23 53	810 09	Pitch.	227,634	195,379	446 07	462 22	59 32	71 68	25 88	1,065 17	255 08	31.4	Stephen M. Weld.
Stoughton.....	B†	11,074	1,173	26,481		278 04*	252 59*	17 60	52 96		601 19*	Pitch.	179,439	173,544	330 66*	347 94*	19 35	79 44		777 39*	176 20	29.3	Stoughton.
Tappan.....	B	12,147	2,668	7,569		370 09	365 76	40 02	15 14		791 01	Pitch.	224,486	204,078	457 08	471 67	44 02	22 71		995 48	204 47	25.8	Tappan.
Theodore Lyman.....	B	32,785	4,015	19,577		757 34	613 42	60 23	39 15		1,470 14	Pitch.	657,533	592,452	845 45	784 23	66 25	58 73		1,754 66	284 52	19.3	Theodore Lyman.
Thomas Dwight.....	B†	13,126	986	17,293		390 65	336 26	14 79	34 59		776 29	Pitch.	220,235	193,570	443 36	459 96	16 27	51 88		971 47	195 18	25.1	Thomas Dwight.
Thomas Gardner.....	A	38,165	8,509	36,024	9,780	843 64	918 14	127 64	72 05	29 34	1,990 81	Flat.	737,714	728,309	981 31	1,096 31	140 40	108 07	32 27	2,358 36	367 55	18.4	Thomas Gardner.
Thomas Gardner Annex.....	B†	4,207	400	567	516	178 62	216 21	6 00	1 13	1 55	403 51	Pitch.	55,399	54,879	225 00\$	225 00\$	6 60	1 70	1 70	460 00\$	56 49	13.9	Thomas Gardner Annex.
Thomas N. Hart.....	B	31,108	7,744	17,859	1,210	728 84	593 30	116 16	35 72	3 63	1,477 65	Pitch.	629,512	561,204	814 20	768 60	127 78	53 58	3 99	1,768 15	290 50	19.6	Thomas N. Hart.
Thomas Starr King.....	B	7,719	1,179	2,200		218 83*	250 10*	17 69	4 40		491 02*	Pitch.	123,220		270 26*	297 62*	19 45	6 60		593 93*	102 91	20.9	Thomas Starr King.
Trescott.....	B	17,200	3,947	39,700		474 00	426 40	59 21	79 40		1,039 01	Pitch.	259,537	239,349	492 35	503 41	65 13	119 10		1,179 99	140 98	13.5	Trescott.
Tyler Street.....	B†	7,907	1,098	5,802		277 86	284 07	16 47	11 60		590 00	Pitch.	125,156	121,691	335 54	370 11	18 12	17 41		741 18	151 18	25.6	Tyler Street.
Ulysses S. Grant.....	A	37,067	5,656	11,116	12,601	826 07	897 27	84 84	22 23	37 80	1,868 21	Flat.	586,270		839 27	954 27	93 32	33 35	41 58	1,961 79	93 58	5.0	Ulysses S. Grant.
W. L. P. Boardman.....	A	15,095	4,554	12,013	1,728	431 90	479 81	68 31	24 03	5 18	1,009 23	Flat.	250,979	245,405	498 41	549 76	75 14	36 04	5 70	1,165 05	155 82	15.4	W. L. P. Boardman.
Wait.....	B†	11,030	1,102	14,913		346 63	315 30	16 53	29 83		708 29	Pitch.	171,380	162,769	397 15	421 46	18 18	44 74		881 53	173 24	24.4	Wait.
Walnut Street.....	B	9,231	1,241	20,041		307 08	330 77	18 62	40 08		696 55	Pitch.	149,344	147,543	374 31	402 43	20 48	60 12		857 34	160 79	23.0	Walnut Street.
Warren.....	B	26,452	3,169	11,372		648 14	537 42	47 54	22 74		1,255 84	Mansard.	417,989	415,142	668 14	661 63	52 29	34 12		1,416 18	160 34	12.7	Warren.
Washington.....	A	66,746	10,334	27,681		1,300 94	1,461 17	155 01	55 36		2,972 48	Flat.	1,173,323		1,426 32	1,541 32	170 51	83 04		3,221 19	248 71	8.3	Washington.
Washington Allston.....	B	22,182	5,348	12,532	2,052	570 46	486 18	80 22	25 06	6 16	1,168 08	Pitch.	436,654	401,910	654 91	649 72	88 24	37 60	6 77	1,437 24	269 16	23.0	Washington Allston.
Washington Allston Annex.....	B	8,105	829	3,752	5,055	225 85*	253 81*	12 44	7 50	15 17	514 77*	Pitch.	116,286	115,007	260 41*	289 41*	13 68	11 26	16 68	591 44*	76 67	14.8	Washington Allston Annex.
Washington Street.....	B	4,217	517	24,128		178 94	256 51	7 76	48 26		491 47	Pitch.	56,099	53,801	225 00\$	225 00\$	8 53	72 38		530 91\$	39 44	8.0	Washington Street.
Weld.....	B†	2,798	360	20,551		175 00	175 00	5 40	41 10		396 50	Pitch.	75,519	60,709	211 91	251 06	5 94	61 65		530 56	134 06	33.8	Weld.
Wells.....	A	27,661	3,412	9,204		669 90	718 56	51 18	18 41		1,458 05	Mansard.	452,629	446,553	699 55	801 19	56 30	27 61		1,584 65	126 60	8.6	Wells.

\* 80 per cent cleaning, heating, ventilating and superintendence.

† Formerly Class C.

‡ Decrease.

§ See order No. 7.



**TABLE NO. 8.**  
**WELLS ANNEX TO 218 TREMONT STREET,**  
**INCLUSIVE.**

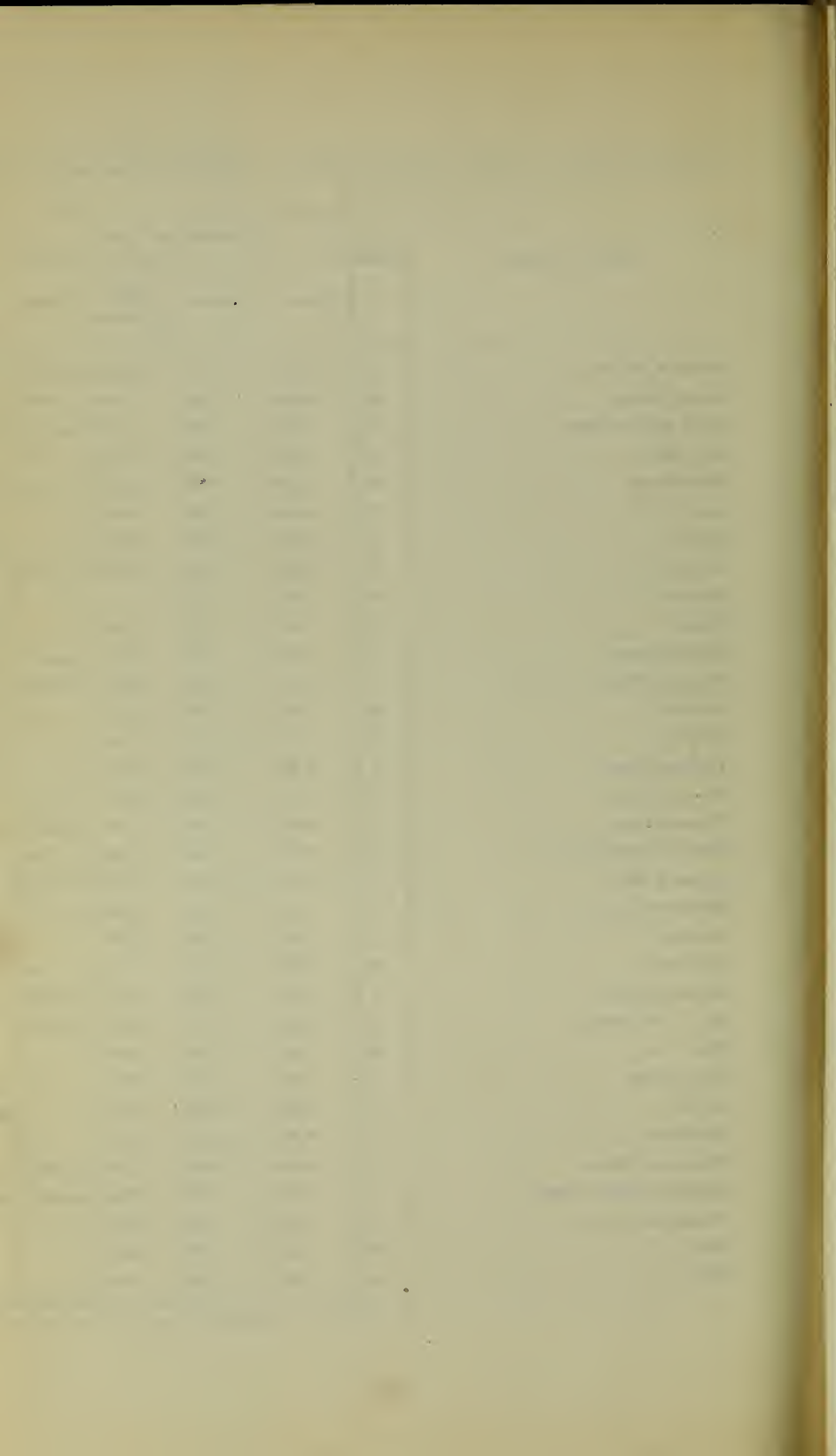




TABLE SHOWING EXISTING AND PROPOSED SALARIES.—*Concluded.*

TABLE NO. 8.

NAME OF SCHOOL.	CLASS.	PRESENT SCHEDULE.									PROPOSED SCHEDULE.										NAME OF SCHOOL.		
		AREAS (SQURE FEET).				COMPENSATION.					CUBICAL CONTENTS.			COMPENSATION.									
		Floors.	Windows.	Yards and Sidewalks.	Lawns.	Cleaning.	Heating, Ventilating and Suprintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.	Type of Roof.	Entire Cubical Contents.	Minus Unused Attic Space.	Cleaning.	Heating, Ventilating and Superintendence.	Cleaning Windows.	Care of Sidewalks and Yards.	Care of Lawns.	Total.		Yearly Increase.	Per Cent.
Wells Annex.....	B	6,930	818	1,186	.....	\$255 25	\$303 16	\$12 27	\$2 37	.....	\$573 05	Pitch.	92,177	.....	\$287 35	\$328 92	\$13 50	\$3 56	.....	\$633 33	\$60 28	10.5	Wells Annex.
Wendell Phillips.....	A	24,803	7,840	9,928	.....	618 45	664 26	117 60	19 86	.....	1,420 17	Pitch.	436,298	422,498	675 50	771 12	129 36	29 78	.....	1,605 76	185 59	13.0	Wendell Phillips.
William Bacon.....	A	22,321	5,780	18,312	1,362	573 10	617 10	86 70	36 62	\$4 09	1,317 61	Pitch.	523,243	410,475	663 48	756 09	95 37	54 94	\$4 49	1,574 37	256 76	19.4	William Bacon.
William Blackstone.....	A	39,217	6,366	23,418	.....	860 47	938 12	95 49	46 84	.....	1,940 92	Flat.	720,840	.....	973 84	1,088 84	105 04	70 25	.....	2,237 97	297 05	15.3	William Blackstone.
William Bradford.....	A	16,142	3,448	15,814	22,742	452 84	499 70	51 72	31 63	68 23	1,104 12	Flat.	246,887	.....	499 89	551 61	56 89	47 44	75 05	1,230 88	126 76	11.4	William Bradford.
William Brewster.....	B	7,808	2,770	9,832	6,068	275 58	313 70	41 55	19 66	18 20	668 69	Pitch.	140,540	129,893	347 84	380 37	45 71	29 50	20 02	823 44	154 75	23.1	William Brewster.
William Brewster Annex.....	B†	2,068	361	.....	.....	78 98*	98 72*	5 42	.....	.....	183 12*	Pitch.	40,200	39,114	115 98*	141 96*	5 96	.....	263 90*	80 78	44.1	William Brewster Annex.	
William Cullen Bryant.....	B	13,825	1,532	4,260	.....	405 33	385 90	22 98	8 52	.....	822 73	Mansard.	200,294	.....	453 29	468 26	25 28	12 78	.....	959 61	136 88	16.6	William Cullen Bryant.
William E. Endicott.....	B	17,715	2,971	21,859	10,800	484 30	432 58	44 57	43 72	32 40	1,037 57	Pitch.	334,404	303,841	556 84	561 46	49 02	65 58	35 64	1,268 54	230 97	22.2	William E. Endicott.
William Eustis.....	B†	10,462	912	17,599	.....	334 16	309 62	13 68	35 20	.....	692 66	Pitch.	181,861	173,885	413 83	435 36	15 05	52 80	.....	917 04	224 38	32.3	William Eustis.
William E. Russell.....	B	51,636	6,176	24,117	16,716	1,059 18	839 63	92 64	48 23	50 15	2,089 83	Pitch.	900,215	.....	1,153 22	938 11	101 90	72 35	55 16	2,320 74	230 91	11.0	William E. Russell.
William H. Kent.....	B	12,792	5,234	13,057	.....	383 63	373 50	78 51	26 11	.....	861 75	Pitch.	230,756	203,718	456 72	471 35	86 36	39 17	.....	1,053 60	191 85	22.2	William H. Kent.
William Lloyd Garrison.....	B	32,128	5,300	5,347	30,974	746 18	605 54	79 50	10 69	92 92	1,534 83	Pitch.	473,800	456,850	709 85	699 17	87 45	16 04	102 21	1,614 72	79 89	5.2	William Lloyd Garrison.
William Wirt Warren.....	A	14,330	3,820	22,742	.....	415 93	465 27	57 30	45 48	.....	983 98	Flat.	254,338	.....	507 34	560 92	63 03	68 23	.....	1,199 52	215 54	21.9	William Wirt Warren.
Williams.....	B	8,287	1,695	13,808	11,129	229 05*	255 55*	25 43	27 62	33 39	571 04*	Flat.	148,274	.....	300 33*	322 67*	27 97	41 42	36 73	729 12*	158 08	27.6	Williams.
Winchell.....	B	28,430	5,705	8,186	.....	683 31	561 16	85 58	16 37	.....	1,346 42	Flat.	466,358	454,699	707 70	697 23	94 13	24 56	.....	1,523 62	177 20	13.1	Winchell.
Winship.....	A	26,092	6,380	22,503	2,850	641 66	688 75	95 70	45 01	8 55	1,479 67	Pitch.	520,341	444,921	697 92	799 15	105 27	67 51	9 41	1,679 26	199 59	13.4	Winship.
Winthrop Street.....	B†	5,349	649	7,960	.....	213 77	246 98	9 74	15 92	.....	486 41	Pitch.	79,287	77,960	256 10	297 90	10 71	23 88	.....	588 59	102 18	21.0	Winthrop Street.
Wyman.....	A	14,863	3,853	18,428	8,446	427 12	475 40	57 80	36 86	25 34	1,022 52	Flat.	241,532	.....	494 53	544 92	63 57	55 28	27 87	1,186 17	163 65	16.0	Wyman.
Boston Trade.....	A	77,337	14,150	10,694	10,000	1,470 39	1,662 40	212 25	21 39	30 00	3,396 43	Flat.	1,224,524	.....	1,477 52	1,592 52	233 48	32 08	33 00	3,368 60	27 83†	0.8†	Boston Trade.
Trade School for Girls.....	B	25,120	3,115	3,675	750	624 16	521 44	46 73	7 35	2 25	1,201 93	Flat.	383,888	.....	636 89	633 50	51 40	11 03	2 48	1,335 30	133 37	11.0	Trade School for Girls.
Continuation School, 25 La Grange Street..	B	10,276	1,606	338	.....	330 07	343 31	24 09	68	.....	698 15	Flat.	154,220	.....	384 33	410 78	26 50	1 01	.....	822 62	124 47	17.8	Continuation School, 25 La Grange St.
Continuation School, Brimmer Building....	B	18,230	3,895	8,940	.....	490 46	438 76	58 43	17 88	.....	1,005 53	Pitch.	286,395	278,527	531 53	538 67	64 27	26 82	.....	1,161 29	155 76	15.4	Continuation School, Brimmer Bldg.
Horace Mann.....	B	15,581	4,803	4,492	.....	441 62	406 97	72 05	8 98	.....	929 62	Pitch.	263,790	261,301	514 30	523 17	79 25	13 48	.....	1,130 20	200 58	21.5	Horace Mann.
Disciplinary Day.....	B†	5,136	701	1,322	.....	207 81	242 72	10 52	2 64	.....	463 69	Pitch.	77,295	75,117	249 28	290 79	11 57	3 97	.....	555 61	91 92	19.8	Disciplinary Day.
218 Tremont Street.....	B	2,402	560	.....	.....	112 08	82 06	8 40	.....	.....	202 54	.....	39,000	.....	144 60	177 00	9 24	.....	330 84	128 30	63.3	218 Tremont Street.	

\* 80 per cent cleaning, heating, ventilating and superintendence.

† Formerly Class C.

‡ Decrease.



## SECTION 5. CLEANING.

Compensation for *Cleaning* shall be on the basis of the total cubic contents of the buildings, and at the following rates:

CONTENTS.		Rate.
To and including	10,000 cubic feet.....	\$0 004 per cubic foot.
Over 10,000 to and including	20,000 cubic feet.....	0038 per cubic foot.
Over 20,000 to and including	30,000 cubic feet.....	0036 per cubic foot.
Over 30,000 to and including	40,000 cubic feet.....	0034 per cubic foot.
Over 40,000 to and including	50,000 cubic feet.....	0032 per cubic foot.
Over 50,000 to and including	60,000 cubic feet.....	003 per cubic foot.
Over 60,000 to and including	70,000 cubic feet.....	0027 per cubic foot.
Over 70,000 to and including	80,000 cubic feet.....	0024 per cubic foot.
Over 80,000 to and including	90,000 cubic feet.....	0022 per cubic foot.
Over 90,000 to and including	100,000 cubic feet.....	002 per cubic foot.
Over 100,000 to and including	200,000 cubic feet.....	0015 per cubic foot.
Over 200,000 to and including	3,000,000 cubic feet.....	001 per cubic foot.
Over 3,000,000 to and including	4,000,000 cubic feet.....	0008 per cubic foot.

## SECTION 6. HEATING, VENTILATION AND SUPERINTENDENCE.

Compensation shall be on the basis of the total cubic contents of the building. As it is a recognized fact that it requires a higher degree of intelligence and skill to operate and care for the heating and ventilating plants of certain buildings than it does for others, they have been divided into two classes — Class A and Class B — in the order of such requirements for intelligence and skill, and the compensation has been fixed in such a manner as to recognize this difference.

While it is also recognized that buildings heated by furnaces or stoves and without fans for the main ventilation do not require as much intelligence and skill for their operation as do the steam-heated buildings, they have been put in Class B on account of the large amount of labor required in their operation.

## SECTION 7. CLASSIFICATION OF BUILDINGS.

School buildings shall be divided into two classes, as follows:

*Class A.*— (1) Buildings in which are installed fans and engines or motors for the main ventilation by the plenum system. (2) Buildings in which are installed fans and engines for the main ventilation by the exhaust system.

These buildings are usually fitted with both the direct and indirect system of steam heating, but in some cases are heated in part by furnaces.

*Class B.*— (1) Buildings heated by steam or hot water, but without fans, engines or motors for the main ventilation. (2) Buildings heated by steam, but with fans and motors for the main ventilation by the exhaust system. (3) Buildings heated wholly by furnaces, but with fans and motors for the main ventilation by the plenum system. (4) Buildings heated by furnaces or stoves and without fans for the main ventilation.

Buildings in which there are installed two types of heating and ventilating apparatus of substantially equal importance shall be classified according to the superior type of such apparatus.

The classification of buildings shall not be raised above that determined by the main heating and ventilating plant in consequence of the type of such apparatus installed in sanitariums or in additions to the main building containing not more than three rooms.

## SECTION 8. CLASS A.—HEATING, VENTILATION AND SUPERINTENDENCE.

Compensation for buildings of this class shall be at the following rates:

CONTENTS.		Rate.
To and including	10,000 cubic feet.....	\$0 005 per cubic foot.
Over 10,000 to and including	20,000 cubic feet.....	0047 per cubic foot.
Over 20,000 to and including	30,000 cubic feet.....	0044 per cubic foot.
Over 30,000 to and including	40,000 cubic feet.....	004 per cubic foot.
Over 40,000 to and including	50,000 cubic feet.....	0036 per cubic foot.
Over 50,000 to and including	60,000 cubic feet.....	0032 per cubic foot.
Over 60,000 to and including	70,000 cubic feet.....	0029 per cubic foot.
Over 70,000 to and including	80,000 cubic feet.....	0025 per cubic foot.
Over 80,000 to and including	90,000 cubic feet.....	0022 per cubic foot.
Over 90,000 to and including	100,000 cubic feet.....	0018 per cubic foot.
Over 100,000 to and including	200,000 cubic feet.....	0015 per cubic foot.
Over 200,000 to and including	500,000 cubic feet.....	00125 per cubic foot.
Over 500,000 to and including	2,000,000 cubic feet.....	001 per cubic foot.
Over 2,000,000 to and including	4,000,000 cubic feet and over.....	0009 per cubic foot.

## SECTION 9. CLASS B.—HEATING, VENTILATION AND SUPERINTENDENCE.

Compensation for buildings of this class shall be at the following rates:

CONTENTS.		Rate.
To and including	10,000 cubic feet.....	\$0 005 per cubic foot.
Over 10,000 to and including	20,000 cubic feet.....	0047 per cubic foot.
Over 20,000 to and including	30,000 cubic feet.....	0044 per cubic foot.
Over 30,000 to and including	40,000 cubic feet.....	004 per cubic foot.
Over 40,000 to and including	50,000 cubic feet.....	0036 per cubic foot.
Over 50,000 to and including	60,000 cubic feet.....	0032 per cubic foot.
Over 60,000 to and including	70,000 cubic feet.....	0029 per cubic foot.
Over 70,000 to and including	80,000 cubic feet.....	0025 per cubic foot.
Over 80,000 to and including	90,000 cubic feet.....	0022 per cubic foot.
Over 90,000 to and including	100,000 cubic feet.....	0018 per cubic foot.
Over 100,000 to and including	200,000 cubic feet.....	00125 per cubic foot.
Over 200,000 to and including	500,000 cubic feet.....	0009 per cubic foot.
Over 500,000 to and including	1,000,000 cubic feet and over.....	0005 per cubic foot.

## SECTION 10. WASHING OF WINDOWS.

Compensation for *Washing of Windows* shall be on the basis of the total area of the sashes and at the rate of five and five-tenths mills (\$0.0055) per square foot for one washing on both sides of the glass.

Additional washings per year, as called for by the existing rules or when ordered by the School Committee, shall be at the above rate for washing both sides of the glass, and at one-half the above rate for washing one side of the glass.

The above rate applies to all windows, transoms, doors, and doors in permanent bookcases in the building.

## SECTION 11. CARE OF YARDS AND SIDEWALKS.

Compensation for *Care of Yards and Sidewalks* shall be on the basis of their total area and at the rate of three mills (\$0.003) per square foot.

## SECTION 12. CARE OF LAWNS.

Compensation for *Care of Lawns* shall be on the basis of their total area and at the rate of three and three-tenths mills (\$0.0033) per square foot.

## SECTION 13. CARE AND SUPERVISION OF CHILDREN IN BATHS.

Compensation of janitors for care and supervision of children in baths is not included in this schedule.

## SECTION 14. EXTENDED USE OF SCHOOL BUILDINGS.

This schedule does not include compensation for evening schools, school centers, vacation schools, playgrounds, lectures or concerts.

## SECTION 15. WASHING OF FLOORS.

No extra compensation shall be allowed for the washing of floors required by the existing rules.

1. *Ordered*, That the compensation for the janitor service of the several buildings occupied by the city for school purposes and equipped with complete and independent systems of heating apparatus, unless otherwise ordered, shall be established in accordance with the foregoing schedule, to take effect September 6, 1918, and to continue until otherwise ordered; and that the areas used in the determination of such salaries shall be such as shall have been respectively certified by the Schoolhouse Custodian and approved by the School Committee; and that the cubic contents of such buildings used in the determination of such salaries shall be such as have been respectively certified by the Schoolhouse Commission and approved by the School Committee.

2. *Ordered*, That the compensation for the janitor service of a single building shall be arrived at in the following manner: The several amounts determined by applying the rates of compensation for *Cleaning, Heating, Ventilation and Superintendence* to the cubic contents of the buildings, and by applying the rates of compensation for *Washing of Windows* and the *Care of Yards, Sidewalks and Lawns* to the areas of such items shall be added together, and such sum shall be the annual compensation for janitor service.

3. *Ordered*, That the compensation for the janitor service of buildings containing not more than one class room and not in charge of the janitor of a larger school building and not occupied by classes in manual training or cookery shall be at the rate of \$3 per week.

4. *Ordered*, That the compensation for the janitor service of buildings containing not more than one class room and not in charge of the janitor of a larger school building and occupied by classes in manual training or cookery shall be at the rate of \$4.35 per week.

5. *Ordered*, That the compensation for the janitor service of buildings containing not more than one class room, when in charge of the janitor of a larger school

building, and not occupied by classes in manual training or cookery, shall be at the rate of \$1.95 per week.

6. *Ordered*, That the compensation for the janitor service of buildings containing not more than one class room, when in charge of the janitor of a larger school building, and when occupied by classes in manual training or cookery, shall be at the rate of \$2.60 per week.

7. *Ordered*, That the compensation for *Cleaning, Heating, Ventilation and Superintendence* service of a building containing not less than two class rooms and not in charge of the janitor of another building shall in no case be less than \$450 per year.

8. *Ordered*, That the compensation for janitor service of two or more buildings each containing two or more class rooms, and in charge of the same janitor, shall be as per schedule for the first and largest building. For each additional building full schedule rates shall be allowed for *Washing of Windows, Care of Yards and Sidewalks, and Care of Lawns*. For *Cleaning, Heating, Ventilation and Superintendence* of such additional buildings the compensation shall be 80 *per centum* of schedule rate.

9. *Ordered*, That during the occupancy of the Trade School for Girls as an industrial school, the janitor be paid at the rate of \$14.45 per week in addition to the regular schedule rate for that building. Such compensation does not include payment for services which may be rendered because of evening occupancy of the building.

10. *Ordered*, That during the occupancy of the Brimmer School Building as an industrial school, the janitor of that building be paid at the rate of \$12.02 per week in addition to the regular schedule rate for that building. Such compensation does not include payment for services which may be rendered because of evening occupancy of the building.



11. *Ordered*, That in addition to the compensation provided by the salary schedule, the janitor of the Mechanic Arts High School shall be paid at the rate of \$28.20 per week for the additional cleaning of shops and lavatories required, to take effect September 6, 1918.

12. *Ordered*, That additional compensation at the rate of \$36.64 per week be allowed the janitor of the Boston Trade School for the services of an engineer to operate the electric generating plant and for the daily sweeping of approximately 27,000 square feet of floor space used for shop work, this sweeping being estimated in accordance with the salary schedule, said compensation to take effect September 6, 1918.

13. *Ordered*, That in addition to the compensation provided in the schedule of compensation for janitors of school buildings, the janitor of the English High and Public Latin School-house shall be paid at the rate of \$9.75 per week for janitor service in connection with the occupancy of part of the building for School Committee supply rooms, to take effect September 6, 1918.

14. *Ordered*, That the Schoolhouse Commission is hereby requested to certify to the cubic contents of all the school buildings in the city, computed in accordance with Section 3 of the Schedule of Compensation for Janitor Service of School Buildings, adopted September 4, 1918.

15. *Ordered*, That the compensation for the janitor service of buildings occupied for school purposes, but in which the heating apparatus is not complete, but is supplied by heat from a plant not under the control of the janitor and not in charge of another janitor under the control of the School Committee, shall be established in the following manner: Full schedule rate shall be allowed for *Cleaning, Washing of Windows, Care of Yards and Sidewalks, and Care of Lawns*; for *Heating, Ventilation and Superintendence*, the compensation shall be at the rate of fifty per centum (50%) of the schedule rate.

16. *Ordered*, That the annual compensation for the janitor service of each building or group of buildings shall be paid to the person appointed to the position of "Janitor" of each building or group of buildings in weekly instalments, and each such weekly instalment shall be  $\frac{7}{365}$  of the annual compensation as set forth in Orders No. 2 and No. 7.

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IN SCHOOL COMMITTEE, September 4, 1918.

*Ordered*, That the salary of school matrons is hereby established at the rate of six hundred and forty-four dollars (\$644) per annum, to take effect September 6, 1918, and to continue until otherwise ordered.

SCHOOL DOCUMENT NO. 11—1918  
BOSTON PUBLIC SCHOOLS  
LIST OF AUTHORIZED TEXT AND  
SUPPLEMENTARY BOOKS



BOSTON  
PRINTING DEPARTMENT  
1919



IN SCHOOL COMMITTEE, May 24, 1909.

*Ordered*, That books, maps, globes and charts once authorized, but later dropped from the authorized list, may be continued in use in the schools unless otherwise specified, but no additional copies of such books, maps, globes or charts shall be purchased.

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IN SCHOOL COMMITTEE, May 5, 1913.

*Ordered*, That the Board of Superintendents is hereby authorized in its discretion to approve for use in the day or evening industrial schools, books authorized for use in the day elementary and high schools.

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IN SCHOOL COMMITTEE, September 14, 1914.

*Ordered*, That the Superintendent is hereby authorized in his discretion to approve for use in the day or evening industrial schools, books authorized for use in the day elementary and high schools.

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IN SCHOOL COMMITTEE, September 21, 1914.

*Ordered*, That books authorized for text and supplementary use in the high schools, be also authorized for use in the Boston Clerical School.

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IN SCHOOL COMMITTEE, May 19, 1915.

*Ordered*, That for a period of two years after a book has been dropped from the list of authorized text and supplementary books, the Business Agent shall furnish, on special approval of the Assistant Superintendent in charge, as many copies of the book as a Principal certifies to be necessary to complete the number required for a division.

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IN SCHOOL COMMITTEE, December 6, 1915.

*Ordered*, That all books authorized for use as text or supplementary books in any of the schools, are also authorized for use in the Normal School.

---

*Ordered*, That all books authorized for use as text or supplementary books in the Latin and day high schools, are also authorized for similar use in the evening high schools.

---

*Ordered*, That all books authorized for use as text or supplementary books in day elementary schools are also authorized for use in evening elementary schools.

---

IN SCHOOL COMMITTEE, June 1, 1916.

*Ordered*, That reference books authorized for use in the day high schools are hereby authorized for use in the evening high schools, and that reference books authorized for use in the day elementary schools are hereby authorized for use in the evening elementary schools.

---

IN SCHOOL COMMITTEE, February 5, 1917.

*Ordered*, That books authorized for use in the evening elementary schools are hereby authorized for use in the Day School for Immigrants.

IN SCHOOL COMMITTEE, November 8, 1917.

*Ordered*, That all books authorized for use as text or supplementary books in the Intermediate schools or classes are authorized for similar use in Grades VII and VIII of the elementary schools, and in the Latin schools.

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IN SCHOOL COMMITTEE, February 17, 1919.

*Ordered*, That four thousand (4,000) copies of the Authorized List of Text and Supplementary Books, School Document No. 11, 1918, be printed.

Attest:

THORNTON D. APOLLONIO,  
*Secretary.*

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NOTE.— Books of reference may be purchased, subject to the approval of the Board of Superintendents in each case, as follows:

- (a) One copy for each teacher of a grade or subject.
  - (b) One copy for each school or district; provided not more than six copies shall be furnished any school or district unless specially authorized by this Board.
- 

NOTE.— In order that principals in making their requisitions for text and supplementary books may have some idea of their cost, the net price of each book included in this document, so far as it has been possible to ascertain it, has been noted opposite its title.

Reports of any errors or omissions noted in this document are invited.

# INDEX.

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	PAGE
Elementary Schools . . . . .	7
Arithmetic . . . . .	7
Civics . . . . .	9
Dictionaries . . . . .	9
Drawing and Manual Training . . . . .	10
English — Grammar, Language and Spelling . . . . .	10
Reading (Text-books) . . . . .	11
(Supplementary Readers) . . . . .	15
(Supplementary Books) . . . . .	19
French . . . . .	34
Geography . . . . .	34
German . . . . .	38
History — Text-books . . . . .	38
(Supplementary Histories) . . . . .	39
(Supplementary Books) . . . . .	40
Household Science and Arts . . . . .	43
Italian . . . . .	44
Music . . . . .	44
Penmanship . . . . .	45
Physiology and Hygiene . . . . .	45
Science . . . . .	46
Spanish . . . . .	48
Intermediate Schools or Classes . . . . .	49
Arithmetic . . . . .	49
Civics . . . . .	49
English . . . . .	49
Reading (Text-books) . . . . .	50
(Supplementary Books) . . . . .	52
Economics . . . . .	53
French . . . . .	53
Geography . . . . .	53
German . . . . .	54
History . . . . .	54
Italian . . . . .	55
Latin . . . . .	55
Penmanship . . . . .	55
Science . . . . .	55
Spanish . . . . .	56
High and Latin Schools . . . . .	57
Bookkeeping . . . . .	57
Civics . . . . .	57
Commercial Arithmetic . . . . .	58
Commercial Law . . . . .	58
Dictionaries . . . . .	58

	PAGE
High and Latin Schools.— <i>Concluded.</i>	
Economics . . . . .	59
English — Composition, Rhetoric and Spelling . . . . .	60
History of Literature . . . . .	62
Literature (Text-books) . . . . .	63
Literature (Supplementary Books) . . . . .	69
French . . . . .	72
Geography — Commercial . . . . .	76
Physical . . . . .	77
German . . . . .	77
Greek . . . . .	81
History — American . . . . .	82
Ancient . . . . .	82
General . . . . .	83
Mediæval and Modern . . . . .	84
Household Science and Arts . . . . .	84
Latin . . . . .	85
Mathematics . . . . .	87
Music . . . . .	89
Mythology . . . . .	90
Penmanship . . . . .	91
Phonography and Typewriting . . . . .	91
Science — Agriculture . . . . .	91
Biology . . . . .	92
Botany . . . . .	92
Chemistry . . . . .	92
General Science . . . . .	93
Mechanics . . . . .	93
Physics . . . . .	93
Physiology and Hygiene . . . . .	94
Zoölogy . . . . .	94
Spanish . . . . .	95
Boston Clerical School . . . . .	96
Boston Industrial School for Boys . . . . .	96
Boston Trade School . . . . .	97
Trade School for Girls . . . . .	98
Horace Mann School for the Deaf . . . . .	98
Continuation School . . . . .	99
Pre-Vocational Centers . . . . .	99
Normal School . . . . .	100
Evening Schools . . . . .	105
Atlases, Cyclopedias, Charts, Dictionaries, etc. (reference use in all schools) . . . . .	107
Maps and Globes (reference use in all schools) . . . . .	110



## ELEMENTARY SCHOOLS.

The classification of supplementary books by grade is merely suggestive, and such books may be used in any grade at the discretion of the principal.

Text-books are authorized for use only in such grades as are specified.

Any book authorized for use as a text-book may be used as a supplementary book in the grade for which it is authorized.

ELEMENTARY SCHOOLS.	Grades.	Price.
<b>ARITHMETIC.</b>		
<i>Text-books.</i>		
<b>Durrell, F., and Hall, E.</b> Arithmetic. Chas. E. Merrill Co.		
Book 1 . . . . .	IV	\$0.40
Book 2 . . . . .	V, VI	.448
Book 3 . . . . .	VII, VIII	.48
<b>Gifford, J. B.</b> Progressive mental arithmetic. Little, Brown & Co.	IV to VIII	.24
<b>Hamilton, S.</b> Standard arithmetic (with or without answers). American Book Co.		
Book 1 . . . . .	III, IV	.352
Book 2 . . . . .	V, VI	.384
Book 3 . . . . .	VII, VIII	.448
<b>Hoyt, F. S., and Peet, H. E.</b> Everyday arithmetic. Houghton, Mifflin Co.		
Book 1 . . . . .	III, IV	.32
Book 2 . . . . .	V, VI	.32
Book 3 . . . . .	VII, VIII	.36
First year in numbers. Houghton, Mifflin Co.	II	.28
<b>Morey, C. W.</b> Arithmetic. Six-book series. Scribner.		
Elementary:		
Part 1 . . . . .	III	} .20 ea.
Part 2 . . . . .	IV	
Part 3 . . . . .	V	
Advanced:		
Part 1 . . . . .	VI	} .20 ea.
Part 2 . . . . .	VII	
Part 3 . . . . .	VIII	
<b>Nichols, W. F.</b> New graded lessons in arithmetic. Books 3-8. Thompson, Brown & Co.		
Book 3 . . . . .	III	.224
Books 4-7 . . . . .	IV to VII	.224
Book 8 . . . . .	VIII	.256

ELEMENTARY SCHOOLS.	Grades.	Price.
<i>ARITHMETIC.—Text-books, concluded.</i>		
<b>Southworth, G. A., and Stone, J. C.</b> An exercise book in arithmetic, oral and written. Sanborn & Co.	VII, VIII	\$0.40
<b>Stone, J. C., and Millis, J. F.</b> The Stone-Millis arithmetic. Revised edition. Sanborn & Co.	III, IV	.332
Primary	V, VI	.36
Intermediate	VII, VIII	.40
Advanced		
<b>Walsh, J. H., and Suzzallo, H.</b> Walsh-Suzzallo arithmetics. Heath & Co.		
Book 1. Fundamental processes	IV, V	.32
Book 2. Essentials	V, VI	.352
Book 3. Business and industrial practice	VII, VIII	.416
<b>Walton, G. A., and Holmes, S. H.</b> Walton and Holmes arithmetics. American Book Co.		
Book 1	III	.24
Book 2	IV, V	.32
Book 3	VI, VII	.36
Book 4	VIII	.40
<b>Wentworth, G., and Smith, D. E.</b> Arithmetic. Three-book series. Ginn & Co.		
Book 1	IV, V	.28
Book 2	V, VI	.32
Book 3	VII, VIII	.36
Essentials of arithmetic. Ginn & Co. [Wentworth-Smith Mathematical series.]		
Primary book	III, IV	.282
Intermediate book	V, VI	.32
Advanced book	VII, VIII	.36
<i>Supplementary Books.</i>		
<b>Alvord, C. P., and Davis, M. E.</b> The drill and problem book in arithmetic. Iroquois Publishing Co.	V to VIII	.36
<b>Hall, F. H.</b> The Werner arithmetics. American Book Co.	IV to VIII	
Book 1		.32
Book 2		.32
Book 3		.40
<b>Hunt, B.</b> A community arithmetic. American Book Co.	IV to VIII	.48
<b>Morey, C. W.</b> Three-book series. Scribner.		
Primary arithmetic	III, IV	.28
Intermediate arithmetic	V, VI	.36
Higher arithmetic	VII, VIII	.40
Two-book series. Scribner.		
Elementary arithmetic	III, IV, V	.36
Advanced arithmetic	VI, VII, VIII	.52
<b>Owen, L.</b> A work-book in arithmetic. Grade four. Mansfield Printing Co.	IV	.30
<b>Wentworth, G., and Smith, D. E.</b> Oral arithmetic. Ginn & Co. [Wentworth-Smith Mathematical series.]	III to VIII	.28

ELEMENTARY SCHOOLS.	Grades.	Price.
<b>CIVICS.</b>		
<i>Text-books.</i>		
<b>Dunn, A. W.</b> The community and the citizen. Revised and enlarged. Heath & Co.	VIII	\$0.60
<b>James, J. A., and Sanford, A. H.</b> Our government, local, state and national. Scribner		.80
<b>Reinsch, P. S.</b> Civil government. Sanborn & Co.	VI, VII, VIII	.574
<i>Supplementary Books.</i>		
<b>Clark, S. S.</b> The government. American Book Co.	VIII	.60
<b>Dole, C. F.</b> The American citizen. Heath & Co.	VIII	.64
The young citizen. Heath & Co.	VI, VII	.36
<b>Giffin, W. H., and Provines, H. G.</b> Civics for young Americans. Simmons	VII, VIII	.60
<b>Gill, W. L.</b> City problems. Patriotic League.	VII, VIII	.60
<b>Guitteau, W. B.</b> Preparing for citizenship. Houghton, Mifflin Co.	VII, VIII	.60
<b>Haskin, F. J.</b> The American government. J. B. Lippincott Co.	VIII	.60
<b>Hill, M.</b> Lessons for junior citizens. Ginn & Co.	VIII	.40
<b>Jewett, F. G.</b> Town and city. Ginn & Co.	VIII	.40
<b>Nida, W. L.</b> City, state and nation. The Macmillan Co.	VII, VIII	.60
<b>Primer, A.</b> of civil service and the merit system. The Women's Auxiliary to the New York Civil Service Reform Association and the Women's Auxiliary of the Massachusetts Civil Service Reform Association	VIII	
<b>Rafter, P. F.</b> City and town. A fourth reader. Sanborn & Co.	III to VI	.40
<b>Richman, J., and Wallach, I. R.</b> Good citizenship. American Book Co.	VII, VIII	.36
<b>Willard, C. S.</b> City government for young people. The Macmillan Co.	IV, V, VI	.40
<b>DICTIONARIES.</b>		
<i>Text-books.</i>		
<b>Brown, W. H., and Haldeman, S. S.</b> Clarendon dictionary. American Book Co.	V, VI.	.36
<b>Comprehensive</b> standard dictionary, The. Funk & Wagnalls Co.	VI, VII, VIII	.75
<b>Concise</b> standard dictionary, The. Funk & Wagnalls Co.	V, VI	.45
<b>Webster, N.</b> Elementary-school dictionary. American Book Co.	VI, VII, VIII	.72
Shorter school dictionary. American Book Co.	V, VI	.48
<b>Worcester, J. E.</b> A comprehensive dictionary. J. B. Lippincott Co.	VI, VII, VIII	.90

ELEMENTARY SCHOOLS.	Grades.	Price.
DICTIONARIES.— <i>Text-books</i> , concluded.		
<b>Worcester, J. E.</b> , <i>continued</i> .		
A new primary dictionary of the English language. J. B. Lippincott Co.	V, VI	\$0.36
A new school dictionary of the English language. Revised edition. J. B. Lippincott Co.	VI, VII, VIII	.57
DRAWING AND MANUAL TRAINING.		
<i>Text-book</i> .		
<b>Griffith, I. S.</b> Essentials of woodworking. } Manual Arts Press * . . . . }	Classes in Wood- working }	.80
ENGLISH.		
(Grammar, Language and Spelling.)		
<i>Text-books</i> .		
<b>Aldine</b> first language book. (Complete.) By C. T. Bryce and F. E. Spaulding. Newson & Co.	II to IV III	41
Same. Part 1 . . . . .	V, VI	.48
<b>Aldine</b> second language book <b>Bailey, E. R.</b> , and <b>Manly, J. M.</b> Bailey-Manly spelling book. Houghton, Mifflin Co.	I to IV V to VIII	.13 .16
Book 1 . . . . .		
Book 2 . . . . .		
<b>Coe, I.</b> , and <b>Christie, A. J.</b> Story hour readers. Book 3. American Book Co.	III, IV	.32
<b>Cunningham, C. J.</b> A first book for non-English speaking people. Heath & Co.	Ungraded Classes and Speech Im- provement Classes }	.224
<b>Daly, I. M.</b> An advanced rational speller. Sanborn & Co.	VIII	.20
<b>Dunton, L.</b> , and <b>Kelley, A. H.</b> Graded course in English. Book 1. Thompson, Brown Co.	IV and Un- graded Classes	.28
Language lessons . . . . .	V, VI	.32
<b>Harris, A. Van S.</b> , and <b>Gilbert, C. B.</b> Guide books to English. Book 1. Silver, Burdett & Co.	IV, V, VI	.36
<b>Kelley, A. H.</b> , and <b>Morse, H. L.</b> The natural speller. Scribner.	IV, V, VI VII, VIII	.12 .16
Book 1 . . . . .		
Book 2 . . . . .		
<b>Metcalf, R. C.</b> , and <b>Rafter, A. L.</b> Language series. American Book Co.	IV, V, VI VII, VIII	.32 .48
Book 1 . . . . .		
Book 2 . . . . .		
<b>Moore, A. C.</b> A second book for non-English speaking people. Heath & Co.	Ungraded Classes and Speech Im- provement Classes }	.26
<b>Pelo, W. J.</b> , and <b>Gardner, E. S.</b> The Sanborn speller. Sanborn & Co.	IV, V, VI VII, VIII	.15 .15
Part 2 . . . . .		
Part 3 . . . . .		
<b>Scott, F. N.</b> , and <b>Southworth, G. A.</b> Lessons in English. Book 1. Revised edition. Sanborn & Co.	IV, V, VI	.35

\* One copy for each bench.

ELEMENTARY SCHOOLS.	Grades.	Price.
<i>ENGLISH.—Text-books, concluded.</i>		
Wallach, I. R. A first book in English. Silver, Burdett & Co. . . . . A second book in English for foreigners. Silver, Burdett & Co. . . . .	Ungraded Classes Ungraded Classes	\$0.34 .40
<i>Supplementary Books.</i>		
Akin, F. Word mastery. Houghton, Mifflin Co. Baker, F. T., and others. Language readers. By F. T. Baker, K. B. Owen, G. R. Carpenter and M. E. Brooks. The Macmillan Co. Book 1 . . . . . Book 2 . . . . . Book 3 . . . . .	I, III  I II III	.22  .26 .29 .38
Boyce, E. M. Enunciation and articulation. Ginn & Co. . . . .	III to VIII Special English and Ungraded Classes	.24
Fisher, A., and Call, A. D. English for beginners. Book 1. Ginn & Co. . . . .	Special English Classes	.48
Gordon, E. K. Word drill charts. Heath & Co. Ideal sound exemplifier, The. By a Sister of St. Joseph. Babb & Co. . . . .	I, II  I to IV	1.00  .20
Robbins, E. Phonetics for schools. Sanborn & Co. . . . .	II to IV	.13
<i>Reading.</i>		
<i>Text-books.</i>		
Aldine primer, The. By F. E. Spaulding and C. T. Bryce. Newson & Co. . . . . Aldine readers, The. By F. E. Spaulding and C. T. Bryce. Newson & Co. . . . .	I	.35
First reader . . . . . Second reader . . . . . Third reader . . . . . Fourth grade reader . . . . . Fifth grade reader . . . . . Sixth grade reader . . . . . Seventh grade reader . . . . .	I, II III III IV V VI VII	.35 .416 .51 .51 .51 .51 .51
Aldrich, G. I., and Forbes, A. Progressive course in reading. American Book Co. . . . . First book . . . . . Second book . . . . . Third book . . . . . Fourth book, part 1, part 2 . . . . . Fifth book, part 1, part 2 . . . . . Sight reader . . . . .	I to VIII	.16 .24 .32 .28 ea. .32 ea. .12
Arnold, S. L. The Arnold primer. Silver, Burdett & Co. . . . .	I	.28
Arnold, S. L., and Gilbert, C. B. Stepping stones to literature. See Stepping stones to literature.		
Bailey, R. R. Sure-pop and the safety scouts. World Book Co. . . . .	IV, V, VI	.35

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Text-books</i> , continued.		
<b>Baldwin, J., and Bender, I. C.</b> Readers, First to Seventh. American Book Co. . . . .	I to VII	\$0.25
First . . . . .	. . . . .	.28
Second . . . . .	. . . . .	.36
Third to seventh . . . . .	. . . . .	
<b>Bender, I. C.</b> The Bender primer. Charles E. Merrill Co. . . . .	I	.24
<b>Blaisdell, E. A., and M. F.</b> Child life in literature. A fourth reader. The Macmillan Co. . . . .	IV	.32
Child life in many lands. A third reader. The Macmillan Co. . . . .	III	.29
Child life in tale and fable. A second reader. The Macmillan Co. . . . .	II	.29
Child life primer. The Macmillan Co. . . . .	I	.22
<b>Blodgett, F. E., and A. B.</b> The Blodgett primer. Ginn & Co. . . . .	I	.24
The Blodgett first reader. Ginn & Co. . . . .	I	.24
<b>Brumbaugh, M. C.</b> The standard fourth reader. Chris. Sower Co. . . . .	IV, V	.48
The standard fifth reader. Chris. Sower Co. . . . .	V, VI	.60
<b>Bryce, C. T., and Spaulding, F. E.</b> See above, Aldine.		
<b>Buckwalter, G.</b> The Buckwalter readers. Parker P. Simmons. . . . .		
The easy primer. (Parts 1 and 2 complete.) . . . . .	I	.25 *
The easy first reader . . . . .	I	.22
The second reader . . . . .	II	.29
The third reader . . . . .	III	.35
The fourth reader . . . . .	IV, V	.53
The fifth reader . . . . .	V, VI	.56
<b>Burchill, G., Ettinger, W. L., and Shimer, E. D.</b> The progressive road to reading. Silver, Burdett & Co. . . . .		
Introductory Book 3 . . . . .	II, III	.35
Introductory Book 4 . . . . .	III, IV	.40
<b>Coe, F. E.</b> A school reader. American Book Co. . . . .		
Coe, F. E. A school reader. American Book Co. . . . .	III, IV	.32; .40
<b>Cyr, E. M.</b> The children's readers. Ginn & Co. . . . .		
Primer . . . . .	I	.19
First reader . . . . .	I	.22
Second reader . . . . .	II	.29
Third reader . . . . .	III, IV	.40
Fourth reader . . . . .	V, VI	.48
Fifth reader . . . . .	VI, VII	.56
<b>Dopp, K. E.</b> The early sea people. Rand, McNally & Co. . . . .	Pre-vocational Classes for Girls	.50
<b>Edson, A. W., and Laing, M.</b> The Edson-Laing readers. Books 1 to 4. Sanborn & Co. . . . .		
Book 1 . . . . .	I	.28
Book 2 . . . . .	II	.32
Book 3 . . . . .	III	.36
Book 4 . . . . .	IV, V	.40
Book 5 . . . . .	V, VI	.48

\* Part 1, \$0.22; part 2, \$0.21.

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Text-books</i> , continued.		
<b>Elson, W. H.</b> Elson primary school readers. Scott, Foresman & Co.*		
Book 1 . . . . .	I	\$0.26
Book 2 . . . . .	II	.32
Book 3 . . . . .	III	.36
Book 4 . . . . .	IV	.36
<b>Elson, W. H., and Keck, C.</b> Elson grammar school readers. Scott, Foresman & Co.*		
Book 1 . . . . .	V	} .40
Book 2 . . . . .	VI	
Book 3 . . . . .	VII	
Book 4 . . . . .	VIII	
<b>Elson, W. H., and Runkel, L. E.</b> Elson-Runkel primer. Scott, Foresman & Co.*	I	.256
<b>Fassett, J. H.</b> The Beacon primer. Ginn & Co.	I	.28
The Beacon first reader . . . . .	I, II	.28
The Beacon second reader . . . . .	II, III	.32
The Beacon third reader . . . . .	III, IV	.40
<b>Finch, A. B.</b> The Finch primer. Ginn & Co.	I	.24
<b>Hazen, M. W.</b> Fourth reader. American Book Co.	VII, VIII	.52
<b>Heath primer, The.</b> Heath & Co.	I	.20
<b>Heath readers, The.</b> Heath & Co.		
First reader . . . . .	I	.20
Second reader . . . . .	II	.28
Third reader . . . . .	III	.32
Fourth reader . . . . .	IV	.416
Fifth reader . . . . .	V	.40
<b>Hervey, W. L., and Hix, M.</b> The Horace Mann readers. Longmans, Green & Co.		
Primer . . . . .	I	.288
First reader . . . . .	I	.288
Second reader . . . . .	II	.32
Third reader . . . . .	III	.40
Fourth reader . . . . .	IV	.448
<b>Howe, W. D., Pritchard, M. T., and Brown, E. V.</b> The Howe readers. Scribner.		
A primer . . . . .	I	.16
A first reader . . . . .	I	.16
A second reader . . . . .	II	.20
A third reader . . . . .	III	.28
A fourth reader . . . . .	IV, V	.32
A fifth reader . . . . .	V, VI	.40
Book 6 . . . . .	VI	.44
Book 7 . . . . .	VII	.48
Book 8 . . . . .	VIII	.48
<b>Jones, L. H.</b> The Jones readers. Ginn & Co.		
First reader . . . . .	I	.24
Second reader . . . . .	II	.28
Third reader . . . . .	III	.36
Fourth reader . . . . .	IV, V	.52
Fifth reader . . . . .	VI, VII, VIII	.60

\* Manual accompanying each book, one for each teacher.

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Text-books</i> , concluded.		
Lewis, H. P. Lippincott's primer. J. B. Lippincott Co.	I	\$0.24
Lippincott's readers. J. B. Lippincott Co.		
First reader . . . . .	I	.30
Second reader . . . . .	II, III	.36
Masterpieces of American literature. Houghton, Mifflin Co. . . . .	VIII	.80
Mickens, C. W., and Robinson, L. A Mother Goose reader. Silver, Burdett & Co. . . . .	I, II	.32
Monroe, L. B. New fourth reader. American Book Co. . . . .	IV	.528
Murray, C. Wide awake readers. Little, Brown & Co.		
Wide awake junior. An easy primer . . . . .	I	.24
Wide awake primer . . . . .	I	.288
Wide awake first reader . . . . .	I	.288
Wide awake second reader . . . . .	II	.32
Wide awake third reader . . . . .	III	.384
Wide awake fourth reader . . . . .	IV, V	.48
Noyes, M. I., and Guild, K. L. Sunshine primer. Ginn & Co.	I	.32
Riverside readers. See Van Sickle, J. H., Seegmiller, W., and Jenkins, F.		
Robbins, M., Dressell, H., and Graff, E. U. The new Barnes readers. The A. S. Barnes Co.		
Primer. First year (first half) . . . . .	I	.27
Book 1. First year (second half) . . . . .	II	.27
Stepping stones to literature. Edited by S. L. Arnold and C. B. Gilbert. Silver, Burdett & Co.		
A first reader . . . . .	I	.27
A second reader . . . . .	II	.272
A third reader . . . . .	III	.40
A fourth reader . . . . .	IV	.48
A reader for fifth grades . . . . .	V	.48
A reader for sixth grades . . . . .	VI	.48
A reader for seventh grades . . . . .	VII	.48
A reader for higher grades . . . . .	VIII	.48
Summers, M. The Summers readers. Beattys & Co.		
Primer . . . . .	I	.28
First reader . . . . .	I, II	.288
Second reader . . . . .	II	.336
Van Sickle, J. H., Seegmiller, W., and Jenkins, F. Riverside readers. Houghton, Mifflin Co.		
Riverside primer . . . . .	I	.24
Riverside first reader . . . . .	I	.28
Second reader . . . . .	II	.32
Third reader . . . . .	III	.40
Fourth reader . . . . .	IV	.44
Fifth reader . . . . .	V, VI, VII	.44
Sixth reader . . . . .	VI, VII	.44
Varney, M. T. The Robin reader. A first reader. Scribner . . . . .	I	.28



ELEMENTARY SCHOOLS.	Grades.	Price.
<i>Reading.— Supplementary Readers.</i>		
<b>Alcott, L. M.</b> The Louisa Alcott reader. Little, Brown & Co.	IV	\$0.40
<b>Art-literature readers, The. Primer [and] Books 1, 2, by E. O. Grover. Books 3-5 by F. E. Chutter.</b> Atkinson, Mentzer & Grover.		
A primer . . . . .	I	.24
Book 1 . . . . .	II	.24
Book 2 . . . . .	III	.32
Book 3 . . . . .	III	
Book 4 . . . . .	IV	
Book 5 . . . . .	V	.40 ea.
<b>Baker, F. T., and Thorndike, A. B.</b> Everyday classics. The Macmillan Co.		
Third reader . . . . .	IV	.384
Fourth reader . . . . .	IV	.448
Fifth reader . . . . .	V, VI	.48
Sixth reader . . . . .	VI, VII	.48
<b>Baldwin, J.</b> Fairy reader. American Book Co.	II	.28
School reading by grades. American Book Co.		
Fourth year . . . . .	IV, V	.32
Fifth year . . . . .	VI, VII	.32
Sixth year . . . . .	VIII	.36
<b>Bass, F.</b> Beginners' reader. Heath & Co.	I	.224
<b>Blaisdell, E. A., and M. F.</b> Child life readers. The Macmillan Co.		
A first reader . . . . .	I, II	.224
A fifth reader . . . . .	V, VI	.48
Rhyme and story readers. The rhyme and story primer. Little, Brown & Co.	I	.256
<b>Blodgett, F. E., and A. B.</b> The Blodgett readers. Ginn & Co.		
Second reader . . . . .	II	.28
Third reader . . . . .	III	.36
Fourth reader . . . . .	IV, V, VI	.52
The fifth reader . . . . .	VII, VIII	.60
<b>Bowen, J. A.</b> The story reader. J. B. Lippincott Co.	II	.32
<b>Brown, C. L., and Bailey, C. S.</b> The jingle primer. American Book Co.	I	.24
<b>Brumbaugh, M. C.</b> The standard second reader. Chris. Sower Co.	III	.24
The standard third reader. Chris. Sower Co.	IV	.32
<b>Buffington, B. E., and others.</b> The circus reader. By B. E. Buffington, T. Weimer and R. G. Jones. Sanborn & Co.	I, II	.32
<b>Burk, E., and Smith, C. J.</b> The easy road to reading. Lyons & Carnahan. [Nature and life series.]		
Primer . . . . .	I	.25
First reader . . . . .	I	.266
Second reader . . . . .	II	.333
<b>Cady, M. R., and Dewey, J. M.</b> The art reader. No. 1. The Macmillan Co.	I	.28

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Readers</i> , continued.		
<b>Carroll, C. F., and Brooks, S. C.</b> Readers. Appleton & Co.	I to VIII	
Primer . . . . .	I	\$0.24
A first reader . . . . .	I	.24
A second reader . . . . .	II	.28
A third reader . . . . .	III	.32
A reader for the fourth grade . . . . .	IV, V	.36
A reader for the fifth grade . . . . .	VI, VII	.36
A reader for the sixth grade . . . . .	VII	.40
A reader for the seventh grade . . . . .	VIII	.40
<b>Coe, I., and Christie, A. J.</b> Story-hour primer. American Book Co.	I	.24
Story-hour readers. American Book Co.		
Book 1 . . . . .	I	.24
Book 2 . . . . .	II, III	.28
<b>Cyr, E. M.</b> Interstate primer and first reader. Lothrop, Lee & Shepard Co.	I	.20
Reading slips. (Authorized material.) Ginn & Co.	I	.04*
<b>Davis, J. W., and Julien, F.</b> The Sea Brownie reader. Heath & Co.		
Part 1 . . . . .	II	.32
Part 2 . . . . .	III	.36
<b>Dickens</b> dramatic reader, A. By F. Comstock. Ginn & Co.	VIII	.48
<b>Dickens</b> reader, A. Edited by E. M. Powers. Houghton, Mifflin Co. [Riverside literature series, No. 205.]	VI, VII, VIII	.352
<b>Doheny, M. A.</b> Play awhile. A dramatic reader for the second school year. Little, Brown & Co.	II, III	.40
<b>Dyer, F. B., and Brady, M. J.</b> The Merrill readers. Chas. E. Merrill Co.		
Primer . . . . .	I	.288
First reader . . . . .	I, II	.288
Second reader . . . . .	II, III	.352
Third reader . . . . .	III, IV	.416
Fourth reader . . . . .	IV, V	.448
Fifth reader . . . . .	V, VI	.448
<b>Fassett, J. H.</b> The Beacon fourth reader. Ginn & Co.	V	.512
The Beacon introductory second reader. Animal folk tales. Ginn & Co.	II	.288
<b>Finch, A. B.</b> The Finch first reader. Ginn & Co.	I	.24
<b>Fox, F. C.</b> The Indian primer. American Book Co.	I, II	.20
<b>Free, M., and Treadwell, H. T.</b> The Free and Treadwell readers. Row, Peterson & Co.		
The primer . . . . .	I	.288
First reader . . . . .	I, II	.32
Second reader . . . . .	II, III	.352
Third reader . . . . .	III	.382
Fourth reader . . . . .	V	.416
Reading literature. See Treadwell, H. T., and Free, M.		

\* Per envelope.

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Readers</i> , continued.		
<b>Fuller, S.</b> An illustrated primer. Heath & Co.	I	\$0.224
<b>Gordon, E. K.</b> The new Gordon readers. Heath & Co.		
First book . . . . .	I	.288
Second book . . . . .	II	.288
Third book . . . . .	III	.352
<b>Grover, E. O.</b> The folk lore readers. Atkinson, Mentzer & Co.		
A primer . . . . .	I	.24
Book 1 . . . . .	II	.24
Book 2 . . . . .	III	.32
Outdoor primer. Rand, McNally & Co. . . . .	I	.20
Overall boys. Rand, McNally & Co. . . . .	I	.36
Sunbonnet babies. Rand, McNally & Co. . . . .	I	.32
<b>Haliburton, M. W.</b> The Haliburton primer. Heath & Co.	I	.24
<b>Haliburton, M. W., and Norvell, F. T.</b> Graded classics. Books 1 to 5. B. F. Johnson Publishing Co.	II to VIII	
Book 1 . . . . .		.24
Book 2 . . . . .		.28
Book 3 . . . . .		.32
Book 4 . . . . .		.36
Book 5 . . . . .		.40
<b>Hall, M. L.</b> Our world reader. No. I. Ginn & Co.	IV, V	.40
<b>Harper's</b> second reader. American Book Co.	II, III	.288
<b>Hawthorne, N.</b> The Hawthorne reader. Fifth reader. By E. E. Hale, Jr., and A. W. Sterling. Globe School Book Co.	VIII	.48
<b>Hervey, W. L., and Hix, M.</b> The Horace Mann readers. Longmans, Green & Co.		
Practice primer . . . . .	I	.288
Introductory second reader . . . . .	II	.32
Introductory third reader . . . . .	III	.40
Introductory fourth reader . . . . .	IV, V	.448
Fifth reader . . . . .	V	.52
Sixth reader . . . . .	VI, VII	.52
<b>Holbrook, F.</b> Dramatic reader for lower grades. American Book Co.	III, IV, V	.32
The Hiawatha primer. Houghton, Mifflin Co.	I	.32
<b>Holton, M. A.</b> The Holton primer. Rand, McNally & Co.	I	.20
<b>Judd, M. C.</b> The Palmer Cox Brownie primer. Edited by M. J. Moses. Century Co.	I	.32
<b>Kenyon-Warner, E.</b> Character building readers. Hinds, Noble and Eldredge.		
First reader, part 1 . . . . .	I	.24
First reader, part 2 . . . . .	I	.28
Second reader, part 1 . . . . .	II	.32
Second reader, part 2 . . . . .	II	.36
Third year . . . . .	III	.40
Fourth year . . . . .	IV	.40
Fifth year . . . . .	V	.48
Sixth year . . . . .	VI	.48

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Readers</i> , continued.		
<b>Kenyon=Warner, E.</b> , <i>continued</i> .		
Seventh year . . . . .	VII	\$0.48
Eighth year . . . . .	VIII	.48
<b>Kipling</b> reader, <i>The</i> , for upper grades. Appleton & Co. . . . .	VII, VIII	.48
<b>Knight, M.</b> Dramatic reader for grammar grades. American Book Co. . . . .	IV, V	.40
<b>Lewis, H. P.</b> Lippincott's readers. J. B. Lippincott & Co.		
Third reader . . . . .	III	.42
Fourth reader . . . . .	IV, V	.48
<b>Logie, A. E.</b> , and <b>Uecke, C. H.</b> Story reader. American Book Co. . . . .		
<b>Metcalf=Call</b> readers, <i>The</i> . Thompson Brown Co.	III	.24
A primer . . . . .	I	.24
A first reader . . . . .	I	.24
A second reader . . . . .	II, III	.28
A third reader . . . . .	III, IV	.36
A fourth reader . . . . .	IV, V	.44
A fifth reader . . . . .	V, VI, VII	.52
<b>Norton, C. E.</b> , editor. <i>The Heart of Oak</i> books. Heath & Co.		
Volume 1 . . . . .	II	.20
Volume 2 . . . . .	III	.28
Volume 3 . . . . .	IV	.32
Volume 4 . . . . .	V	.36
Volume 5 . . . . .	VI, VII	.40
Volume 6 . . . . .	VIII	.512
<b>Oswell, K. F.</b> , and <b>Gilbert, C. B.</b> <i>The American school readers</i> . The Macmillan Co.		
A primer . . . . .	I	.24
A first reader . . . . .	I	.24
A second reader . . . . .	II	.32
<b>Parker, W. G.</b> <i>The information reader, No. 3: Man and materials</i> . John A. Boyle Co. . . . .		
. . . . .	IV, V	.50
<b>Perkins, L. F.</b> <i>The Dutch twins primer</i> . Houghton, Mifflin Co.		
. . . . .	I, II	.352
<b>Richmond, C.</b> <i>The second reader</i> . Ginn & Co.		
. . . . .	II	.32
<b>Silver, Burdett</b> readers, <i>The</i> .		
Book 1 . . . . .	I	.20
Book 2 . . . . .	II	.28
Book 3 . . . . .	III	.32
Book 4 . . . . .	IV, V	.36
Book 5 . . . . .	V, VI	.44
<b>Simmons</b> reading books, <i>The</i> . Parker P. Simmons Co.		
. . . . .	VII, VIII	.60
<b>Smith, C. J.</b> <i>Easy road to reading</i> . Lyons & Carnahan. [Nature and life series.]		
Third reader . . . . .	IV	.43
Fourth grade reader . . . . .	V	.40
Fifth grade reader . . . . .	VI	.40
<b>Sprague, S. E.</b> <i>The classic reader</i> . Educational Publishing Co.		
Book 1 . . . . .	I	.25

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Readers</i> , concluded.		
<b>Sprague, S. E.</b> , <i>continued</i> .		
Book 4. Parts 1, 2 . . . . .	IV, V	\$0.50
Book 5. Parts 1, 2 . . . . .	VI, VII, VIII	.583
<b>Stevenson, R. L.</b> Robert Louis Stevenson reader. By C. T. Bryce. Scribner	II, III	.32
<b>Tappan, E. M.</b> The industrial readers. Houghton, Mifflin Co. Book 1. The farmer and his friends. Book 2. Diggers in the earth. Book 3. Makers of many things. Book 4. Travelers and traveling.	VI, VII, VIII	.40 ea.
<b>Thompson, F. G.</b> , and T. E. New Century readers. The Morse Co. First year. (For childhood days.) . . . . . Second year. (Fairy tales and fables.) . . . . . Third year. (Nature, myth and story.) Published by Silver, Burdett & Co.	I I, II III	.24 .32 .40
<b>Treadwell, H. T.</b> , and Free, M. Reading literature. Primer [and] 1st to 5th reader. Row, Peterson & Co. Primer . . . . . First reader . . . . . Second reader . . . . . Third reader . . . . . Fourth reader . . . . . Fifth reader . . . . .	I I, II II, III III V V, VI	.288 .32 .352 .384 .416 .448
<b>True, J. P.</b> The iron star. Historical reader. Little, Brown & Co.	VI, VII	.40
<b>Van Wagenen, K.</b> Dictation day by day. The Macmillan Co. Book 3 . . . . . Book 4 . . . . . Book 5 . . . . . Book 6 . . . . .	III IV V VI	.144 .16 .16 .16
<b>White, M. L.</b> Story readers: Primer. World Book Co.	I	.288
<b>Wiley, B.</b> Mother Goose primer. Chas. E. Merrill Co.	I	.288
<b>Williams, S.</b> , editor. Choice literature series. Revised and illustrated. American Book Co. Book 1 . . . . . Book 2 . . . . . Book 3 . . . . . Book 4 . . . . . Book 5 . . . . .	II III IV, V VI VII, VIII	.176 .20 .224 .28 .32
<b>Wilson, L. L. W.</b> A history reader for elementary schools. The Macmillan Co.	IV, V	.48
<b>Young, E. F.</b> , and Field, W. T. The Young and Field literary readers. Books 3, 4. Ginn & Co. Book 3 . . . . . Book 4 . . . . .	III, IV IV, V	.384 .416
<i>Supplementary Books.</i>		
<b>Abbott, J.</b> A boy on a farm. Edited by Clifton Johnson. American Book Co.	IV, V	.36

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
<b>Adams, C. F.</b> Yawcob Strauss and other poems. Lothrop, Lee & Shepard Co.	VI, VII, VIII	\$0.80
<b>Æsop.</b> Fables. Edited by J. H. Stickney. Ginn & Co.	III, IV	.32
<b>Alcott, L. M.</b> Little men. Little, Brown & Co.	VI, VII	.945
Little women. Little, Brown & Co.	VI, VII	.945
Under the lilacs. Little, Brown & Co.	VI, VII	1.20
<b>Aldrich, T. B.</b> The story of a bad boy. Houghton, Mifflin Co.	VIII	.416
<b>Amicis, E. de.</b> Cuore. (The heart of a boy.) Crowell & Co.	V	.50
<b>Andersen, H. C.</b> Best fairy tales. Translated by A. C. Henderson. Rand, McNally & Co.	III, IV	.36
<b>Animal stories</b> , retold from St. Nicholas. Edited by M. H. Carter. Century Co.	IV, V, VI	.52 ea.
About animals; Bear stories; Cat stories; Lion and tiger stories; Panther stories; Stories of brave Dogs.		
<b>Arabian nights'</b> entertainment, The. Revised and edited by Martha A. L. Lane. Ginn & Co.	V, VI	.40
<b>Austin, J. G.</b> Standish of Standish. Houghton, Mifflin Co.	VI, VII, VIII	.60
<b>Bailey, C. S.</b> For the children's hour. Milton Bradley Co.		
Book 1	II	} .336 ea.
Book 2, 3	III	
<b>Baldwin, J.</b> Abraham Lincoln. American Book Co.	VI, VII, VIII	.48
An American book of golden deeds. American Book Co.	IV, V	.40
Fairy stories and fables. American Book Co.	II	.28
Fifty famous people. American Book Co.	V, VI	.28
Fifty famous rides and riders. American Book Co.	VI, VII	.512
Fifty famous stories retold. American Book Co.	IV, V	.28
Four great Americans. American Book Co.	IV, V	.40
The Golden Fleece. American Book Co.	V, VI	.40
Old stories of the East. American Book Co.	III	.36
The story of Siegfried. Scribner	VII	1.20
Thirty more famous stories. American Book Co.	III	.40
<b>Barlow, J.</b> Strangers at Lisconnel. Dodd, Mead & Co.	VIII	
<b>Bear stories.</b> See above: Animal stories.		
<b>Beebe, M. B.</b> Four American naval heroes. American Book Co.	VI, VII	.40
<b>Bennett, J.</b> Master Skylark, a story of Shakespeare's time, illustrated by R. B. Bird. The Century Co.	VII	1.00
<b>Bigham, M. A.</b> Fanciful flower tales. Little, Brown & Co.	IV	.40
Merry animal tales. Little, Brown & Co.	IV	.40
Stories of Mother Goose village. Rand, McNally & Co.	III	.36

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
Bird, G. E., and Sterling, M. Historical plays for children. The Macmillan Co. [Every child series.]	IV, V	\$0.32
Blackmore, R. D. Lorna Doone. Ginn & Co.*	VIII	.52
Same. The Macmillan Co.		.21
Same. Allyn & Bacon		.52
Blaisdell, E. A., and M. F. Boy Blue and his friends. Little, Brown & Co.	II	.36
Blaisdell, M. F. Bunny Rabbit's diary. School edition. Little, Brown & Co.	II	.32
Cherry tree children. Little, Brown & Co.	I	.32
Polly and Dolly. Little, Brown & Co.	II	.32
Pretty Polly Flinders. School edition. Little, Brown & Co.	II	.32
Tommy Tinker's book. School edition. Little, Brown & Co.	II, III	.32
Twilight town. Little, Brown & Co.	II, III	.32
Blake, M. E. A summer holiday in Europe. Lothrop, Lee & Shepard.	VIII	.75
Bolton, S. K. Lives of girls who became famous. Crowell & Co.	VIII	1.00
Bouvé, P. C. American heroes and heroines. Lothrop Publishing Co.	VII, VIII	.625
Boyesen, H. H. The modern Vikings. Scribner	VIII	.75
Brooks, D. Stories of the red children. Educational Publishing Co.	III	.333 † .25 †
Brooks, E. The story of King Arthur. Penn Publishing Co.	VII	1.125
Brooks, E. C. The story of cotton. Rand, McNally & Co.	VI, VII, VIII	.60
Brown, A. F. In the days of giants. Houghton, Mifflin Co.	V	.416
Brown, K. L. Alice and Tom. Heath & Co.	III, IV	.32
Browne, F. The wonderful chair and the tales it told. Edited by M. V. O'Shea. Heath & Co.	IV, V	.24
Bryant, W. C. Sella, Thanatopsis, and other poems. Houghton, Mifflin Co. [Riverside literature series.]	VIII	.224
Bryce, C. T. Fables from afar. Newson & Co.	III	.352
That's why stories. Newson & Co.	II	.352
Short stories for little folks. Newson & Co.	I	.32
Bullard, F. L. Tad and his father. Little, Brown & Co.	VI, VII, VIII	.43
Burgess, T. W. Mother West Wind's children. Little, Brown & Co.	IV	.40
Old mother West Wind. School edition. Little, Brown & Co.	IV	.48
West Wind's animal friends. Little, Brown & Co.	III	.40
Burnett, F. H. Little Lord Fauntleroy. Scribner	IV, V	.75

\* Or any edition approved by the Board of Superintendents.

† Cloth.

‡ Boards.

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
Burt, M. E., and Ragozin, Z. A. <i>Odysseus, the hero of Ithaca.</i> Scribner	VII	\$.40
Burton, A. H. <i>Four American patriots.</i> American Book Co.	VI, VII	.40
Butler, H. B. C. <i>The only true Mother Goose.</i> Lothrop, Lee & Shepard Co.	II	.40
Canfield, W. <i>The White Seneca.</i> E. P. Dutton Co.	VI, VII, VIII	.48
Caroll, M. (pseud. of M. Brooks). <i>How Marjory helped.</i> Lothrop, Lee & Shepard	VI, VII	.60
Carrington, H. B. <i>Beacon lights of patriotism.</i> Silver, Burdett & Co.	VIII	.576
Carroll, Lewis (pseud. of C. L. Dodgson). <i>Alice's adventures in wonderland.</i> The Macmillan Co.	IV, V	.21
Same. Rand, McNally Co.		.24
Same. C. E. Merrill Co.		.288
Cervantes, M. de. <i>Don Quixote.</i> Edited by Mary E. Burt and Lucy L. Cable. Scribner.	VIII	.40
Chamberlain, J. E. <i>John Brown.</i> Small, Maynard & Co. [Beacon biographies.]	VI, VII	.45
Chambers, R. W. <i>Hide and seek in forest-land.</i> Appleton & Co.	IV	.32
Chance, L. M. <i>Little folks of many lands.</i> Ginn & Co.	III	.36
Chaucer, G. <i>Chaucer for children.</i> By Mrs. H. R. Haweis. Scribner	VIII	1.00
Chesnutt, C. W. <i>Frederick Douglass.</i> Small, Maynard & Co. [Beacon biographies.]	VI, VII	.45
Christy, S. R., and Shaw, E. R. <i>Pathways in nature and literature.</i> American Book Co.		
First reader	I	.20
Second reader	II	.24
Church, A. J. <i>Stories of the Old World.</i> Ginn & Co.*	VII	.48
Clemens, S. ("Mark Twain.") <i>The prince and the pauper.</i> Harper	V	1.459
Travels at home. Selected and edited by P. Chubb. Harper	VI, VII, VIII	.417
Clyde, A. M., and Wallace, L. <i>Through the year.</i> Silver, Burdett & Co.		.32
Book 1	I, II	
Book 2	II, III	
Cobb, B. B., and E. Arlo. <i>Riverdale Press</i> Busy builder's book. Ginn & Co.	IV, V, VI	.35
Coe, F. E. <i>Heroes of everyday life.</i> Ginn & Co.	I	.24
Companion series. The. Perry, Mason & Co.	VII, VIII	.32
Our country, east	VI, VII	.35
Our country, west	VI, VII	.35
Coolidge, S. (pseud. of S. C. Woolsey). <i>The New Year's bargain.</i> Little, Brown & Co.	IV	.875
What Katy did. Little, Brown & Co.	V	.875
What Katy did at school. Little, Brown & Co.	VI	.875

\* Any edition approved by the Board of Superintendents.



ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
<b>Cooper, J. F.</b> The last of the Mohicans. American Book Co.	VIII	\$0.28
Same. The Macmillan Co.	. . . . .	.21
Same. Heath & Co.	. . . . .	.40
Same. Houghton, Mifflin Co.	. . . . .	.512
Same. Silver, Burdett & Co.	. . . . .	.32
Same. Longmans, Green & Co.	. . . . .	.512
Same. Ginn & Co.	. . . . .	.40
<b>Cowles, J. D.</b> , editor. Stories to tell. A. Flanagan Co.	II, III	.292 <sup>c</sup> .
		.209 <sup>p</sup> .
<b>Cox, J. H.</b> , translator. A knight of Arthur's court, or the tale of Sir Gawain and the Green Knight. Translated and adapted for school use. Little, Brown & Co.	VII, VIII	.40
The song of Roland. Translated from old French texts and adapted for school use. Little, Brown & Co.	VII, VIII	.40
<b>Craik, D. M. M.</b> Adventures of a Brownie. Edited by M. F. Washburne. Rand, McNally & Co.	III, IV VIII	.28 .80
John Halifax, gentleman. Harper	VIII	.28
Same. Dutton	. . . . .	.40
Same. Rand, McNally & Co.	. . . . .	.833
A noble life. Harper	VIII	.833
<b>Crommelin, A. G.</b> Famous legends. Century Co.	IV, V	.48
<b>Custer, G. A.</b> The boy general. Scribner	VI, VII	.40
<b>Dale, J. T.</b> Heroes and great hearts. Heath & Co.	VI, VII	.48
<b>Davis, J. W.</b> Evenings with grandma. Part 1. Heath & Co.	IV	.36
Four New York boys. Educational Publishing Co.	IV	.48
<b>Dawson, J.</b> The boys and girls of Garden City. Ginn & Co.	VI, VII, VIII	.60
<b>Defoe, D.</b> The life and strange surprising adventures of Robinson Crusoe. Edited by W. P. Trent. Ginn & Co.	VI, VII	.48
Robinson Crusoe. Arranged for youngest readers by R. Hoyt. Educational Publishing Co.	I	.334
<b>Diaz, A. M.</b> William Henry letters. Lothrop, Lee & Shepard Co.	VI	.80
<b>Dickens, C.</b> A Christmas carol. Edited for school use by E. K. Broadus. Scott, Foresman & Co. [The Lake English classics.]	VII	.28
A Christmas carol and the Cricket on the hearth. Houghton, Mifflin Co.	VIII	.352
Same. The Macmillan Co.	. . . . .	.21
David Copperfield. Ginn & Co.	VIII	.56
Same. Dutton & Co.	. . . . .	.28
Nicholas Nickleby. Werner & Co.	VIII	.20
Same. Dutton & Co.	. . . . .	.48
Same. J. B. Lippincott Co.	. . . . .	1.00
Same. The Macmillan Co.	. . . . .	.80

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
<b>Dickens, C.</b> , <i>continued</i> .		
Same.— Rand, McNally & Co.		\$0.40; .48
Old Curiosity Shop. Burt & Co.	VIII	.40
Oliver Twist. Burt & Co.	VIII	.40
<b>Dillingham, E. T.</b> , and Emerson, A. Tell it again stories. Ginn & Co.	IV	.40
<b>Dodge, M. M.</b> Hans Brinker. Scribner	VI, VII	.40
<b>Dopp, K. E.</b> Early cave men. Rand, McNally & Co.	III	.36
The later cave men. Rand, McNally & Co.	IV, V	.36
Tree dwellers. Rand, McNally & Co.	III	.36
<b>Eastman, C. A.</b> Indian child life. Little, Brown & Co.	VI, VII, VIII	.40
<b>Eastman, C. A.</b> , and E. G. Smoky Days wigwam evenings. Little, Brown & Co.	V	.40
<b>Eddy, S. J.</b> Friends and helpers. Ginn & Co.	IV, V	.48
<b>Eggleston, E.</b> The Hoosier schoolboy. Scribner	VI	.40
Stories of American life and adventure. American Book Co.	IV, V	.40
Stories of great Americans for little Americans. American Book Co.	IV, V	.32
<b>Eliot, G.</b> (pseud.). Silas Marner. American Book Co.	VIII	
[Gateway series]		.32
[Eclectic series]		.16
Same. Heath & Co.		.288
Same. Houghton, Mifflin Co.		.352
Same. Silver, Burdett & Co.		.24
Same. Holt & Co.		.32
Same. Ginn & Co.		.24
Same. The Macmillan Co.		.21
Same. Chas. E. Merrill Co.		.36
<b>Eliot, S.</b> , editor. Poetry for children. Houghton, Mifflin Co.	IV, V	.64
Selections from American authors: Franklin, Adams, Cooper, Longfellow. Boston School Committee.		.36
<b>Ewing, J. H.</b> Daddy Darwin's dovecote. Little, Brown & Co.	VI	.40
Jackanapes. Little, Brown & Co.	VI, VII	.35
Same. Heath & Co.		.192
Same. Houghton, Mifflin Co.		.224
<b>Farrington, M.</b> Tales of King Arthur. Putnam	VIII	1.00
<b>Field, E.</b> The Eugene Field book. By M. E. Burt and M. B. Cable. Scribner	VI, VII	.40
<b>Fields, A.</b> Nathaniel Hawthorne. Small, Maynard & Co. [Beacon biographies.]	VI, VII	.45
<b>Finley, I. E.</b> Little home workers. Sanborn & Co.	I, II	.28
<b>Finley, W. L.</b> , and I. Little bird blue. Houghton, Mifflin Co.	II	.36
<b>Foote, M. H.</b> The little fig tree stories. Houghton, Mifflin Co.	IV, V	.48

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
<b>Forman, S. E.</b> Stories of useful inventions. Century Co. . . . . School edition . . . . . Regular edition . . . . .	VIII . . . . . . . . . .	.80 \$0.48 .80
<b>Foster, M. H.</b> , and <b>Cummings, M. H.</b> Asgard stories. Silver, Burdett & Co. . . . .	VI, VII	.32
<b>Fuller, A.</b> Pratt portraits. Putnam . . . . .	VIII	1.00
<b>Gaskell, E. S.</b> Cranford. The Macmillan Co. . . . . Same. Houghton, Mifflin Co. . . . . Same. Ginn & Co. . . . . Same. American Book Co. . . . . Same. Scribner . . . . .	VIII VIII . . . . . . . . . . . . . . .	.21 .352 .24 .32 .24
<b>Golden book of choice reading.</b> American Book Co. . . . .	III	.24
<b>Goldsmith, O.</b> The deserted village. Houghton, Mifflin Co. [Riverside literature series.] . . . . Same. Heath & Co. . . . . Same. Ginn & Co. . . . . Same. The Macmillan Co. . . . . Same. Chas. E. Merrill Co. . . . .	VIII .	.224 .16 .20 .24
<b>Gordy, W. F.</b> Abraham Lincoln. Scribner . . . . .	VII, VIII	.60
<b>Greene, F. N.</b> Legends of King Arthur and his court. Ginn & Co. . . . .	VI, VII, VIII	.40
<b>Grenfell, W. T.</b> Adrift on an ice pan. Houghton, Mifflin Co. . . . .	VIII	.224
<b>Grimm, J. L. C.</b> , and <b>W. C.</b> Fairy tales. Edited by J. H. Fassett. The Macmillan Co. [Macmillan's pocket classics] . . . . . Same. Edited by S. E. Wiltse. Ginn & Co. . . . .	IV, V III	.20 .28
<b>Guerber, H. A.</b> Myths of northern lands. American Book Co. . . . .	VIII	1.20
<b>Gulliver, L.</b> The friendship of nations. Ginn & Co. . . . .	VI, VII, VIII	.48
<b>Hale, E. E.</b> The man without a country and other stories. Edited by S. M. Tucker. The Macmillan Co. [Macmillan's pocket classics] . . . . . My double and how he undid me. The Macmillan Co. . . . .	VII, VIII VIII	.21 1.00
<b>Hale, E. E., Jr.</b> James Russell Lowell. Small, Maynard & Co. [Beacon biographies.] . . . .	VI, VII	.45
<b>Hale, L. P.</b> Peterkin papers. Houghton, Mifflin Co. . . . .	II	.90
<b>Hallock, E. V.</b> In those days. The Macmillan Co. [Every child series.] . . . .	III, IV	.36
<b>Hapgood, H.</b> Paul Jones. Houghton, Mifflin Co. [Riverside biographical series.] . . . .	VIII	.40
<b>Harraden, B.</b> Things will take a turn. Scribner. . . . .	IV, V	.60
<b>Harris, A. Van S.</b> Favorites from fairy land. Harper . . . . .	III	.292
<b>Hawthorne, N.</b> Stories from Hawthorne. Houghton, Mifflin Co. . . . . Tanglewood tales. Houghton, Mifflin Co. . . . . Same. The Macmillan Co. . . . .	VI, VII IV, V . . . . .	.224 .352 .21

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
<b>Hawthorne, N.</b> , <i>continued</i> .		
True stories. Houghton, Mifflin Co. [Riverside literature series.]	V, VI	\$0.40
The wonder book. Houghton, Mifflin Co.	IV, V	.352
Same. The Macmillan Co.		.20
<b>Hayes, I. I.</b> Cast away in the cold. Lothrop, Lee & Shepard Co.	VI, VII	.60
<b>Henty, G. A.</b> By pyke and dyke. Scribner*	VIII	1.08
A. L. Burt Co.		.48; .80
Under Drake's flag. Scribner*	VII	.40
<b>Herbst, E.</b> Tales and customs of the ancient Hebrews. Flanagan & Co.	III	.28
<b>Higgins, M. M.</b> Holidays in Mother Goose land. Newson & Co.	II	.38
<b>Hix, M.</b> Once upon a time. Longmans, Green & Co.	I, II	.20
<b>Holbrook, F.</b> Book of nature myths. Houghton, Mifflin Co.	II, III	.36
Cave, mound and lake dwellers. Heath & Co.	III, IV, V	.32
Northland heroes. Houghton, Mifflin Co.	VI	.28
<b>Holmes, O. W.</b> Grandmother's story and other poems. My hunt after the captain and other papers. Houghton, Mifflin Co. [Riverside literature series.]	VI, VII	.20
<b>Homeric stories.</b> Edited by F. A. Hall. American Book Co.	VI, VII	.32
<b>Horsford, I. M.</b> Stories of our holidays. Silver, Burdett & Co.	II	.288
<b>How, L.</b> James B. Eads. Houghton, Mifflin Co. [Riverside biographical series.]	VIII	.40
<b>Howe, M. A. DeW.</b> Phillips Brooks. Small, Maynard & Co. [Beacon biographies.]	VI, VII	.45
<b>Howells, W. D.</b> Boy life; stories and readings selected from [his] works by Percival Chubb. Harper	VI, VII, VIII	.40
The flight of Pony Baker. Harper	VIII	1.00
<b>Hughes, T.</b> Tom Brown's school days at Rugby. Ginn & Co.	VIII	.40
Same. Houghton, Mifflin Co.		.416
Same. The Macmillan Co.		.21
<b>Hugo, V.</b> The story of Jean Valjean from Victor Hugo's <i>Les misérables</i> . Edited by S. E. Wiltse. Ginn & Co.	VII	.72
<b>Hulst, C. S.</b> Indian sketches. Longmans, Green & Co.	IV, V, VI	.48
<b>Hurl, E. M.</b> Riverside art series. Houghton, Mifflin Co.	VIII	.48 ea.
Namely: Greek sculpture; Landseer; Michel Angelo; Millet; Murillo; Raphael; Rembrandt; Reynolds; Titian.		
<b>Irving, W.</b> Rip Van Winkle and other American essays from the Sketch book. Houghton, Mifflin Co. [Riverside literature series.]	VIII	.352

\* Any edition approved by the Board of Superintendents.

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
<b>Jackson, H. H.</b> Nelly's silver mine. Little, Brown & Co.	V	\$0.945
Ramona. Little, Brown & Co.	VIII	.90
<b>Jewett, S. O.</b> Betty Leicester. Houghton, Mifflin Co.	VI	.75
Betty Leicester's Christmas. Houghton, Mifflin Co.	VI, VII	.60
The country doctor. Houghton, Mifflin Co.	VIII	.75
Deephaven. Houghton, Mifflin Co.	VII	.75
Playdays. Houghton, Mifflin Co.	II, III, IV	.90
White heron. Houghton, Mifflin Co.	VI	.224
<b>Johnston, E. L., and Barnum, M. D.</b> Book of plays for little actors. American Book Co.	IV, V, VI	.24
<b>Johonnot, J.</b> Grandfather's stories. American Book Co.	IV, V	.216
<b>Keyser, J. E.</b> Stories of great artists. Vol. 1-4. Educational Publishing Co.	VII, VIII	.40 ea.
1. Raphael, Murillo, Rubens, Dürer.		
2. Van Dyck, Rembrandt, Reynolds, Bonheur.		
3. Angelo, Da Vinci, Titian, Correggio.		
4. Turner, Corot, Millais, Leighton.		
<b>Kingsley, C.</b> The heroes, or Greek fairy tales. Edited by C. A. McMurry. The Macmillan Co. [Macmillan's Pocket classics.]	VI, VII	.21
<b>Kipling, R.</b> Captains courageous. The Century Co.	VIII	1.00
The jungle book. The Century Co.	IV, V	1.00
<b>Klingensmith, A.</b> Household stories for little readers. Flanagan & Co.	II	.292
<b>Knowles, Sir J. T., compiler.</b> The legends of King Arthur. Warne & Co.	VIII	1.80
<b>Kupfer, G. H.</b> Lives and stories worth remembering. American Book Co.	III	.36
Stories of long ago in a new dress. Heath & Co.	VI, VII	.28*
<b>Lamb, C.</b> Adventures of Ulysses. Heath & Co.	VI	.224
Same. Ginn & Co.		.32
<b>Lamb, C., and M.</b> Tales from Shakespeare. Ginn & Co.	VII, VIII	.36
Same. Edited by A. Ainger. The Macmillan Co. [Macmillan's Pocket classics.]	VII, VIII	.21
Same. Houghton, Mifflin Co. [Riverside literature series.]	VI, VII	.416
<b>Lane, C. A.</b> Stories for children. American Book Co.	I	.20
<b>Lang, A., editor.</b> The Blue true story book. Longmans, Green & Co.	V, VI	.40
The Red true story book. Longmans, Green & Co.	VI, VII	.40
The snow man and other stories. Longmans, Green & Co.	III	.288
<b>Lansing, M. F.</b> Page, esquire and knight. Ginn & Co.	VII, VIII	.28

\* Board.

† Cloth.

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
Lewis, E. The princess and the goblin. Lippincott & Co.	IV	\$0.45
Lights to literature. Books 1 to 5. Rand, McNally & Co.		
Book 1 . . . . .	I, II	.20
Book 2 . . . . .	II, III	.288
Book 3 . . . . .	IV, V	.384
Book 4 . . . . .	VI, VII	.48
Book 5 . . . . .	VIII	.72
Lincoln, A. Selections from [his] letters, speeches and state papers. Edited by Ida M. Tarbell. Ginn & Co.	VIII	.24
Lindsay, M. Mother stories. Milton Bradley Co.	II, III	.75
Longfellow, H. W. The children's hour and other poems. Houghton, Mifflin Co. [Riverside literature series.]	IV, V	.352
The courtship of Miles Standish. Houghton, Mifflin Co.	VIII	.224
Same. The Macmillan Co.		.21
Evangeline. Houghton, Mifflin Co.	VIII	.224
Same. The Macmillan Co.		.21
The song of Hiawatha. Edited by E. J. Fleming. The Macmillan Co. [Macmillan's Pocket classics.]	IV, V	.20
Lowell, J. R. Jason's quest. Lothrop, Lee & Shepard Co.	VI, VII	.60
The vision of Sir Launfal, Under the old elm, and other poems. Houghton, Mifflin Co. [Riverside literature series.]	VIII	.224
Lucia, R. Peter and Polly in summer. American Book Co.	II, III	.28
Peter and Polly in winter. American Book Co.	III	.28
Mabie, H. W. Fairy tales every child should know. Grosset & Dunlap	III	.40
Norse stories. Rand, McNally & Co.	VI, VII, VIII	.32
Malory, Sir T. King Arthur and his noble knights. Stories from [his] Morte d'Arthur by M. MacLeod. A. L. Burt Co.	VII	.80
King Arthur stories from Malory: Done by L. O. Stevens and E. F. Allen. Houghton, Mifflin Co. [Riverside literature series.]	VIII	.32
Marden, O. S. Pushing to the front. T. Y. Crowell Co.	VI, VII	1.00
Stories from life. American Book Co.	VI	.36
Winning out. Lothrop Publishing Co.	VI, VII	.80
Martin, F. E., and Davis, G. M. Fire brands. School edition. Little, Brown & Co.	V	.40
Martineau, H. Crofton boys. Routledge	IV, V	
Same. Heath & Co.		.24
Feats on the fiord. Dutton & Co.	VII	.28; .36; .60
The peasant and the prince. Edited by S. C. Bryant. Houghton, Mifflin Co.		.352
Same. Ginn & Co.	V, VI	.384
Settlers at home. Dutton & Co.	VII	.60

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
May, S. (pseud. of R. C. Clarke). Little grand-father. Lothrop, Lee & Shepard Co.	IV	\$.45
Little grandmother. Lothrop, Lee & Shepard Co.	IV	.45
McKeen, F. Stories in prose and rhyme for little children. McKeen	Special Classes	.50 ea.
Merwin, H. C. Thomas Jefferson. Houghton, Mifflin Co. [Riverside biographical series.]	VIII	.40
Millard, C. N. The wonderful house that Jack has. The Macmillan Co.	V, VI, VII	.40
Miller, S. A., and Dunne, A. M. In the heart of the forest. A. S. Barnes Co.	VI	.438
Moore, C. W. Abraham Lincoln for boys and girls. Houghton, Mifflin Co.	VI, VII, VIII	.224
Morcomb, M. E. Red Feather stories. A book of Indian life and tales for little readers. Lyons & Carnahan. [Long ago series.]	II, III	.30
Mott, S. M., and Chubb, P. Indoors and out. Scribner	I	.24
Muir, J. E. Stickeen. Houghton, Mifflin Co.	VII, VIII	.20
Newton, C. C. Once upon a time in Connecticut. Houghton, Mifflin Co.	VI, VII	.56
Norton, E. A group of famous women. Heath & Co.	VI, VII, VIII	.36
Noyes, M. B. Twilight stories. Revised edition. Parker P. Simmons *	IV, V	.42
O'Kane, W. C. Jim and Peggy at Meadowbrook farm. The Macmillan Co. [Farm reader series.]	IV, V, VI	.384
Orville, F. Bunnies of Bunnyboro. Parker P. Simmons Co., Inc.	III	.40
Oswell, K. F. Stories grandmother told. The Macmillan Co. [Every child series.]	III	.32
Ouida (pseud. of L. De La Ramé). Child of Urbino. Educational Publishing Co.	III	.24
A dog of Flanders. Houghton, Mifflin Co.	VII	.224
The Nürnberg stove. Houghton, Mifflin Co.	IV	.224
Patri, A. White Patch. American Book Co.	VII	.32
Peabody, J. P. Old Greek folk stories told anew. Houghton, Mifflin Co.	IV, V	.224
Peabody, S. C. Step by step. Ginn & Co.	I	.24
Perkins, F. O., editor. Peter Pan, the boy who would never grow up to be a man. Silver, Burdett & Co.	IV, V	.40
Perkins, L. F. The Dutch twins. Houghton, Mifflin Co.	III, IV	.448
Porter, E. H. Pollyanna. Page & Co.	VII, VIII	1.08
Potter, B. The tailor of Gloucester and others. Warne & Co.	I	.334
Pratt, M. E. Rhoda Thornton's girlhood. Lothrop, Lee & Shepard Co.	VI	.48
Pratt, M. L. Legends of the Norseland. Educational Publishing Co.	V	.50
Legends of the Red children. American Book Co.	II, III	.24

\* To take the place of the old edition as new books are needed.

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
<b>Pratt, M. L.</b> , <i>continued</i> .		
Little flower folks, or stories from flowerland. Vol. 1, 2. Educational Publishing Co.	III	\$.025
Stories from Shakespeare. Vol. 1 to 3. Educational Publishing Co.	VIII	.417 ea.
Stories of colonial children. Educational Publishing Co.	II, III	.334*; .50 †
<b>Price, L. L.</b> Lads and lassies of other days. Silver, Burdett & Co.	IV, V	.384
<b>Price, L. L.</b> , and Gilbert, C. B. Heroes of myth. Silver, Burdett & Co.	IV, V	.40
<b>Pritchard, M. T.</b> , and Turkington, G. A. Stories of thrift for young Americans. Scribner	VII, VIII	.48
<b>Pyle, H.</b> Some merry adventures of Robin Hood of great renown in Nottinghamshire. Scribner	IV, V	.40
<b>Richards, L. E.</b> The Pig Brother. Little, Brown & Co.	III, IV	.32
<b>Richardson, A. S.</b> The girl who earns her own living. Braunworth & Co.	VII, VIII	.60
<b>Robinson, L.</b> At the open door. Silver, Burdett & Co.	I, II	.36
In Toyland. Little, Brown & Co.	I, II	.36
<b>Ruskin, J.</b> The King of the Golden River. Ginn & Co.	IV, V	.20
Same. Heath & Co.		.192
Same. Houghton, Mifflin Co.		.224
Same. The Macmillan Co.		.21
Same. Rand, McNally & Co.		.20
<b>Saintine, J. X. B.</b> Picciola. Translated and edited by Alger. Ginn & Co.	VI, VII	.28
<b>Schiller, F. von.</b> William Tell. Translated and adapted to school use by C. A. McMurry. Silver, Burdett & Co.	VI, VII	.32
<b>Schwartz, J. A.</b> Five little strangers. American Book Co.	III	.32
Wilderness babies. Little, Brown & Co.	VI, VII	.40
<b>Scott, Sir W.</b> Ivanhoe. Putnam	VIII	
Same. A. L. Burt		.60
Same. Longmans, Green & Co.		.32
Same. Silver, Burdett & Co.		.40
Same. Houghton, Mifflin Co.		.512
Same. Heath & Co.		.40
Same. Ginn & Co.		.40
Same. Appleton & Co.		.48
Same. The Macmillan Co.		.21
Same. American Book Co.		.40
Kenilworth. Putnam	VIII	
Same. A. L. Burt		.40
Same. American Book Co.		.21
Same. The Macmillan Co.		.21
The Lady of the Lake. Houghton, Mifflin Co.	VIII	.60
Same. Heath & Co.		.288
Same. Holt & Co.		.28

\* Board.

† Cloth.



ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
<b>Scott</b> , Sir W., <i>continued</i> .		
Same. Ginn & Co.		\$0.28
Same. American Book Co.		.32
Same. Silver, Burdett & Co.		.24
Same. Appleton & Co.		.24
Same. The Macmillan Co.		.21
Same. Rand, McNally Co.		.36
Same. Chas. E. Merrill Co.		.24
Same. Longmans, Green & Co.		.24
The lay of the last minstrel. Houghton, Mifflin Co.	VIII	.60
Same. Ginn & Co.		.24
Same. The Macmillan Co.		.21
Quentin Durward. A. L. Burt*	VIII	
Same. Putnam		
Same. Houghton, Mifflin Co.		.512
Same. Heath & Co.		.40
Same. Ginn & Co.		.40
Same. American Book Co.		.40
Same. The Macmillan Co.		.21
Same. Longmans, Green & Co.		.32
Tales of a grandfather. Ginn & Co.*	VIII	.32
<b>Scudder</b> , H. E., editor. American poems.		
Houghton, Mifflin Co.	VIII	.80
Fables and folk stories. Houghton, Mifflin Co.	III, IV	.352
<b>See and say series</b> , The. By S. L. Arnold, E. C.		
Bonney and E. F. Southworth. Iroquois Publishing Co.		
Book 1	I	.30
Book 2	II	.30
Book 3	III	.30
<b>Serl</b> , E. In fableland. Silver, Burdett & Co.	I, II	.36 † .288 ‡
<b>Seton=Thompson</b> , E. Lobo, Rag and Vixen.		
Scribner. §	IV, V	.40
<b>Sewell</b> , A. Black Beauty. Educational Pub-		
lishing Co.	IV, V	.209
Same. Rand, McNally Co.		.32
<b>Shakespeare</b> , W. Julius Cæsar. Houghton,		
Mifflin Co. [Riverside literature series.]	VIII	.224
Same. Heath & Co.		.24
Same. Ginn & Co.		.24
Same. American Book Co. [Gateway series.]		.16; .28; .448
Same. The Macmillan Co.		.21
Same. Silver, Burdett Co.		.20
The Merchant of Venice. Houghton, Mifflin Co.	VIII	.224
Same. Ginn & Co.		.24
Same. American Book Co. [Gateway series.]		.28
Same. Rolfe edition		.448
Same. Appleton & Co.		.24
Same. The Macmillan Co.		.21
Same. Silver, Burdett & Co.		.20

\* Any edition approved by the Board of Superintendents.

† Colored.

‡ Black and white.

§ Manual to accompany each book, one for each teacher.

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
<b>Sharp, D. L.</b> The Fall of the year. Houghton, Mifflin Co.	VII, VIII	\$0.48
The Spring of the year. Houghton, Mifflin Co.	VII, VIII	.48
Winter. Houghton, Mifflin Co.	VII, VIII	.48
<b>Shute, K. H.</b> The land of song. Silver, Burdett & Co.		
Book 1 . . . . .	I-V	.32
Book 2 . . . . .	VI, VII	.40
Book 3 . . . . .	VIII	.44
<b>Sidney, M.</b> (pseud. of H. M. Lothrop). The gingham bag. Lothrop, Lee & Shepard Co.	IV, V	1.00
<b>Skinner, H. P.</b> Boys who became famous men. Little, Brown & Co.	VI	.84
<b>Sneath, E. H., Hodges, G., and Stevens, E. L.,</b> compilers. The golden rule series. The Macmillan Co.		
The golden ladder . . . . .	III, IV	.384
The golden path . . . . .	IV, V	.416
The golden door . . . . .	V, VI	.48
The golden key . . . . .	VI, VII	.48
<b>Snedden, G. S.</b> Docas, the Indian boy of Santa Clara. Heath & Co.	IV, V	.32
<b>Spyri, J.</b> Heidi. Translated by H. B. Dole. Ginn & Co.	VI, VII	.32
Moni, the goat boy. Translated by E. P. Stork. J. B. Lippincott Co.		.36
<b>Stevenson, A.</b> Children's classics in dramatic form. Houghton, Mifflin Co.		
Book 1 . . . . .	I, II	.28
Book 2 . . . . .	II, III	.28
Book 3 . . . . .	IV	.32
Book 5 . . . . .	VI	.48
<b>Stevenson, R. L.</b> A child's garden of verses. Scribner	IV, V	.40 *
Same. Rand, McNally Co.		.36 †
Kidnapped. The Macmillan Co.	VIII	.21
Treasure Island. Scott, Foresman & Co.	VIII	.24
<b>Stickney, J. H.</b> Earth and sky. Ginn & Co.	II, III	.24; .28
<b>Stockton, F. R.</b> Fanciful tales. Scribner	IV, V	.40
<b>Stowe, H. B.</b> Pussy willow stories. Houghton, Mifflin Co.	IV	.75
Uncle Tom's cabin. Houghton, Mifflin Co.	VIII	.512
<b>Swift, J.</b> Gulliver's travels. Edited by T. M. Balliet. Heath & Co.	VI, VII	.288; .384
Same. Edited by E. K. Robinson. Ginn & Co.	VI, VII	.32
<b>Tappan, E. M.</b> Old ballads in prose. Houghton, Mifflin Co.	VII	.40
<b>Thacher, L. W.</b> The listening child. The Macmillan Co.	VI, VII	.40
<b>Thaxter, C.</b> Stories and poems for children. Houghton, Mifflin Co. [Riverside school library series.]	VI, VII	.48
<b>Thomson, J. S.</b> Bud and bamboo. Appleton & Co.	VI	.28

\* School reader.

† School edition.

ELEMENTARY SCHOOLS.	Grades.	Price.
Reading.— <i>Supplementary Books</i> , continued.		
<b>Tomlinson, E. T.</b> The young defenders. Silver, Burdett & Co.	VI, VII	\$0.384
<b>Trowbridge, J. T.</b> Cudjo's cave. Lothrop, Lee & Shepard Co.	VIII	.45
His one fault. Lothrop, Lee & Shepard Co.	VI	.75
Tinkham brothers' tide mill. Lothrop, Lee & Shepard Co.	VII	.75
<b>Tucker, L. E., and Ryan, E. L.</b> Historical plays of colonial days. Longmans, Green & Co.	V, VI, VII	.40
<b>Twain, Mark</b> , pseud. See Clemens, S. L.		
<b>Van Dyke, H., Jr.</b> The first Christmas tree. Scribner	VI	.40
<b>Wade, M. H.</b> Ten big Indians. Wilde & Co.	V, VI, VII	.80
Ten little Indians. Wilde & Co.	III	.80
<b>Wallace, L.</b> Ben Hur. Harper	VIII	1.00
<b>Warner, C. D.</b> A-hunting of the deer. Houghton, Mifflin Co.	VI, VII	.20
Being a boy. Houghton, Mifflin Co.	VII, VIII	.352
<b>Warren, C. F.</b> Garden series. C. M. Clark Publishing Co.	I, II, III	.32 ea.
Little Goldie Goldenrod and her friends.		
Little Bettie Marigold and her friends.		
Little Polly Primrose and her friends.		
Little Danny Dandelion.		
Little Peter Pansy.		
<b>Webster, D.</b> Daniel Webster for young Americans. By C. F. Richardson. Little, Brown & Co.	VIII	.90
<b>White, E. O.</b> A borrowed sister. Houghton, Mifflin Co.	III	.60
Ednah and her brothers. Houghton, Mifflin Co.	III	.60
A little girl of long ago. Houghton, Mifflin Co.	IV	.60
An only child. Houghton, Mifflin Co.	III	.60
When Molly was six. Houghton, Mifflin Co.	III	.60
<b>Whitney, A. D. T.</b> A summer in Leslie Goldthwaite's life. Houghton, Mifflin Co.	VI, VII	.75
<b>Whittier, J. G.</b> Selections from Child life in poetry and prose. Houghton, Mifflin Co. [Riverside literature series.]	VI, VII	.32
Snowbound; Among the hills; Songs of labor; Mabel Martin, and other poems. Houghton, Mifflin Co. [Riverside literature series.]	VI, VII	.20
<b>Wiggin, K. D.</b> The bird's Christmas carol. Houghton, Mifflin Co.	IV	.30
The flag-raising. Houghton, Mifflin Co.	VI	.224
Polly Oliver's problem. Houghton, Mifflin Co.	VII, VIII	.32
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Shute, K. H., editor. The night before Thanksgiving. Houghton, Mifflin & Co.		.20
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<i>Text-books.</i>		
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Ballard, A. W. Short stories for oral French. Scribner		.60

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§ Cloth.

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\* See Dubois, T., above.

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Century dictionary, The, and cyclopedia. The Century Co. . . .	75.00 <sup>3</sup>
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<sup>13</sup> North America, South America, British Isles and Africa, steel roller, \$8.00; common roller, \$6.25; World, Europe, Asia and United States, steel roller, \$8.75; common roller, \$6.75.

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Africa . . . . .	
North America and South America (six in set)	
<b>True, B. L. True literary map of the British Isles. Rand, McNally &amp; Co. . . . .</b>	<b>5</b>

<sup>1</sup> Common roller, \$3.50; spring roller, \$5.50; spring roller with board, \$6.

<sup>2</sup> Common roller, \$6.80; steel case.

<sup>3</sup> Spring roller, \$15; folded and eyeletted, \$11; stick top and bottom, \$10; linen back, \$9.

<sup>4</sup> Full set, \$24; elementary set, stand and manual, \$4; separate maps, spring roller, \$2.40.

<sup>5</sup> Common roller, \$5.60; spring roller, \$8.

SCHOOL DOCUMENT NO. 12—1918  
BOSTON PUBLIC SCHOOLS  
ANNUAL STATISTICS OF THE  
BOSTON PUBLIC SCHOOLS

CALENDAR YEAR 1917  
AND SCHOOL YEAR 1917-1918



BOSTON  
PRINTING DEPARTMENT  
1918



## TABLE OF CONTENTS.

	PAGE
Introduction . . . . .	5, 6
Boston Trade School . . . . .	14, 21
Certificates Issued to Working Children . . . . .	72
Class Rooms, Normal, High and Latin . . . . .	59
Class Rooms, Elementary . . . . .	60
Continuation School . . . . .	55
Day Schools:	
Admissions — September, 1917, Normal, High and Latin,	35
Ages and Grades of Pupils, June 30, 1918 . . . . .	16, 17
Conservation of Eye-sight Classes (semi-blind) . . . . .	6, 16, 17
Day School for Immigrants . . . . .	55
Disciplinary Day School . . . . .	14
Graduates, June, 1918 . . . . .	22, 23
September, 1918 (Summer Review Schools) . . . . .	24
Hospital Classes . . . . .	6, 16, 17
Industrial Schools . . . . .	14, 15, 16, 17, 21, 44, 46
Intermediate Classes . . . . .	23, 25
Kindergartens, Number of, Morning and Afternoon . . . . .	36
Membership and Attendance . . . . .	12, 13
Modern Language Classes (intermediate or junior high),	6
Non-Promotions, Elementary and Intermediate, June,	
1918 . . . . .	30-33
Elementary and Intermediate, Sep-	
tember, 1918 (Summer Review	
Schools) . . . . .	34
Open-Air Classes . . . . .	6, 16, 17
Pre-Vocational Classes . . . . .	6, 16, 17
Private Schools . . . . .	6
Promotions, Elementary and Intermediate, June, 1918 . . . . .	26-29
Elementary and Intermediate, September,	
1918 (Summer Review Schools) . . . . .	34
Pupils per Teacher, Number of . . . . .	21
Rapid Advancement Classes . . . . .	6, 16, 17
Registration, Average Number Belonging, Average Attend-	
ance, etc.: . . . . .	
School Year . . . . .	5, 9-14
Calendar Year . . . . .	18-21
Special Classes . . . . .	6, 16, 17
Special English Classes . . . . .	6, 16, 17
Speech Improvement Classes (stammerers) . . . . .	6
Summaries . . . . .	7, 8
Ungraded Classes . . . . .	6, 16, 17

	PAGE
Evening Schools:	
Ages and Grades — High Schools . . . . .	49
Elementary Schools . . . . .	50
Trade School . . . . .	51
Summary . . . . .	52
Countries of Birth of Pupils . . . . .	54
Non-English Speaking Pupils . . . . .	53
Registration, Average Number Belonging, Average Attendance, etc. . . . .	47, 48
Summary . . . . .	47
Extended Use of Public Schools . . . . .	66-71
Minors, Registration of . . . . .	73
Playgrounds . . . . .	57
School Districts, Number of . . . . .	36
Schoolhouse Summary . . . . .	58
Schoolrooms and Sittings . . . . .	58
Seating Capacity by Schools . . . . .	61-65
Summer Review Schools . . . . .	5, 6, 24, 25, 34, 56
Trade School for Girls . . . . .	15, 21
Teachers:	
Elementary, Summary . . . . .	39
Elementary, by Schools . . . . .	40-43
High and Latin, Summary . . . . .	37
High and Latin, by Schools . . . . .	38
Normal School . . . . .	36
Summary, all Teachers, June 30, 1918 . . . . .	36
January 31, 1918 . . . . .	46
Supervisors and Directors, June 30, 1918 . . . . .	44, 45
Attendance Officers . . . . .	45
Nurses . . . . .	45
School Physicians . . . . .	45

IN SCHOOL COMMITTEE,  
BOSTON, November 18, 1918.

*To the School Committee:*

I submit herewith the ninth annual report of the statistics of the Boston Public Schools.

The total registration in all schools during the year was 144,802; the average membership, 117,978; and the average number in daily attendance, 107,559. The total registration was 2,432 greater than during the school year next preceding. The total registration was distributed as follows:

Regular day schools . . . . .	122,970
Evening schools . . . . .	11,954
Continuation schools . . . . .	9,583
Day School for Immigrants . . . . .	295

The number of pupils registered in the Summer Review Schools was 4,878. This total of 4,878 is not included in the total registration because, with few exceptions, these pupils were registered in public day schools during the term ending in June, 1918.

The Normal School showed a decrease of 37 pupils. The high and Latin schools showed a decrease of 945 pupils, which was in part offset by a registration of 875 in the intermediate ninth grade of the elementary schools, thus making a net total decrease in the high and Latin schools of 70 pupils. The evening schools showed a decrease of 1,768 pupils. The increases in registration throughout the city were as follows:

Elementary grades (exclusive of ninth) . . . . .	1,594
Kindergartens . . . . .	602
Special schools . . . . .	78
Continuation school . . . . .	1,738

The average number belonging in all day schools was 106,690; a decrease of 463.

The total number of principals and teachers, including the members of the supervising staff, in the employ of the city on June 30, 1918, was 3,375—seventy more than on the corresponding day of the preceding year. The day high and Latin schools had three fewer teachers and the special schools three. The Normal School had one additional teacher, the day elementary grades forty-one, and the kindergartens eight. Of the total number of teachers 534 were men and 2,841 women. The average number of pupils per teacher in the Normal School was reduced from 19.6 to 16.3; the day high and Latin schools from 30.3 to 28.1; and in the grades from 41.4 to 40.9. In the kindergartens the number was increased from 23.9 to 25.5.

The number of classes of special types in the day elementary schools and the number of pupils belonging at the end of the school year were as follows:

	Number of Classes.	Number Belonging.
Conservation of Eyesight Classes (semi-blind).....	4	45
Hospital Classes.....	3	42
Modern Language Classes (intermediate, or junior high).....	173	6,529
Open-Air Classes.....	13	453
Pre-Vocational Classes.....	21	683
Rapid Advancement Classes.....	7	192
Special Classes.....	67	1,019
Special English Classes.....	9	252
Speech Improvement Classes (stammerers) (8 centers).....	38	498
Ungraded Classes.....	21	550

The detailed reports of membership and attendance of pupils assigned to the classes mentioned above are included in the total of respective districts in which they were registered.

Summer Review Schools were reopened July 1 and were continued in session six days per week up to and including August 16, 1918. There was one Summer Review High School conducted in the Roxbury High Schoolhouse. There were nine Summer Review Elementary Schools and one branch.

Following is the summary of the distribution of children of public school grade in all day schools of the city for the past six years, based on the daily average number belonging:

SCHOOL YEAR.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
Public schools.....	103,078	106,549	109,223	110,990	107,153	106,690
Parochial schools.....	20,090	20,706	21,186	21,376	22,071	22,784

Respectfully submitted,

FRANK V. THOMPSON,  
*Superintendent of Public Schools.*



## GENERAL SUMMARIES.

AVERAGE MEMBERSHIP SCHOOL YEARS 1913-14 TO  
1917-18.

DAY SCHOOLS.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
Normal.....	188	185	286	295	262
High and Latin.....	14,393	15,714	16,882	16,755	15,368
Elementary Grades.....	85,577	85,871	85,884	83,087	83,326
Kindergartens.....	5,719	6,598	7,014	6,180	6,879
Special Schools.....	672	855	924	836	855
Totals.....	106,549	109,223	110,990	107,153	106,690
Increase over previous year..	3,471	2,674	1,767	* 3,837	* 463

\* Decrease.

ENROLLMENT ON JUNE 30 OF EACH OF THE LAST FIVE  
YEARS.

DAY SCHOOLS.	1914.	1915.	1916.	1917.	1918.
Normal.....	186	181	282	289	254
High and Latin.....	13,339	14,612	15,276	15,074	13,612
Elementary Grades.....	85,737	85,564	85,143	83,224	82,520
Kindergartens.....	6,316	7,287	7,605	7,087	7,572
Special Schools.....	578	747	718	625	633
Totals.....	106,156	108,391	109,024	106,299	104,591

## TOTAL REGISTRATION.

*School Year Ending June 30, 1918.*

	Boys.	Girls.	Total.
Normal.....	5	269	274
High and Latin.....	8,120	9,289	17,409
Elementary Grades.....	49,522	45,866	95,388
Kindergartens.....	4,572	4,134	8,706
Special Schools.....	376	817	1,193
Totals.....	62,595	60,375	122,970

## SUMMARY.

School Year Ending June 30, 1918.

SCHOOLS.	Total Registration.	Average Number Belonging.	Average Attendance.	Per Cent of Attendance.	NUMBER ENROLLED JUNE 30, 1918, OF THE FOLLOWING AGES.				
					Under 5.	5 to 7.	7 to 14.	14 to 16.	16 and over.
Normal. ....	274	262	255	97	.....	.....	.....	3	251
High and Latin. ....	17,409	15,368	14,406	94	.....	.....	2,998	6,360	4,254
Elementary Grades. ....	95,388	83,326	76,915	92	313	15,294	62,700	3,942	245
Kindergartens. ....	8,706	6,879	5,481	80	5,456	2,104	12	.....	.....
Totals. ....	121,777	105,835	97,057	91	5,769	17,398	65,710	10,305	4,750
Special Schools. ....	1,193	855	776	91	3	26	146	273	213
<b>All Day Schools (except the Continuation School),</b>	<b>122,970</b>	<b>106,690</b>	<b>97,833</b>	<b>91</b>	<b>5,772</b>	<b>17,424</b>	<b>65,856</b>	<b>10,578</b>	<b>5,963</b>
Evening High. ....	6,004	3,466	2,827	82	.....	.....	.....	.....	.....
Evening Elementary. ....	4,994	2,275	1,872	82	.....	.....	.....	.....	.....
Boston Trade School (Evening Classes) . . . . .	832	407	319	78	.....	.....	.....	.....	.....
Trade School for Girls (Evening Classes) . . . . .	124	67	50	75	.....	.....	.....	.....	.....
Totals. ....	11,954	6,215	5,068	82	.....	.....	.....	.....	.....
Continuation School. ....	9,583	4,925	4,521	92	.....	.....	.....	.....	.....
Day School for Immigrants, . . . . .	295	148	137	93	.....	.....	.....	.....	.....
Totals of all Day and Evening Schools. . . . .	144,802	117,978	107,559	91	.....	.....	.....	.....	.....

## DAY SCHOOLS.

## NORMAL, LATIN AND HIGH SCHOOLS.

*School Year Ending June 30, 1918.*

	Total Registration.	AVERAGE NUMBER BELONGING.			AVERAGE ATTENDANCE.			Average Absence.	Per Cent of Attendance.
		Boys.	Girls.	Total.	Boys.	Girls.	Total.		
Normal.....	274	4	258	262	4	251	255	7	97
High and Latin:									
Public Latin.....	989	912	.....	912	875	.....	875	37	96
Girls' Latin.....	819	.....	748	748	.....	715	715	33	96
Brighton High.....	642	191	425	616	178	397	575	41	93
Charlestown High....	523	110	333	443	101	311	412	31	93
Dorchester High.....	2,292	654	1,360	2,014	606	1,250	1,856	158	92
East Boston High....	763	236	425	661	215	394	609	52	92
English High.....	2,330	1,989	.....	1,989	1,845	.....	1,845	144	92
Girls' High.....	2,097	.....	1,808	1,808	.....	1,643	1,643	165	91
High School of Com- merce.....	1,540	1,338	.....	1,338	1,300	.....	1,300	38	97
High School of Practi- cal Arts.....	656	.....	564	564	.....	520	520	44	92
Hyde Park High.....	756	308	375	683	292	354	646	37	95
Mechanic Arts High..	929	809	.....	809	775	.....	775	34	96
Roxbury High.....	1,235	.....	1,129	1,129	.....	1,065	1,065	64	94
South Boston High....	994	297	596	893	283	569	852	41	95
West Roxbury High..	844	187	574	761	180	538	718	43	94
Totals, Normal, High and Latin.....	17,683	7,035	8,595	15,630	6,654	8,007	14,661	969	94
Totals, High and Latin.....	17,409	7,031	8,337	15,368	6,650	7,756	14,406	962	94

## ELEMENTARY GRADES.

*School Year Ending June 30, 1918.*

SCHOOL DISTRICTS.	Total Registration.	AVERAGE NUMBER BELONGING.			AVERAGE ATTENDANCE.			Average Absence.	Per Cent of Attendance.
		Boys.	Girls.	Total.	Boys.	Girls.	Total.		
Abraham Lincoln.....	2,417	929	1,035	1,964	860	955	1,815	149	92
Agassiz.....	747	608	88	696	579	80	659	37	95
Bennett.....	1,430	725	651	1,376	686	610	1,296	80	94
Bigelow.....	1,051	787	124	911	755	115	870	41	96
Bowditch.....	1,033	228	778	1,006	207	724	931	75	93
Bowdoin.....	1,211	263	711	974	233	636	869	105	89
Bunker Hill.....	742	307	314	621	285	290	575	46	93
Chapman.....	1,381	536	588	1,124	487	533	1,020	104	91
Charles Sumner.....	1,153	540	486	1,026	503	447	950	76	93
Christopher Gibson.....	1,207	493	472	965	454	428	882	83	91
Dearborn.....	2,030	940	745	1,685	869	685	1,554	131	92
Dillaway.....	1,358	244	948	1,192	217	855	1,072	120	90
Dudley.....	1,222	917	183	1,100	851	161	1,012	88	92
Dwight.....	1,114	561	171	732	527	151	678	54	93
Edmund P. Tileston....	901	408	374	782	382	349	731	51	93
Edward Everett.....	1,618	767	736	1,503	722	692	1,414	89	94
Elihu Greenwood.....	1,337	594	613	1,207	553	568	1,121	86	93
Eliot.....	2,533	1,796	458	2,254	1,728	430	2,158	96	96
Emerson.....	1,446	688	682	1,370	623	614	1,237	133	91
Everett.....	840	147	561	708	132	512	644	64	91
Francis Parkman.....	745	335	318	653	317	299	616	37	94
Franklin.....	1,336	291	672	963	262	617	879	84	91
Frederic W. Lincoln....	838	608	101	709	571	90	661	48	93
Frothingham.....	755	318	302	620	299	282	581	39	94
Gaston.....	1,020	186	788	974	170	742	912	62	94
George Putnam.....	2,085	935	934	1,869	855	840	1,695	174	91
Gilbert Stuart.....	1,072	487	437	924	452	405	857	67	93
Hancock.....	2,348	469	1,689	2,158	448	1,601	2,049	109	95
Harvard.....	757	340	304	644	312	274	586	58	91
Henry Grew.....	761	304	304	608	274	273	547	61	90
Henry L. Pierce.....	1,969	773	799	1,572	721	738	1,459	113	93
Hugh O'Brien.....	1,502	854	519	1,373	800	476	1,276	97	93
Hyde.....	780	101	606	707	88	558	646	61	91
Jefferson.....	989	415	454	869	394	428	822	47	95

## ELEMENTARY GRADES.

School Year Ending June 30, 1918.—Concluded.

SCHOOL DISTRICTS.	Total Registration.	AVERAGE NUMBER BELONGING.			AVERAGE ATTENDANCE.			Average Absence.	Per Cent of Attendance.
		Boys.	Girls.	Total.	Boys.	Girls.	Total.		
John A. Andrew.....	1,205	545	479	1,024	508	438	946	78	92
John Cheverus.....	1,500	711	663	1,374	664	611	1,275	99	93
John Winthrop.....	1,712	798	746	1,544	724	676	1,400	144	91
Lawrence.....	1,007	683	200	883	646	187	833	50	94
Lewis.....	2,612	1,145	1,106	2,251	1,007	988	1,995	256	89
Longfellow.....	1,316	605	648	1,253	561	597	1,158	95	92
Lowell.....	1,168	544	534	1,078	515	502	1,017	61	94
Martin.....	1,461	579	551	1,130	536	509	1,045	85	92
Mary Hemenway.....	2,051	977	981	1,958	899	897	1,796	162	92
Mather.....	2,524	1,189	1,109	2,298	1,106	1,024	2,130	168	92
Minot.....	658	301	257	558	281	238	519	39	93
Norcross.....	1,103	232	793	1,025	220	752	972	53	95
Oliver Hazard Perry....	879	393	411	804	367	381	748	56	93
Oliver Wendell Holmes..	3,625	1,733	1,703	3,436	1,587	1,548	3,135	301	91
Phillips Brooks.....	1,521	705	727	1,432	626	645	1,271	161	89
Prescott.....	725	375	298	673	355	279	634	39	94
Prince.....	1,382	452	462	914	407	413	820	94	90
Quincy.....	1,168	773	195	968	715	175	890	78	92
Rice.....	998	466	351	817	429	321	750	67	92
Robert G. Shaw.....	1,342	595	630	1,225	554	586	1,140	85	93
Roger Wolcott.....	2,954	1,332	1,209	2,541	1,209	1,099	2,308	233	91
Samuel Adams.....	2,551	1,153	1,125	2,278	1,091	1,055	2,146	132	94
Sherwin.....	948	719	175	894	662	157	819	75	92
Shurtleff.....	787	163	610	773	151	572	723	50	94
Theodore Lyman.....	1,885	735	647	1,382	688	602	1,290	92	93
Thomas Gardner.....	1,424	684	649	1,333	646	609	1,255	78	94
Thomas N. Hart.....	1,035	848	172	1,020	802	160	962	58	94
Ulysses S. Grant.....	1,348	640	544	1,184	581	493	1,074	110	91
Warren.....	1,060	471	459	930	433	418	851	79	92
Washington.....	1,696	783	776	1,559	725	713	1,438	121	92
Washington Allston....	1,234	504	481	985	473	445	918	67	94
Wells.....	2,154	512	1,233	1,745	458	1,099	1,557	188	89
Wendell Phillips.....	1,571	1,271	29	1,300	1,146	26	1,172	128	90
William E. Russell.....	1,028	494	424	918	462	392	854	64	93
Totals.....	95,388	43,004	40,322	83,326	39,850	37,065	76,915	6,411	92

## KINDERGARTENS.

*School Year Ending June 30, 1918.*

SCHOOL DISTRICTS.	Total Registration.	AVERAGE NUMBER BELONGING.			AVERAGE ATTENDANCE.			Average Absence.	Per Cent of Attendance.
		Boys.	Girls.	Total.	Boys.	Girls.	Total.		
Abraham Lincoln.....	126	54	30	84	41	20	61	23	73
Agassiz.....	60	23	23	46	15	16	31	15	67
Bennett.....	175	80	71	151	65	55	120	31	79
Bigelow.....	57	23	23	46	20	19	39	7	85
Bowditch.....	97	41	45	86	32	34	66	20	77
Bowdoin.....	206	76	70	146	60	56	116	30	79
Bunker Hill.....	78	31	25	56	23	19	42	14	75
Chapman.....	129	47	38	85	35	29	64	21	75
Charles Sumner.....	134	49	51	100	40	42	82	18	82
Christopher Gibson.....	59	34	18	52	25	14	39	13	75
Dearborn.....	149	54	52	106	41	38	79	27	75
Dillaway.....	125	43	52	95	32	41	73	22	77
Dudley.....	146	56	49	105	45	39	84	21	80
Dwight.....	67	25	19	44	16	14	30	14	68
Edmund P. Tileston.....	55	24	17	41	20	14	34	7	83
Edward Everett.....	120	49	60	109	40	50	90	19	83
Elihu Greenwood.....	204	84	74	158	67	57	124	34	78
Eliot.....	129	55	44	99	48	39	87	12	88
Emerson.....	143	54	55	109	39	41	80	29	73
Everett.....	59	26	22	48	19	16	35	13	73
Francis Parkman.....	68	23	35	58	19	27	46	12	76
Franklin.....	156	50	56	106	40	45	85	21	80
Frederic W. Lincoln.....	86	38	36	74	31	29	60	14	81
Frothingham.....	53	26	15	41	21	13	34	7	83
Gaston.....	52	23	24	47	19	20	39	8	83
George Putnam.....	211	87	71	158	70	56	126	32	80
Gilbert Stuart.....	110	45	37	82	38	30	68	14	83
Hancock.....	440	178	172	350	158	152	310	40	89
Harvard.....	93	33	32	65	24	24	48	17	75
Henry Grew.....	123	54	47	101	38	32	70	31	69
Henry L. Pierce.....	133	49	52	101	40	42	82	19	81
Hugh O'Brien.....	121	56	42	98	48	33	81	17	83
Hyde.....	134	56	41	97	42	33	75	22	77
Jefferson.....	107	50	45	95	40	33	73	22	77

## KINDERGARTENS.

School Year Ending June 30, 1918.—Concluded.

SCHOOL DISTRICTS.	Total Registration.	AVERAGE NUMBER BELONGING.			AVERAGE ATTENDANCE.			Average Absence.	Per Cent of Attendance.
		Boys.	Girls.	Total.	Boys.	Girls.	Total.		
John A. Andrew.....	67	32	19	51	27	16	43	8	84
John Cheverus.....	184	78	68	146	62	54	116	30	79
John Winthrop.....	108	55	44	99	44	35	79	20	80
Lawrence.....	44	11	16	27	9	13	22	5	81
Lewis.....	161	82	69	151	64	53	117	34	77
Longfellow.....	63	24	28	52	19	21	40	12	77
Lowell.....	142	57	52	109	46	43	89	20	81
Martin.....	209	64	70	134	46	53	99	35	74
Mary Hemenway.....	143	58	48	106	46	38	84	22	79
Mather.....	133	63	49	112	55	42	97	15	87
Minot.....	43	18	22	40	14	15	29	11	73
Norcross.....	94	46	39	85	39	33	72	13	85
Oliver Hazard Perry....	62	28	22	50	24	16	40	10	80
Oliver Wendell Holmes..	315	140	149	289	108	114	222	67	77
Phillips Brooks.....	183	72	68	140	53	50	103	37	74
Prescott.....	37	11	17	28	9	12	21	7	75
Prince.....	90	31	15	46	24	11	35	11	76
Quincy.....	271	113	107	220	96	86	182	38	83
Rice.....	31	14	16	30	11	12	23	7	77
Robert G. Shaw.....	58	23	22	45	18	19	37	8	82
Roger Wolcott.....	274	130	122	252	101	97	198	54	79
Samuel Adams.....	409	159	171	330	137	141	278	52	84
Sherwin.....	50	15	20	35	12	16	28	7	80
Shurtleff.....	62	24	34	58	19	26	45	13	78
Theodore Lyman.....	165	79	67	146	66	58	124	22	85
Thomas Gardner.....	165	73	66	139	60	54	114	25	82
Thomas N. Hart.....	118	50	39	89	41	30	71	18	80
Ulysses S. Grant.....	177	72	74	146	59	58	117	29	86
Warren.....	108	45	38	83	35	28	63	20	76
Washington.....	147	49	57	106	41	46	87	19	82
Washington Allston....	75	22	28	50	19	23	42	8	84
Wells.....	241	123	67	190	97	52	149	41	78
William E. Russell.....	72	25	31	56	19	23	42	14	75
Totals.....	8,706	3,582	3,297	6,879	2,871	2,610	5,481	1,398	80

## SPECIAL SCHOOLS.

*School Year Ending June 30, 1918.*

SCHOOLS.	Total Registration.	AVERAGE NUMBER BELONGING.			AVERAGE ATTENDANCE.			Average Absence.	Per Cent of Attendance.
		Boys.	Girls.	Total.	Boys.	Girls.	Total.		
Horace Mann School....	146	74	68	142	69	61	130	12	92
Boston Clerical School...	245	.....	212	212	.....	195	195	17	92
Boston Disciplinary Day School.....	16	16	.....	16	11	.....	11	5	69
Fort Strong School.....	21	10	11	21	10	11	21	.....	100
Spectacle Island School..	7	5	2	7	5	2	7	.....	100
Boston Trade School....	270	179	.....	179	163	.....	163	16	91
Trade School for Girls...	488	.....	278	278	.....	249	249	29	90
Totals.....	1,193	284	571	855	258	518	776	79	91

## INDUSTRIAL SCHOOLS.

*Total Registration by Departments School Year Ending June 30, 1918.*

## BOSTON TRADE SCHOOL.

DEPARTMENT.	DAY.		Evening.
	Complete Enrollment.	Original Enrollment.	
Electrical.....	105	100	77
Machine.....	71	62	234
Printing.....	20	19	26
Sheet metal.....	44	41	47
Woodworking.....	57	48	38
Mechanical drawing.....			273
Freehand drawing.....			44
Interior decorating.....			16
Design for wood carvers and metal workers.....			27
Firemen, engineers and janitors.....			18
Totals.....	* 297	270	800

\* Including twenty-seven originally enrolled during the year in other schools.



TRADE SCHOOL FOR GIRLS.

DEPARTMENT.	Day.	Extension.	Smith-Hughes.
Dressmaking . . . . .	283	24	March through June.
Millinery . . . . .	78	38	March through June.
Machine operating . . . . .	91	83	68 pupils.
Catering . . . . .	40	28	2,235½ hours.

*Summer Term, 1918.*

Total registration . . . . .	109
Average number belonging . . . . .	102
Average attendance . . . . .	86
Per cent of attendance . . . . .	84
Total registration, Smith-Hughes . . . . .	52
Hours of attendance, Smith-Hughes . . . . .	1,662½
Length of term July 8 to August 30, 1918.	
Number of teachers employed: July, 18; August, 15.	

DISTRIBUTION OF PUPILS IN RESPECT BOTH

*The age given is*

		GRADES.	4 Years and Under.	5 Years.	6 Years.	7 Years.	8 Years.	9 Years.	10 Years.	
<b>Normal School.</b>	All Grades.....	Males..... Females.....								
	Totals.....									
<b>High and Latin Schools.</b>	Fourth-year Group.....	Boys..... Girls.....								
	Third-year Group.....	Boys..... Girls.....								
	Second-year Group.....	Boys..... Girls.....								
	First-year Group.....	Boys..... Girls.....							1	
	Out-of-course Group.....	Boys..... Girls.....							1	
	V. Class Latin Schools..	Boys..... Girls.....							8	
	VI. Class Latin Schools..	Boys..... Girls.....						3	16	
	Totals.....							3	26	
<b>Elementary Schools.</b>	Ninth Grade.....	Boys..... Girls.....							1	
	Eighth Grade.....	Boys..... Girls.....							14	
	Seventh Grade.....	Boys..... Girls.....						8	159	
	Sixth Grade.....	Boys..... Girls.....					5	197	202	
	Fifth Grade.....	Boys..... Girls.....				2	195	1,697	1,720	
	Fourth Grade.....	Boys..... Girls.....			2	92	1,631	1,911	1,665	
	Ungraded.....	Boys..... Girls.....				94	1,687	1,759	886	
	Third Grade.....	Boys..... Girls.....				6	23	68	100	
	Second Grade.....	Boys..... Girls.....				1	16	55	47	
	First Grade.....	Boys..... Girls.....				91	1,825	1,920	853	
	Special Classes.....	Boys..... Girls.....				126	1,886	1,720	734	
	Pre-vocational Classes..	Boys..... Girls.....				95	2,138	827	232	
	Special English Classes..	Boys..... Girls.....				120	1,875	697	178	
	Open-air Classes.....	Boys..... Girls.....				162	3,017	697	179	
	Rapid Advancement Classes	Boys..... Girls.....				146	2,773	605	145	
	Conservation of Eyesight Classes	Boys..... Girls.....				2	17	41	69	
	Hospital Classes.....	Boys..... Girls.....				2	3	21	46	
	Totals.....			313	6,052	9,242	9,261	9,487	10,169	9,750
	<b>Kindergarten.</b>	All Grades.....	Boys..... Girls.....	2,818 2,638	998 917	107 82	6 5	1		
		Totals.....		5,456	1,915	189	11	1		
<b>Special Schools.</b>	Disciplinary Day School..	Boys..... Girls.....								
	Horace Mann.....	Boys..... Girls.....		1 3	4 9	5 5	2 6	7 10	7 1	
	Trade School for Girls	Boys..... Girls.....								
	Boston Trade School	Boys..... Girls.....								
	Boston Clerical School..	Boys..... Girls.....								
	Fort Strong School.....	Boys..... Girls.....		1 2	3 1		2 1	1 1	1 -	
	Spectacle Island School..	Boys..... Girls.....		1	2		1 2	1		
Totals.....		3	7	19	11	14	19	11		
Totals all Day Schools...			5,772	7,974	9,450	9,283	9,502	10,191	9,787	

TO AGE AND TO GRADE JUNE 30, 1918.

that of September 1, 1917.

11 Years.	12 Years.	13 Years.	14 Years.	15 Years.	16 Years.	17 Years.	18 Years.	19 Years.	20 Years.	21 Years.	Over 21 Years.	Totals.
				3	14	46	66	65	40	15	21	4250
				3	14	46	66	66	40	16	3	254
			13	118	356	338	127	36	11	4	2	1,005
			8	143	577	461	182	38	3	2	1	1,415
		5	111	427	354	173	42	15	3	3		1,133
		3	144	624	455	170	35	9				1,440
1	17	161	602	525	238	60	16	2				1,622
	15	231	887	688	251	46	11	1				2,130
22	217	879	668	259	60	13						2,118
15	225	979	805	309	65	15	1					2,415
				2	1	10	12	10	1	7		43
				1	5	14	12	4			2	38
4	16	15	6	2								43
5	23	16	8	5								58
31	20	6	1	1								67
40	20	3	2	1								85
<b>118</b>	<b>553</b>	<b>2,298</b>	<b>3,255</b>	<b>3,105</b>	<b>2,362</b>	<b>1,300</b>	<b>438</b>	<b>115</b>	<b>18</b>	<b>16</b>	<b>5</b>	<b>13,612</b>
	24	125	103	28	6		2					289
1	43	206	149	54	3							456
175	946	1,144	682	238	57	6	1					3,263
185	1,111	1,229	722	262	56	11	2					3,585
1,177	1,378	817	306	65	8							3,918
1,252	1,391	865	334	82	19	4	2					4,155
1,589	980	454	144	21	6		2					4,834
1,579	909	401	142	26	8							4,810
1,071	507	188	49	13	2		2					5,447
898	423	157	55	18	3	1						5,274
483	190	55	26	8	1							5,464
343	137	55	14	5	1							4,981
70	34	20	10	4	2							337
34	28	18	12	2								213
73	25	8										5,061
60	15	3		1								4,765
11	1		1	1								5,384
21	2	1	1									5,024
5		1										6,643
4	1											5,905
100	78	55	20	11	2							654
52	39	40	27	6	1							365
20	155	220	192	70	21	2	2					683
25	12	11	8	3	3	3	2					117
21	31	32	14	3								135
4	3											212
16	9	4										241
54	32	14		1								128
23	16	11	1	1								64
6	4	4	1	1								28
4	1	2	1	2	1							17
1	3	3	1									22
3		2	1		1	1						20
<b>9,360</b>	<b>8,528</b>	<b>6,145</b>	<b>3,016</b>	<b>926</b>	<b>201</b>	<b>29</b>	<b>15</b>					<b>82,494</b>
												3,930
												3,642
												<b>7,572</b>
7	3	4										14
6	11	12	10	5	3		1					75
5	11	2	10	5			2					71
		18	71	58	31	5	3	4	1	2		193
		8	50	56	15	4						133
				6	23	39	43	23	11	1	1	147
1	1			2								10
1												11
1												5
												2
<b>21</b>	<b>26</b>	<b>44</b>	<b>141</b>	<b>132</b>	<b>72</b>	<b>49</b>	<b>49</b>	<b>27</b>	<b>12</b>	<b>3</b>	<b>1</b>	<b>661</b>
<b>9,499</b>	<b>9,107</b>	<b>8,487</b>	<b>6,412</b>	<b>4,166</b>	<b>2,649</b>	<b>1,424</b>	<b>568</b>	<b>208</b>	<b>70</b>	<b>35</b>	<b>9</b>	<b>104,593</b>

## CALENDAR YEAR 1917.

## NORMAL, LATIN AND HIGH SCHOOLS.

*Membership, Attendance and Absence.*

SCHOOLS.	Average Number Belonging.	Average Attendance.	Average Absence.
Normal.....	281	274	7
High and Latin Schools:			
Public Latin.....	919	885	34
Girls' Latin.....	724	688	36
Brighton High.....	613	569	44
Charlestown High.....	454	418	36
Dorchester High.....	2,187	2,013	174
East Boston High.....	779	714	65
English High.....	2,089	1,965	124
Girls' High.....	1,938	1,772	166
High School of Commerce.....	1,439	1,399	40
High School of Practical Arts.....	661	609	52
Hyde Park High.....	680	644	36
Mechanic Arts High.....	907	867	40
Roxbury High.....	1,149	1,087	62
South Boston High.....	886	844	42
West Roxbury High.....	784	723	61
High and Latin Totals.....	16,209	15,197	1,012

## CALENDAR YEAR 1917.

## ELEMENTARY GRADES AND KINDERGARTENS.

*Membership, Attendance and Absence.*

SCHOOL DISTRICTS.	Average Number Belonging.	Average Attendance.	Average Absence.
Abraham Lincoln.....	2,072	1,901	171
Agassiz.....	763	687	76
Bennett.....	1,514	1,373	141
Bigelow.....	1,031	970	61
Bowditch.....	1,126	1,028	98
Bowdoin.....	1,170	1,044	126
Bunker Hill.....	710	648	62
Chapman.....	1,202	1,087	115
Charles Sumner.....	1,136	1,040	96
Christopher Gibson.....	1,027	945	82
Dearborn.....	1,856	1,661	195
Dillaway.....	1,343	1,191	152
Dudley.....	1,263	1,148	115
Dwight.....	810	729	81
Edmund P. Tileston.....	810	746	64
Edward Everett.....	1,608	1,491	117
Elihu Greenwood.....	1,375	1,251	124
Eliot.....	2,342	2,237	105
Emerson.....	1,474	1,313	161
Everett.....	751	660	91
Francis Parkman.....	692	646	46
Franklin.....	1,126	1,006	120
Frederic W. Lincoln.....	817	747	70
Frothingham.....	725	676	49
Gaston.....	1,006	930	76
George Putnam.....	2,007	1,794	213
Gilbert Stuart.....	1,037	937	100
Hancock.....	2,523	2,374	149
Harvard.....	758	685	73
Henry Grew.....	706	619	97
Henry L. Pierce.....	1,624	1,498	126

ELEMENTARY GRADES AND KINDERGARTENS.—*Concluded.*

SCHOOL DISTRICTS.	Average Number Belonging.	Average Attendance.	Average Absence.
Hugh O'Brien.....	1,511	1,390	121
Hyde.....	866	777	89
Jefferson.....	1,026	940	86
John A. Andrew.....	1,140	1,034	106
John Cheverus.....	1,525	1,375	150
John Winthrop.....	1,585	1,418	167
Lawrence.....	953	885	68
Lewis.....	2,285	2,012	273
Longfellow.....	1,293	1,168	125
Lowell.....	1,210	1,123	87
Martin.....	1,339	1,212	127
Mary Hemenway.....	1,981	1,793	188
Mather.....	2,377	2,182	195
Minot.....	595	531	64
Norcross.....	1,129	1,057	72
Oliver Hazard Perry.....	855	779	76
Oliver Wendell Holmes.....	3,634	3,269	365
Phillips Brooks.....	1,570	1,392	178
Prescott.....	721	671	50
Prince.....	961	853	108
Quincy.....	1,217	1,106	111
Rice.....	893	809	84
Robert G. Shaw.....	1,227	1,115	112
Roger Wolcott.....	2,577	2,323	254
Samuel Adams.....	2,603	2,415	188
Sherwin.....	931	844	87
Shurtleff.....	831	764	67
Theodore Lyman.....	1,541	1,414	127
Thomas Gardner.....	1,432	1,318	114
Thomas N. Hart.....	1,128	1,055	73
Ulysses S. Grant.....	1,318	1,209	109
Warren.....	1,056	966	90
Washington.....	1,670	1,541	129
Washington Allston.....	1,036	964	72
Wells.....	2,051	1,848	203
Wendell Phillips.....	1,337	1,236	101
William E. Russell.....	966	883	83
Totals for Elementary Schools.....	90,774	82,723	8,051

## CALENDAR YEAR 1917.

## SPECIAL SCHOOLS.

SPECIAL SCHOOLS.	Average Number.	Average Attendance.	Average Absence.
Horace Mann School.....	137	124	13
Boston Clerical School.....	192	180	12
Boston Disciplinary Day School.....	17	11	6
Boston Trade School.....	167	154	13
Trade School for Girls.....	331	291	40
Totals.....	844	760	84

## NUMBER OF PUPILS PER TEACHER.

JANUARY 31.	Normal. (Excluding Head Master.)	High and Latin. (Excluding Head Masters.)	ELEMENTARY.	
			Grades. (Excluding Principals.)	Kindergartens.
1897.....	26.1	28.4	51.5	28.6
1898.....	26.9	28.2	49.5	30.9
1899.....	26.1	28.0	51.4	29.0
1900.....	23.1	27.9	52.7	29.4
1901.....	18.9	27.5	49.8	28.6
1902.....	18.7	25.8	48.9	28.6
1903.....	18.8	26.4	48.0	28.5
1904.....	19.3	26.5	48.3	27.1
1905.....	19.9	27.3	48.4	28.5
1906.....	20.3	27.4	48.2	28.1
1907.....	17.0	26.9	47.9	26.8
1908.....	16.4	26.9	47.1	27.4
1909.....	14.0	29.2	45.6	25.7
1910.....	15.6	27.5	43.6	25.6
1910-11.....	16.0	28.9	42.2	23.4
1911-12.....	16.1	28.8	40.3	25.9
1912-13.....	14.0	27.8	42.7	25.4
1913-14.....	13.4	29.4	43.4	25.6
1914-15.....	15.4	31.2	42.9	27.4
1915-16.....	19.0	30.8	42.4	27.5
1916-17.....	19.6	30.3	41.4	23.9
1917-18*.....	16.3	28.1	40.9	25.5

\* The average number of teachers was: Normal, 16; Latin and high, 545; elementary grades, 2,036; kindergartens, 269.

## GRADUATES, JUNE, 1918.

SCHOOL OR DISTRICT.	Boys.	Girls.	Total.	SCHOOL OR DISTRICT.	Boys.	Girls.	Total.
Normal .....	4	91	95	Dillaway .....		94	94
HIGH AND LATIN.				Dudley .....	† 76		76
Public Latin .....	88		88	Dwight .....	42		42
Girls' Latin .....		82	82	Edmund P. Tileston..	23	34	57
Brighton High .....	18	71	89	Edward Everett .....	80	78	158
Charlestown High .....	8	35	43	Elihu Greenwood .....	39	63	102
Dorchester High .....	96	251	347	Eliot .....	§ 54	1	55
East Boston High .....	52	85	137	Everett .....		63	63
English High .....	343		343	Francis Parkman .....	29	27	56
Girls' High .....		294	294	Franklin .....		33	33
High School of Commerce .....	178		178	Frederic W. Lincoln..	56		56
High School of Practical Arts .....		120	120	Frothingham .....	31	45	76
Hyde Park High .....	27	57	84	Gaston .....		75	75
Mechanic Arts High .....	112		112	George Putnam .....	105	94	199
Roxbury High .....		158	158	Gilbert Stuart .....	35	47	82
South Boston High .....	34	123	157	Harvard .....	32	38	70
West Roxbury High .....	21	79	100	Henry Grew .....	27	30	57
	977	1,355	2,332	Hugh O'Brien .....	86	60	146
ELEMENTARY.				Hyde .....		56	56
Agassiz .....	* 70		70	Jefferson .....	29	27	56
Bennett .....	60	60	120	John A. Andrew .....	28	36	64
Bigelow .....	99		99	John Cheverus .....	61	59	120
Bowditch .....		80	80	Lawrence .....	56		56
Bowdoin .....		79	79	Longfellow .....	62	71	133
Bunker Hill .....	18	28	46	Lowell .....	42	47	89
Charles Sumner .....	49	65	114	Martin .....	67	63	130
Christopher Gibson .....	44	59	103	Mather .....	¶ 82	104	186
Dearborn .....	† 69	61	130	Minot .....	28	27	55
				Norcross .....		74	74
				Oliver H. Perry .....	27	51	78

\* Also 22 given Pre-vocational diplomas.

† Also 23 given Pre-vocational diplomas.

‡ Also 37 given Pre-vocational diplomas.

§ Also 8 given Pre-vocational diplomas.

|| Also 20 given Pre-vocational diplomas.

¶ Also 49 given Pre-vocational diplomas.



GRADUATES, JUNE, 1918.— *Concluded.*

SCHOOL OR DISTRICT.	Boys.	Girls.	Total.	SCHOOL OR DISTRICT.	Boys.	Girls.	Total.
Oliver W. Holmes . . . . .	116	156	272	Warren . . . . .	31	42	73
Phillips Brooks . . . . .	51	73	124	Washington . . . . .	39	52	91
Prescott . . . . .	* 17	21	38	Washington Allston . . . . .	45	51	96
Prince . . . . .	34	47	81	Wells . . . . .	.....	93	93
Quincy . . . . .	† 54	.....	54	Wendell Phillips . . . . .	124	.....	124
Rice . . . . .	40	42	82	William E. Russell . . . . .	42	54	96
Roger Wolcott . . . . .	104	135	239		2,530	2,765	5,295
Samuel Adams . . . . .	49	52	101	SUMMARY.			
Sherwin . . . . .	‡ 35	.....	35	Normal . . . . .	4	91	95
Shurtleff . . . . .	.....	42	42	High and Latin . . . . .	977	1,355	2,332
Theodore Lyman . . . . .	§ 33	25	58	Elementary . . . . .	2,530	2,765	5,295
Thomas Gardner . . . . .	28	51	79		3,511	4,211	7,722
Thomas N. Hart . . . . .	82	.....	82				

\* Also 11 given Pre-vocational diplomas.

† Also 18 given Pre-vocational diplomas.

‡ Also 26 given Pre-vocational diplomas.

§ Also 6 given Pre-vocational diplomas.

|| In addition, 220 were given Pre-vocational diplomas in June; 2 were given Pre-vocational diplomas in September, and 168 were given regular diplomas in September after satisfactorily completing the work of the Summer Review Schools. (See page 24). The net total number of graduates in 1918 was 8,112.

INTERMEDIATE SCHOOLS.

*Pupils Promoted to Ninth Grade, Intermediate Classes.*

SCHOOL OR DISTRICT.	Boys.	Girls.	Total.
Abraham Lincoln . . . . .	39	90	129
Chapman . . . . .	31	33	64
Emerson . . . . .	46	39	85
Hancock . . . . .	.....	67	67
Henry L. Pierce . . . . .	60	57	117
John Winthrop . . . . .	42	46	88
Lewis . . . . .	81	116	197
Mary Hemenway . . . . .	90	93	183
Robert G. Shaw . . . . .	61	56	117
Ulysses S. Grant . . . . .	46	52	98
Totals . . . . .	496	649	* 1,145

\* In addition, 33 pupils were promoted to the ninth grade, intermediate classes, in September after satisfactorily completing the work of the Summer Review Schools. (See page 25.) The net number of pupils promoted to ninth grade, intermediate classes, was 1,178.

## SUMMER REVIEW SCHOOLS.

Graduates, September, 1918.

SCHOOL OR DISTRICT.	Boys.	Girls.	Total.	SCHOOL OR DISTRICT.	Boys.	Girls.	Total.
Summer Review High School:				Minot.....		1	1
Dorchester High.....		2	2	Oliver W. Holmes.....	29	8	37
Girls' High.....		2	2	Roger Wolcott.....	5	2	7
Hyde Park High.....		2	2	East Boston Summer Review Elementary School:			
Roxbury High.....		2	2	John Cheverus.....	1	2	3
West Roxbury High.....	1	2	3	Samuel Adams.....	1		1
	1	10	11	Theodore Lyman.....	2		2
SUMMER REVIEW ELEMENTARY SCHOOLS:				Hyde Park Summer Review Elementary School:			
Bigelow Summer Review Elementary School:				Charles Sumner.....	2		2
Bigelow.....	4		4	Edmund P. Tileston....	3	1	4
Frederic W. Lincoln...	11		11	Elihu Greenwood.....	5		5
Oliver H. Perry.....	2		2	Lewis Summer Review Elementary School:			
William E. Russell....	2		2	Longfellow.....	1	1	2
City Summer Review Elementary School:				Phillips Brooks.....	7	6	13
Agassiz.....	1		1	West End Summer Review Elementary School:			
Bowditch.....		5	5	Eliot.....	4		4
Dwight.....	5		5	Washington.....		3	3
Everett.....		4	4	Wendell Phillips.....	9		9
Franklin.....		6	6		108	49	157
Hyde.....		2	2	SUMMARY.			
Martin.....	4		4	High.....	1	10	11
Prince.....	6	1	7	Elementary.....	108	49	157
* Quincy.....	2		2		109	59	168
Thomas Gardner.....	1		1				
Washington Allston....	1		1				
Dorchester Summer Review Elementary School:							
Christopher Gibson.....		4	4				
George Putnam.....		3	3				

\* Also 2 given Pre-vocational diplomas.

## INTERMEDIATE SCHOOLS.

*Pupils Promoted to Ninth Grade, Intermediate Classes, From Summer Review Schools.*

	Boys.	Girls.	Total.
Abraham Lincoln.....	1	.....	1
Chapman.....	.....	2	2
Emerson.....	8	8	16
Henry L. Pierce.....	5	3	8
John Winthrop.....	1	.....	1
Mary Hemenway.....	1	1	2
Robert G. Shaw.....	2	1	3
Totals.....	18	15	33

## ELEMENTARY SCHOOL PUPILS PROMOTED.

June 30, 1918.

District.	Grade IX.	Grade VIII.	Grade VII.	Grade VI.	Grade V.	Grade IV.	Grade III.	Grade II.	Grade I.	Ungraded.	Special English Class.	Special Class.	Open-Air Class.	Rapid Advancement Class.	Pre-Vocational Class.	Kindergarten.	Total.
Abraham Lincoln.....	69	124	161	246	243	214	189	138	183	34	.....	6	31	.....	.....	66	1,704
Agassiz.....	.....	69	62	84	82	96	58	62	49	.....	.....	2	.....	54	42	42	660
Bennett.....	.....	120	119	173	172	169	157	181	190	.....	.....	1	.....	.....	148	148	1,430
Bigelow.....	.....	71	66	102	107	103	63	77	81	.....	.....	8	54	.....	50	50	782
Bowditch.....	.....	80	75	89	102	92	134	151	147	.....	.....	.....	35	.....	76	76	981
Bowdoin.....	.....	79	78	81	92	71	144	127	160	.....	.....	15	.....	.....	133	133	980
Bunker Hill.....	.....	46	49	61	55	70	73	75	58	.....	.....	1	.....	.....	56	56	544
Chapman.....	54	67	79	112	138	112	122	131	121	.....	.....	.....	.....	.....	85	85	1,021
Charles Sumner.....	.....	114	109	138	139	137	111	82	121	.....	.....	.....	.....	.....	100	100	1,051
Christopher Gibson.....	.....	107	133	140	146	138	81	81	65	.....	.....	.....	.....	.....	47	47	938
Dearborn.....	.....	130	140	139	176	172	235	195	260	23	.....	2	.....	.....	55	104	1,631
Dillaway.....	.....	91	104	119	121	103	123	108	141	.....	.....	5	.....	*21	76	76	1,012
Dudley.....	.....	74	61	80	128	99	114	115	99	.....	.....	.....	.....	.....	81	85	936
Dwight.....	.....	42	54	72	88	84	71	62	64	37	.....	5	.....	.....	44	44	623
Edmund P. Tileston.....	.....	58	59	64	64	68	95	94	95	.....	.....	.....	†35	.....	35	35	684

Edward Everett.....	158	136	163	195	188	167	157	198	.....	4	.....	.....	.....	103	1,469
Elihu Greenwood.....	107	112	149	135	136	134	145	154	.....	.....	.....	.....	.....	135	1,207
Eliot.....	55	73	128	195	239	197	227	328	69	53	9	.....	19	105	1,697
Emerson.....	100	118	133	141	144	150	160	166	.....	.....	.....	.....	.....	99	1,279
Everett.....	63	60	79	72	57	79	82	89	.....	.....	.....	.....	.....	41	622
Francis Parkman.....	56	55	56	73	77	77	83	86	.....	.....	.....	.....	.....	58	621
Franklin.....	40	51	76	81	84	201	137	165	.....	3	.....	.....	.....	98	956
Frederic W. Lincoln.....	56	52	71	60	59	67	78	96	9	.....	.....	.....	.....	53	601
Frothingham.....	76	57	67	61	65	72	67	70	.....	.....	.....	.....	.....	38	573
Gaston.....	75	88	103	128	121	92	104	109	.....	.....	.....	.....	.....	46	866
George Putnam.....	200	173	231	244	219	191	218	231	.....	16	.....	.....	.....	156	1,879
Gilbert Stuart.....	82	96	107	85	112	106	105	106	.....	.....	.....	.....	.....	84	883
Hancock.....	28	69	91	144	190	184	255	313	60	102	14	60	.....	278	2,003
Harvard.....	71	62	74	57	72	73	59	68	.....	2	.....	.....	.....	60	598
Henry Grew.....	57	57	79	77	67	56	78	76	.....	.....	.....	.....	.....	91	638
Henry L. Pierce.....	101	124	170	174	164	169	146	182	.....	.....	.....	.....	.....	99	1,501
Hugh O'Brien.....	145	145	157	168	160	109	102	96	.....	6	.....	.....	.....	87	1,175
Hyde.....	56	61	77	94	89	55	69	71	.....	1	.....	.....	.....	56	629
Jefferson.....	56	42	83	81	104	82	100	113	.....	1	.....	.....	.....	80	742
John A. Andrew.....	64	91	89	82	78	95	102	92	22	.....	.....	.....	.....	45	700
John Cheverus.....	120	87	126	130	144	148	166	165	.....	5	.....	.....	.....	132	1,223
John Winthrop.....	46	89	114	141	149	184	201	196	.....	4	.....	.....	.....	102	1,378

\* Conservation of eyesight classes.

† Hospital classes.

## ELEMENTARY SCHOOL PUPILS PROMOTED.

June 30, 1918. — Concluded.

District.	Grade IX.	Grade VIII.	Grade VII.	Grade VI.	Grade V.	Grade IV.	Grade III.	Grade II.	Grade I.	Ungraded.	Special English Class.	Special Class.	Open-Air Class.	Rapid Advancement Class.	Pre-Vocational Class.	Kindergarten.	Total.
	Lawrence.....	.....	56	59	73	57	76	115	123	125	.....	.....	18	.....	.....	52	36
Lewis.....	136	170	178	277	306	239	218	200	204	.....	.....	15	.....	54	.....	153	2,300
Longfellow.....	.....	134	151	159	157	145	158	139	167	.....	.....	.....	.....	.....	.....	53	1,263
Lowell.....	.....	89	121	115	117	114	105	98	131	.....	.....	2	22	.....	.....	97	1,011
Martin.....	.....	130	135	120	149	121	110	101	120	.....	.....	.....	.....	.....	.....	138	1,124
Mary Hemenway.....	106	183	179	210	250	214	198	199	207	.....	.....	.....	.....	.....	.....	117	1,863
Mather.....	.....	157	173	198	245	226	279	283	280	.....	.....	2	.....	29	102	105	2,079
Minot.....	.....	55	66	71	79	79	53	60	74	.....	.....	.....	.....	.....	.....	25	562
Norcross.....	.....	74	70	103	63	44	133	112	122	33	.....	.....	71	.....	.....	81	906
Oliver Hazard Perry.....	.....	78	80	71	90	73	85	78	67	6	.....	.....	.....	.....	.....	36	664
Oliver Wendell Holmes.....	.....	243	295	390	430	411	442	426	407	.....	.....	26	.....	27	.....	284	3,381
Phillips Brooks.....	.....	96	121	141	189	187	164	201	209	.....	.....	7	.....	28	.....	115	1,458
Preacott.....	.....	38	66	62	65	72	64	60	63	.....	.....	1	.....	.....	40	23	554
Prince.....	.....	81	115	139	128	85	93	72	74	.....	.....	.....	.....	.....	.....	41	828
Quincy.....	.....	54	47	65	59	88	72	118	92	22	12	13	70	.....	.....	175	949

Rice.....	81	90	93	117	103	73	59	53	8	.....	.....	.....	.....	28	705	
Robert G. Shaw.....	59	112	95	129	134	154	134	125	139	.....	.....	.....	.....	46	1,127	
Roger Wolcott.....	246	235	285	325	334	285	329	313	.....	.....	.....	.....	.....	248	2,600	
Samuel Adams.....	101	136	198	260	291	273	287	352	23	6	.....	.....	.....	243	2,170	
Sherwin.....	34	43	36	73	84	107	100	102	.....	.....	.....	.....	62	34	675	
Shurtleff.....	42	55	66	80	80	87	109	109	31	.....	.....	.....	.....	40	699	
Theodore Lyman.....	60	58	111	168	163	179	204	195	.....	8	.....	.....	76	134	1,356	
Thomas Gardner.....	79	80	110	186	130	169	185	194	.....	.....	.....	.....	.....	134	1,268	
Thomas N. Hart.....	82	86	81	88	77	148	160	145	.....	5	.....	.....	.....	73	945	
Ulysses S. Grant.....	43	97	116	97	119	40	125	147	.....	19	.....	.....	.....	141	1,191	
Warren.....	73	91	99	108	102	97	115	115	.....	.....	.....	.....	.....	71	871	
Washington.....	91	94	129	148	179	142	155	193	22	3	31	.....	.....	101	1,288	
Washington Allston.....	96	129	124	127	118	100	94	99	.....	.....	.....	.....	.....	56	945	
Wells.....	93	109	116	156	159	266	276	285	23	.....	11	54	*8	172	1,728	
Wendell Phillips.....	125	173	208	187	174	25	18	32	32	.....	12	.....	.....	.....	986	
William E. Russell.....	97	79	82	117	72	99	83	108	.....	.....	1	.....	.....	55	793	
Totals.....	710	6,338	6,865	8,365	9,320	9,005	9,086	9,317	9,987	409	212	259	383	256	594	6,250
																77,356

\* Conservation of eyesight classes.

## ELEMENTARY SCHOOL PUPILS NOT PROMOTED.

June 30, 1918.

District.	Grade IX.	Grade VIII.	Grade VII.	Grade VI.	Grade V.	Grade IV.	Grade III.	Grade II.	Grade I.	Ungraded.	Special English Class.	Special Class.	Open-Air Class.	Rapid Advancement Class.	Pre-Vocational Class.	Kindergarten.	Total.
Abraham Lincoln.....	4	26	16	3	14	32	15	16	51	24	.....	12	8	.....	.....	24	245
Agassiz.....	.....	4	13	15	9	17	6	5	20	.....	.....	11	.....	.....	13	11	124
Bennett.....	.....	1	9	9	7	15	4	10	27	.....	.....	14	.....	.....	.....	20	116
Bigelow.....	.....	4	11	10	35	33	2	11	19	.....	.....	23	.....	.....	5	5	153
Bowditch.....	.....	12	12	8	10	13	8	9	26	.....	.....	.....	2	.....	.....	21	121
Bowdoin.....	.....	.....	2	.....	2	3	6	19	51	.....	.....	13	.....	.....	.....	24	120
Bunker Hill.....	.....	.....	16	16	25	17	4	14	24	.....	.....	27	.....	.....	.....	11	154
Chapman.....	.....	5	23	21	26	17	2	21	39	.....	.....	.....	.....	.....	.....	24	178
Charles Sumner.....	.....	7	11	12	10	5	4	3	7	.....	.....	.....	.....	.....	.....	15	74
Christopher Gibson.....	.....	7	21	3	10	11	9	10	16	.....	.....	.....	.....	.....	.....	9	96
Dearborn.....	.....	2	6	34	14	34	16	19	61	19	.....	13	.....	.....	3	34	255
Dillaway.....	.....	9	46	30	66	23	7	15	51	.....	.....	11	.....	*4	.....	34	296
Dudley.....	.....	13	25	35	28	32	23	22	33	.....	.....	14	.....	.....	.....	28	267
Dwight.....	.....	21	17	7	10	3	2	5	25	1	.....	87	.....	.....	.....	14	192
Edmund P. Tleiston.....	.....	7	19	20	16	24	7	11	27	.....	.....	.....	.....	.....	.....	12	150



Edward Everett.....	1	22	22	19	11	8	12	49	.....	8	.....	8	160
Elhu Greenwood.....	7	25	11	9	15	11	22	29	.....	.....	.....	40	169
Eliot.....	14	35	42	88	117	42	51	102	33	14	30	8	576
Emerson.....	.....	.....	11	19	26	19	32	63	.....	.....	.....	23	193
Everett.....	11	9	3	10	7	5	4	51	.....	.....	.....	9	109
Francis Parkman.....	2	13	26	10	10	5	4	16	.....	.....	.....	11	97
Franklin.....	3	4	6	9	11	8	6	31	.....	9	.....	16	103
Frederic W. Lincoln.....	18	21	26	21	21	6	2	21	10	.....	.....	17	163
Frothingham.....	4	7	15	5	11	5	8	30	.....	.....	.....	15	100
Gaston.....	.....	29	15	15	20	7	15	28	.....	.....	.....	.....	129
George Putnam.....	4	28	26	9	16	12	22	22	.....	16	.....	30	185
Gilbert Stuart.....	.....	14	21	27	21	17	10	19	.....	.....	.....	18	147
Hancock.....	10	22	8	60	76	22	46	78	12	7	32	11	463
Harvard.....	.....	5	14	10	2	15	16	25	.....	.....	17	.....	131
Henry Grew.....	1	3	14	8	6	8	35	15	.....	.....	.....	24	84
Henry L. Pierce.....	18	15	18	13	17	13	25	45	.....	.....	.....	13	200
Hugh O'Brien.....	16	22	40	44	32	19	15	74	.....	.....	12	.....	293
Hyde.....	10	23	17	19	12	2	11	9	.....	.....	14	.....	169
Jefferson.....	1	27	31	19	22	16	17	34	.....	.....	16	.....	211
John A. Andrew.....	3	51	64	56	44	7	17	21	7	.....	.....	7	277
John Cheverus.....	19	17	47	43	36	18	24	54	.....	.....	11	.....	311
John Windthrop.....	7	13	35	47	8	19	11	47	.....	.....	14	.....	224

† Hospital classes.

\* Conservation of eyesight classes.

ELEMENTARY SCHOOL PUPILS NOT PROMOTED.

June 30, 1918. — Concluded.

District	Grade IX.	Grade VIII.	Grade VII.	Grade VI.	Grade V.	Grade IV.	Grade III.	Grade II.	Grade I.	Ungraded.	Special English Class.	Special Class.	Open-Air Class.	Rapid Advancement Class.	Pre-Vocational Class.	Kindergarten.	Total.
Lawrence.....	2	10	6	19	8	12	15	32	.....	.....	.....	.....	.....	.....	.....	2	115
Lewis.....	1	4	4	12	8	5	7	16	.....	.....	.....	.....	.....	.....	.....	8	65
Longfellow.....	4	5	7	2	4	4	6	6	.....	.....	.....	.....	.....	.....	.....	.....	38
Lowell.....	5	4	5	11	16	4	23	34	.....	.....	29	6	.....	.....	.....	18	155
Martin.....	8	11	16	19	12	12	13	29	.....	.....	.....	.....	.....	.....	.....	34	154
Mary Hemenway.....	6	4	23	24	19	37	28	69	.....	.....	.....	.....	.....	.....	.....	14	251
Mather.....	4	49	73	79	45	11	14	72	.....	.....	15	.....	.....	.....	.....	14	386
Minot.....	5	10	8	4	3	.....	1	1	.....	.....	.....	.....	.....	.....	.....	15	47
Norcross.....	1	29	24	11	20	9	20	36	6	6	.....	.....	13	*10	.....	12	191
Oliver Hazard Perry.....	6	25	23	28	19	3	5	27	1	1	.....	19	.....	.....	.....	15	171
Oliver Wendell Holmes.....	53	37	23	30	32	29	49	101	.....	.....	.....	.....	.....	.....	.....	43	397
Phillips Brooks.....	32	19	11	7	13	3	.....	8	.....	.....	.....	.....	.....	.....	.....	22	122
Prescott.....	10	9	17	14	8	12	10	20	.....	.....	11	.....	.....	.....	.....	9	146
Prince.....	.....	5	.....	4	3	5	11	34	.....	.....	.....	.....	.....	.....	.....	5	67
Quincy.....	9	13	11	9	11	8	9	57	8	12	17	16	.....	.....	.....	12	249



**SUMMER REVIEW ELEMENTARY SCHOOL PUPILS  
PROMOTED.**

*September, 1918.*

SUMMER REVIEW SCHOOL.	Grade IX.	Grade VIII.	Grade VII.	Grade VI.	Grade V.	Grade IV.	Totals.
Bigelow .....		19	49	65	65	81	279
Shurtleff Branch .....			52	48	41	45	186
Charlestown .....			60	58	75	96	289
City .....		45	78	79	88	79	369
Dorchester .....		63	180	152	156	133	684
East Boston .....	2	27	44	97	66	84	320
Hugh O'Brien .....			41	60	68	111	280
Hyde Park .....		12	54	64	36	50	216
Lewis .....		46	135	109	80	74	444
West End .....		18	66	70	131	177	462
Totals .....	2	230	759	802	806	930	3,529

**SUMMER REVIEW ELEMENTARY SCHOOL PUPILS  
NOT PROMOTED.**

*September, 1918.*

SUMMER REVIEW SCHOOL.	Grade VIII.	Grade VII.	Grade VI.	Grade V.	Grade IV.	Totals.
Bigelow .....	1	8	4	21	22	56
Shurtleff Branch .....		17	18	27	19	81
Charlestown .....		35	28	26	69	158
City .....	2	19	28	29	37	115
Dorchester .....	2	17	23	20	31	93
East Boston .....	3	19	7	49	38	116
Hugh O'Brien .....		9	21	55	34	119
Hyde Park .....	6	16	17	23	7	69
Lewis .....	13	33	30	44	9	129
West End .....		12	13	29	31	85
Totals .....	27	185	189	323	297	1,021

ADMISSION TO NORMAL, HIGH AND LATIN SCHOOLS.

September, 1917.

SCHOOLS TO WHICH PUPILS WERE ADMITTED.	Boys.	Girls.	Total.	Boston High School Graduates, June, 1917.	Received from Other Sources, September, 1917.	AVERAGE AGE OF HIGH 1917 GRADUATES.		AVERAGE AGE OF ALL ADMITTED.	
						Years.	Months.	Years.	Months.
Normal.....			96	65	31	17	6	18	2
SCHOOLS TO WHICH PUPILS WERE ADMITTED.									
	Boys.	Girls.	Total.	Boston Elementary Graduates, June, 1917.	Received from Other Sources, September, 1917.	AVERAGE AGE OF BOSTON ELEMENTARY GRADUATES.		AVERAGE AGE OF ALL ADMITTED.	
						Years.	Months.	Years.	Months.
Public Latin.....	409		409	220	*189	13	7	13	7
Girls' Latin.....		257	257	112	†145	13	6	13	
Brighton High.....	95	140	235	208	27	14	4	14	5
Charlestown High.....	72	169	241	184	57	13	10	14	
Dorchester High.....	242	404	646	476	170	13	11	14	1
East Boston High.....	76	114	190	152	38	13	11	14	
English High.....	681		681	602	79	14	2	14	3
Girls' High.....		789	789	607	182	14	2	14	4
High School of Commerce.....	592		592	430	162	14	1	14	2
High School of Practical Arts.....		262	262	204	58	14	8	14	10
Hyde Park High.....	137	165	302	202	100	14	4	14	6
Mechanic Arts High.....	435		435	347	88	14	2	14	4
Roxbury High.....		462	462	349	113	13	11	14	1
South Boston High.....	166	215	381	350	51	14		14	
West Roxbury High.....	70	210	280	231	49	14	1	14	2
Totals, High and Latin.....	2,975	3,187	6,162	4,654	1,508	14	1	13	5

\* Includes 64 pupils below eighth grade.

† Includes 89 pupils below eighth grade.

## TEACHERS.

## SUMMARY OF ALL TEACHERS — JUNE 30, 1918.

*Number of Schools.*

SCHOOLS.	Number of Schools.	NUMBER OF TEACHERS.		
		Men.	Women.	Total.
Normal.....	1	4	13	17
High and Latin.....	15	277	286	563
Elementary.....	* 68	158	1,973	2,131
Kindergarten.....	† 145	.....	274	274
Special.....	‡ 7	95	295	390
Totals.....	236	534	2,841	3,375

\* Represents the number of districts.

† Includes fourteen afternoon classes, as follows: Blackinton (1); Bowdoin (1); Eliot (1); Hancock (3); Quincy (2); Roger Wolcott (1); Samuel Adams (3); Theodore Lyman (1); Ulysses S. Grant (1).

‡ Horace Mann, Trade School for Girls, Boston Trade School, Continuation School, Boston Clerical School, Boston Disciplinary Day School, and the Day School for Immigrants. The number of teachers given includes the teachers of the special schools and all general supervisors and directors.

## NORMAL SCHOOL TEACHERS.

*June 30, 1918.*

RANK.	Men.	Women.	Total.
Head Master.....	1	.....	1
Masters, Heads of Departments.....	* 3	.....	3
First Assistants, Heads of Departments.....	.....	6	6
Assistants.....	.....	6	6
Instructor.....	.....	1	1
Totals.....	4	13	17

\* Excludes one master, head of department, who is assigned principal of the Model School.

## SUMMARY OF HIGH AND LATIN SCHOOL TEACHERS.

*June 30, 1918.*

RANK.	Men.	Women.	Total.
Head Masters.....	15	.....	15
Masters, Heads of Departments.....	49	.....	49
First Assistants, Heads of Departments.....	.....	30	30
Assistant Principals.....	.....	2	2
Masters.....	25	.....	25
Junior Masters.....	146	.....	146
Assistants.....	1	180	181
Industrial Instructor, Head of Department.....	.....	1	1
Instructors in Special Branches.....	32	10	42
Assistant Instructor in Special Branches.....	.....	34	34
Industrial Instructors.....	.....	12	12
Junior Assistants.....	8	6	14
Temporarily assigned for the school year.....	1	11	12
Totals.....	277	286	563

## HIGH AND LATIN SCHOOLS.

Number and Rank of Teachers June 30, 1918.

SCHOOLS.	Head Masters.	Masters, Heads of Departments.	First Assistants, Heads of Departments.	Assistant Principals.	Masters.	Junior Masters.	Assistants.	Industrial Instructor, Head of Department.	Instructors in Special Branches.	Assistant Instructors in Special Branches.	Industrial Instructors.	Junior Assistants.	Temporarily Assigned for the School Year.	Total.
Public Latin.....	1	5			7	15						1		29
Girls' Latin.....	1	1	3			2	15		1				1	26
Brighton High.....	1	2		1		1	8		1			*	2	21
Charlestown High.....	1	2	1			2	6		2	1			1	16
Dorchester High.....	1	3	4		4	8	36		3	5	3	2		69
East Boston High.....	1	2	4			3	11		4		1			26
English High.....	1	7				9	43						2	62
Girls' High.....	1	3	4			6	37		1	9			1	62
High School of Commerce.....	1	7				2	28		8				2	49
High School of Practical Arts.....	1	2	3			1	11	1	1	3	7			30
Hyde Park High.....	1	1				3	9		4	3	1	1	1	24
Mechanic Arts High.....	1	7		1	3	26	1		11					50
Roxbury High.....	1	2	4			1	18		2	4		2	3	37
South Boston High.....	1	2	3			4	15			6		1	1	33
West Roxbury High.....	1	3	4			3	14		3	1				29
Totals.....	15	49	30	2	25	146	181	1	42	34	12	14	12	563

\* Excludes one assigned to Department of Manual Arts.



## SUMMARY OF ELEMENTARY SCHOOL TEACHERS.

*June 30, 1918.*

RANK.	Men.	Women.	Total.
Masters.....	61	7	68
Submasters.....	85		85
Masters' Assistants.....		70	70
First Assistants, Grammar Schools.....		28	28
First Assistant, Primary School.....		1	1
First Assistants in Charge.....		98	98
Assistants, Ungraded Classes.....		17	17
Assistants, Special English Classes.....		10	10
Assistant, Open-Air Classes.....		13	13
Assistants, Pre-Vocational Classes.....	3	18	21
Assistants, Rapid Advancement Classes.....		10	10
First Assistant in Charge, Special Classes.....		1	1
Instructors, Special Classes.....		62	62
Other Assistants.....	9	1,638	1,647
Grade Totals.....	158	1,973	2,131
Kindergartens:			
First Assistants.....		141	141
Assistants.....		133	133
Totals.....	158	2,247	2,405

ELEMENTARY SCHOOLS.

Number and Rank of Teachers June 30, 1918.

SCHOOLS.	Masters.	Submasters.	Masters' Assistants.	First Assistants, Grammar Schools.	First Assistants, Primary Schools.	First Assistants in Charge.	Assistants, Ungraded Classes.	Assistants, Special English Classes.	Assistants, Open-Air Classes.	Assistants, Pre-Vocational Classes.	Assistants, Rapid Advancement Classes.	Instructors, Special Classes.	Other Assistants.	Total Number of Grade Teachers, June 30, 1918.		KINDER-GARTENS.	
														First Assistants.	Assistants.	First Assistants.	Assistants.
Abraham Lincoln.....	1	2	2	1	1	2	2	.....	1	.....	.....	.....	37	49	2	1	
Agassiz.....	1	1	1	.....	.....	1	.....	.....	.....	2	.....	.....	13	20	1	1	
Bennett.....	1	1	1	.....	.....	2	.....	.....	.....	.....	.....	.....	29	35	3	3	
Bigelow.....	1	2	1	.....	.....	1	.....	.....	.....	.....	2	.....	17	26	1	1	
Bowditch.....	1	.....	1	1	.....	2	.....	.....	1	.....	.....	.....	121	27	2	2	
Bowdoin.....	1	.....	1	1	.....	1	.....	1	.....	.....	.....	.....	19	26	3	3	
Bunker Hill.....	1	1	1	.....	.....	1	.....	.....	.....	.....	.....	.....	12	18	2	.....	
Chapman.....	1	1	1	1	.....	1	.....	.....	.....	.....	.....	.....	24	28	2	2	
Charles Sumner.....	1	1	1	1	.....	1	.....	.....	.....	.....	.....	.....	21	26	3	1	
Christopher Gibson.....	1	1	1	.....	.....	1	.....	.....	.....	.....	.....	.....	20	24	1	1	
Dearborn.....	1	2	1	1	.....	2	1	.....	.....	1	.....	.....	33	43	2	2	
Dillaway.....	1	.....	1	1	.....	3	.....	.....	.....	.....	.....	.....	23	30	2	1	
Dudley.....	1	2	1	2	.....	.....	.....	.....	.....	2	.....	.....	19	28	2	2	
Dwight.....	1	2	1	.....	.....	2	.....	.....	.....	.....	.....	.....	12	23	1	1	



ELEMENTARY SCHOOLS.

Number and Rank of Teachers June 30, 1918.— Concluded.

Schools.	Masters.	Submasters.	Masters' Assistants.	First Assistants, Grammar Schools.	First Assistant, Primary Schools.	First Assistants in Charge.	Assistants, Ungraded Classes.	Assistants, Special English Classes.	Assistants, Open-Air Classes.	Assistants, Pre-Vocational Classes.	Assistants, Rapid Advancement Classes.	Instructors, Special Classes.	Other Assistants.		Total Number of Grade Teachers, June 30, 1918.	KINDER-GARTENS.		
													Other Assistants.	First Assistants.		First Assistants.	Assistants.	
Hugh O'Brien	1	2	1	1	1	1	1	1	1	1	1	1	1	9	28	35	2	2
Hyde	1	1	1	1	1	2	1	1	1	1	1	1	1	4	17	22	2	2
Jefferson	1	2	1	1	1	1	1	1	1	1	1	1	1	17	17	23	2	2
John A. Andrew	1	1	1	1	1	1	1	1	1	1	1	1	1	9	21	26	1	1
John Cheverus	1	2	2	1	1	1	1	1	1	1	1	1	1	28	35	35	4	2
John Winthrop	1	1	1	1	1	3	1	1	1	1	1	1	1	10	30	38	2	2
Lawrence	1	1	1	1	1	2	1	1	1	1	1	1	1	16	25	25	1	1
Lewis	1	2	1	1	1	2	1	1	1	1	2	1	1	9	44	54	2	4
Longfellow	1	1	1	1	1	2	1	1	1	1	1	1	1	12	28	32	1	1
Lowell	1	1	1	1	1	2	1	1	1	1	1	1	1	20	27	27	2	2
Martin	1	1	2	1	1	2	1	1	1	1	1	1	1	20	27	27	3	3
Mary Hemenway	1	2	1	1	1	2	1	1	1	1	1	1	1	24	47	47	2	2
Mather	1	2	1	1	1	2	1	1	1	3	1	1	1	42	54	54	2	2
Minot	1	1	1	1	1	1	1	1	1	1	1	1	1	11	14	14	1	1
Norrross	1	1	1	1	1	2	1	1	1	1	1	1	1	20	26	26	2	2
Oliver H. Perry	6	1	1	1	1	1	1	1	1	1	1	1	1	14	20	20	1	1
Oliver W. Holmes	1	3	1	1	1	3	1	1	1	1	1	2	1	74	86	86	5	6
Phillips Brooks	1	2	1	1	1	1	1	1	1	1	1	1	1	13	30	36	3	3



## SPECIAL TEACHERS, SUPERVISORS AND DIRECTORS.

June 30, 1918.

	Men.	Women.	Total.
<b>Boston Clerical School*:</b>			
Head Instructor in Bookkeeping.....	1		1
Head Instructor in Stenography.....	1		1
Clerical Instructor.....	1		1
Clerical Assistants.....		5	5
<b>Horace Mann School:</b>			
Principal.....		1	1
Assistant Principal.....		1	1
Assistants.....		13	13
<b>Day Industrial Schools:</b>			
<b>Trade School for Girls:</b>			
Master.....		1	1
First Assistants.....		7	7
Assistant.....		1	1
Vocational Assistants.....		3	3
Trade Assistants.....		15	15
Helpers.....		13	13
<b>Boston Trade School:</b>			
Master.....	1		1
Vice Principal.....	1		1
Instructors in Academic and Technical Branches.....	2		2
Division Heads, Class A.....	2		2
Division Heads, Class B.....	2		2
Shop Foremen.....	6		6
Shop Instructor.....	1		1
Apprentice Helper.....	1		1
Tool Keeper.....	1		1
<b>Household Science and Arts:</b>			
Director.....		1	1
Assistant Director.....		1	1
Cooking.....		44	†44
Sewing.....		64	64
<b>Department of Manual Arts:</b>			
Director.....	1		1
Associate Director.....	1		1
Assistant Directors.....	2		2
Assistants.....		8	8
Pre-Vocational Instructors.....	19	2	‡21
Instructors in Manual Training.....	1	11	12
Assistant Instructors in Manual Training.....		42	42
Shop Work Instructors.....	10		10
Pre-Vocational Assistant.....		1	1
<b>Music Department:</b>			
Director.....	1		1
Assistant Directors.....	4		4
Assistants.....		9	9
<b>Practice and Training:</b>			
First Assistant Director.....		1	1
Assistant Directors.....		4	4
Director of Evening Schools.....	1		1

\* The head master of the Roxbury High School served also as head master of the Boston Clerical School. He is counted in the number of high and Latin school teachers.

† Includes three temporary teachers in place of one teacher assigned to a high school and two teachers assigned to elementary schools.

‡ Includes one pre-vocational instructor assigned to a high school.

## SPECIAL TEACHERS, SUPERVISORS AND DIRECTORS.

June 30, 1918.— Concluded.

	Men.	Women.	Total.
Continuation School:*			
Principal.....	1		1
Vocational Assistant.....		1	1
Heads of Divisions.....	2	1	3
Instructors.....	15	19	34
Trade Instructors.....	6		6
Trade Assistants.....		4	4
Tool Keepers.....	3		3
Helpers.....		3	3
Assistant Director of Educational Investigation and Measurement.....	1		1
Director of Kindergartens.....		1	1
Assistant Director of Kindergartens.....		1	1
Supervisor of Special Classes.....		1	1
Director of Salesmanship.....		1	1
Boston Disciplinary Day School.....		1	† 1
Day School for Immigrants.....		3	‡ 3
Speech Improvement Classes.....		4	4
Classes for Conservation of Eyesight.....		4	§ 4
Teacher of Penmanship.....		1	1
Director of Medical Inspection.....	1		1
Physical Training and Athletics:			
Assistant Director.....	1		1
Instructor in Physical Training.....	1		1
Military Drill:			
Instructor.....	1		1
Assistant Instructor.....	1		1
Vocational Guidance:			
Director.....		1	1
Vocational Assistants.....	2	1	3
Totals.....	95	295	390

\* In addition there were nine special assistants on part time.

† Assigned from an elementary school.

‡ Includes one assistant assigned from an elementary district.

§ Includes two temporary teachers and two assistants, elementary schools, one assigned from November, 1917, to August 31, 1918; one assigned from September 1, 1917, to August 31, 1918.

## MISCELLANEOUS SUPERVISORS.

Nurses (including supervising nurse)	40
School Physicians	43
Attendance Officers (including chief attendance officer)	24
Supervisor of Licensed Minors	1
Medical Inspector of Special Classes	1
Director of Extended Use of Public Schools	1

## NUMBER OF TEACHERS.

January 31, 1918.

1. Normal School . . . . .	* 17
2. Latin and High Schools . . . . .	† 563
3. Elementary Schools:	
Principals . . . . .	67
Grade Teachers . . . . .	‡ 2,057
	2,124
4. Kindergartens . . . . .	272
5. Boston Clerical School . . . . .	9
6. Horace Mann School . . . . .	15
7. Special Teachers:	
Director and Assistant Director of Household Science and Arts . . . . .	2
Cooking . . . . .	§ 43
Sewing . . . . .	63
Department of Manual Arts . . . . .	¶ 102
Music Department . . . . .	14
First Assistant Director and Assistant Directors of Practice and Training . . . . .	5
Director of Evening Schools . . . . .	1
Assistant Director of Promotion and Educational Measurement . . . . .	1
Director and Assistant Director of Kindergartens, Supervisor of Special Classes . . . . .	2
Director of Salesmanship . . . . .	1
Department of Vocational Guidance . . . . .	3
Speech Improvement Classes:	
Classes for Stammerers . . . . .	4
Classes for Conservation of Eyesight . . . . .	4
Teacher of Penmanship . . . . .	1
Director of Medical Inspection . . . . .	1
Assistant Director of Athletics . . . . .	1
Instructor in Physical Training . . . . .	1
Instructor and Assistant Instructor in Military Drill . . . . .	2
	252
8. Day Industrial Schools:	
Boston Trade School . . . . .	18
Trade School for Girls . . . . .	40
	** 58
9. Continuation Schools . . . . .	†† 64
10. Boston Disciplinary Day School . . . . .	‡‡ 1
	3,375
Total Number of Teachers . . . . .	3,375

\*Excludes one master, head of department, assigned as principal of the Model School and includes one teacher assigned from a high school.

† Includes nine assistants, elementary schools, assigned for the school year 1917-18; two teachers assigned from the Department of Household Science and Arts for the school year 1917-18, and one Pre-vocational Instructor assigned from the Department of Manual Arts.

‡ Includes seventeen temporary teachers serving in place of three teachers assigned to the Continuation School; one teacher assigned to the Disciplinary Day School; eight teachers assigned to high schools; two teachers assigned to Classes for Conservation of Eyesight; one teacher assigned to direct the work in the classes for stammerers; one teacher assigned to the Department of Manual Arts, and one teacher assigned to the Department of Educational Investigation and Measurement.

§ Includes two temporary teachers serving in place of two teachers assigned to high schools for the school year 1917-18.

¶ Includes one assistant assigned from an elementary school and one temporary teacher in place of an assistant assigned to a high school for the school year 1917-18.

\*\* In addition there was one assistant, elementary school, assigned for the school year 1917-18.

†† Includes two temporary teachers and two assistants, elementary schools, assigned to Classes for the Conservation of Eyesight.

‡‡ Includes three assistants assigned from elementary schools.

‡‡ Assigned from an elementary school.



**EVENING SCHOOLS.**

*Summary of Statistics — School Year 1917-18.*

	Number of Schools.		TOTAL REGISTRATION.			Average Number Belonging.	Average Attendance.	Average Absence.	Per Cent of Attendance.
	Number of Regular Teachers.		Males.	Females.	Total.				
High Schools.....	10	148	2,707	3,297	6,004	3,466	2,827	639	82
Elementary Schools...	15	146	2,269	2,725	4,994	2,275	1,872	403	82
Boston Trade School,*	1	28	814	18	832	407	319	88	78
Trade School for Girls,	1	.....	.....	124	124	67	50	17	75
Totals.....	27	322	5,790	6,164	11,954	6,215	5,068	1,147	82

\* Including four branches.

**EVENING SCHOOLS.**

*School Year 1917-18.— Continued.*

HIGH SCHOOLS.	TOTAL REGISTRATION.			Average Number Belonging.	Average Attendance.	Average Absence.	Per Cent of Attendance.	Number of Nights.
	Males.	Females.	Total.					
Brighton.....	99	156	255	151	126	25	83	59
Central.....	816	126	942	516	425	91	82	59
Charlestown.....	218	214	432	289	238	51	82	59
Dorchester.....	523	678	1,201	636	514	122	81	59
East Boston.....	152	198	350	201	169	32	84	59
Girls'.....	.....	769	769	429	350	79	81	59
Hyde Park.....	45	78	123	71	55	16	77	53
North.....	95	126	221	129	103	26	80	59
Roxbury.....	445	614	1,059	615	501	114	81	59
South Boston.....	314	338	652	429	346	83	81	59
Totals.....	2,707	3,297	6,004	3,466	2,827	639	82	59

## EVENING SCHOOLS.

School Year 1917-18.—Concluded.

ELEMENTARY SCHOOLS.	TOTAL REGISTRATION.			Average Number Belonging.	Average Attendance.	Average Absence.	Per Cent. of Attendance.	Number of Nights.
	Males.	Females.	Total.					
Abraham Lincoln.....	188	85	273	120	103	17	86	78
Bigelow.....	231	333	564	246	204	42	83	78
Bowdoin.....		271	271	125	91	34	73	78
Brighton.....	70	161	231	101	81	20	80	78
Comins.....	167	189	356	184	156	28	85	78
Dearborn.....	87	148	235	105	93	12	89	78
Eliot.....	389		389	161	137	24	85	78
Franklin.....	333	427	760	341	284	57	83	78
Hancock.....		158	158	89	74	15	83	78
Hyde Park.....	60	138	198	70	55	15	79	78
Phillips Brooks.....	183	319	502	229	172	57	75	78
Theodore Lyman.....	219	249	468	209	168	41	80	78
Warren.....	45	126	171	68	57	11	84	78
Washington.....	143	121	264	162	142	20	88	78
Wells.....	154		154	65	55	10	85	78
Totals.....	2,269	2,725	4,994	2,275	1,872	403	82	78
TRADE SCHOOLS (Evening Classes).								
Boston Trade School.....	393		393	143	106	37	74	59
Central Branch.....	248		248	151	124	27	82	*35
Common Street Branch.....	91		91	47	41	6	87	*35
East Boston Branch.....	40		40	22	18	4	82	59
Roxbury Branch.....	42	18	60	44	30	14	68	*35
Totals.....	814	18	832	407	319	88	78	59
Trade School for Girls.....		124	124	67	50	17	75	†35

\* Discontinued December 13, 1917, because of fuel shortage.

† Discontinued as evening classes on December 13, 1917, and conducted thereafter as trade extension classes.

CLASSIFICATION AND AGES OF PUPILS IN EVENING SCHOOLS, MARCH, 1918.  
*High Schools.*

SUBJECTS.	14 YEARS.		15 YEARS.		16 YEARS.		17 YEARS.		18 YEARS.		19 YEARS.		20 YEARS.		OVER 21 AND UNDER 25 YEARS.		OVER 25 AND UNDER 35 YEARS.		35 YEARS AND OVER.		TOTALS FOR EACH GRADE OR SUBJECT.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Commercial Subjects * . . . . .	83	24	179	149	624	609	432	588	335	467	232	309	114	200	269	520	168	238	40	67	2,476	3,171	5,647
Other Subjects † . . . . .	2	.....	4	.....	22	6	39	9	32	11	29	9	22	5	46	30	17	31	13	25	226	126	352
Totals . . . . .	85	24	183	149	646	615	471	597	367	478	261	318	136	205	315	550	185	269	53	92	2,702	3,297	5,999
Total number of pupils of each age . . . . .	109	332	1,261	1,068	845	579	341	865	454	145													

\* Including all subjects offered in Evening Commercial High Schools.  
 † Those subjects not offered in Evening Commercial High Schools.  
 (Ages as of September 1, 1917.)

## Elementary Schools.

GRADES.	14 YEARS.		15 YEARS.		16 YEARS.		17 YEARS.		18 YEARS.		19 YEARS.		20 YEARS.		OVER 21 AND UNDER 25 YEARS.		OVER 25 AND UNDER 35 YEARS.		35 YEARS AND OVER.		TOTALS FOR EACH GRADE OR SUBJECT.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Graduating.....	63	35	63	89	78	40	45	31	20	15	19	12	17	70	35	15	9	5	433	332	765		
Subgraduating.....	15	9	20	19	23	13	17	12	12	18	18	14	10	43	42	48	11	15	213	169	382		
Elementary.....	2	2	1	5	5	9	7	8	4	11	12	8	26	34	41	36	33	7	21	120	152	272	
Beginners.....	1	1	1	21	25	35	32	41	28	54	33	75	33	210	87	122	31	46	31	605	300	905	
Intermediate.....	1	1	1	17	9	33	21	32	19	41	27	52	27	155	50	71	23	19	421	189	610		
Advanced.....	4	4	4	6	5	27	10	26	15	47	24	64	19	109	41	93	16	30	406	147	553		
Ungraded.....	1	1	1	1	1	1	1	1	1	1	2	2	2	4	3	13	8	11	32	17	49		
Lip Reading.....	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	7	27	13	23	77	100		
Cooking.....	1	1	1	1	6	5	5	5	5	5	11	19	19	71	71	31	31	31	179	179	358		
Dressmaking.....	1	1	1	17	17	29	29	42	42	35	35	41	41	118	118	103	103	63	448	448	896		
Embroidery.....	1	1	1	6	6	6	6	10	10	12	12	28	28	60	60	41	41	25	183	183	366		
Millinery.....	1	1	1	9	9	9	9	17	17	31	31	36	36	142	142	172	172	108	519	519	1,038		
Totals.....	78	46	97	72	158	173	159	181	151	173	186	224	228	256	625	701	425	515	146	2,553	2,712	4,965	
Total number of pupils of each age..	124	169	331	340	324	410	484	1,326	940	517													

(Ages as of September 1, 1917.)

*Trade Schools.*

Subjects.	15 YEARS.		16 YEARS.		17 YEARS.		18 YEARS.		19 YEARS.		20 YEARS.		OVER 21 AND UNDER 25 YEARS.		OVER 25 AND UNDER 35 YEARS.		35 YEARS AND OVER.		TOTALS FOR EACH GRADE OR SUBJECT.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Shopwork.....	15	.....	54	.....	84	.....	58	.....	42	.....	49	.....	125	.....	159	.....	46	.....	632	.....	632
Drawing.....	2	.....	4	.....	25	.....	15	.....	10	.....	11	.....	26	.....	42	.....	22	.....	157	.....	175
Theory.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	10	.....	6	.....	18	.....	18
Totals.....	17	.....	58	.....	109	.....	74	.....	52	.....	61	.....	151	.....	211	.....	74	.....	807	.....	825
Total number of pupils of each age.....	17	.....	58	.....	110	.....	75	.....	54	.....	64	.....	158	.....	215	.....	74	.....	.....	.....	.....

(Ages as of September 1, 1917.)

*Grand Total.*

SCHOOLS.	14 YEARS.		15 YEARS.		16 YEARS.		17 YEARS.		18 YEARS.		19 YEARS.		20 YEARS.		OVER 21 AND UNDER 25 YEARS.		OVER 25 AND UNDER 35 YEARS.		35 YEARS AND OVER.		TOTALS FOR EACH GRADE OR SUBJECT.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
High Schools.....	85	24	183	149	646	615	471	597	367	478	261	318	136	205	315	550	185	269	53	92	2,702	3,297	5,999
Elementary Schools.....	78	40	97	72	158	173	159	181	151	173	186	224	228	256	625	701	425	515	146	371	2,253	2,712	4,965
Trade Schools.....			17		58		109	1	74	1	52	2	61	3	151	7	211	4	74	.....	807	18	825
Totals.....	163	70	297	221	862	788	739	779	592	652	499	544	425	464	1,091	1,258	821	788	273	463	5,762	6,027	11,789
Total number of pupils of each age.....	233		518		1,650		1,518		1,244		1,043		889		2,349		1,609		736				

(Ages as of September 1, 1917.)

CLASSIFICATION AND AGES OF PUPILS IN EVENING SCHOOLS, MARCH, 1918.— *Concluded.*  
*Non-English Speaking Pupils.\**

	16 YEARS.		17 YEARS.		18 YEARS.		19 YEARS.		20 YEARS.		21 YEARS AND OVER.		TOTALS FOR EACH GROUP.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Illiterates between 16 and 21 years of age.....	40	43	89	69	94	65	136	89	174	96	.....	.....	533	362	895
Illiterates over 21 years of age.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	802	285	1,087
Total number of pupils of each age.....	83	.....	138	.....	159	.....	225	.....	270	.....	.....	.....	1,335	647	1,982

\* Also reported under "Grades," Elementary Schools, page 50.  
 (Ages as of September 1, 1917.)

*Countries of Birth of Pupils in Evening Schools.*

COUNTRIES OF BIRTH.	High Schools.	Elementary Schools.	Trade Schools.
Austria-Hungary *	22	69	12
Belgium.....	3	42	.....
British Possessions †.....	402	396	69
China.....	.....	3	.....
Denmark.....	2	13	1
France.....	7	9	1
Germany ‡.....	16	28	6
Greece.....	13	219	2
Italy.....	73	942	30
Japan.....	.....	1	.....
Mexico.....	1	.....	.....
Netherlands.....	3	13	2
Norway.....	4	24	3
Portugal.....	3	69	.....
Roumania.....	12	8	2
Russia §.....	615	1,037	164
Spain.....	6	28	.....
Sweden.....	19	53	15
Switzerland.....	1	3	.....
Turkey   .....	25	124	8
United States.....	4,758	1,782	509
African countries.....	3	6	.....
South American countries.....	6	9	.....
Other North American countries.....	1	73	.....
Other European countries.....	2	13	1
Other Asiatic countries.....	2	1	.....
Totals.....	5,999	4,965	825

\* Includes Austrians, Bohemians, Galicians and Hungarians.

† Includes Australians, Canadians, English, Irish, Newfoundlanders, Scotch and Welsh.

‡ Includes Germans, Hebrews, Poles.

§ Includes Finns, Hebrews, Lithuanians, Poles.

|| Includes Albanians, Armenians, Syrians, Turks.



DAY SCHOOL FOR IMMIGRANTS.

*School Year 1917-18.*

Number of Regular Teachers.	TOTAL REGISTRATION.			Average Number Belonging.	Average Attendance.	Average Absence.	Per Cent of Attendance.
	Males.	Females.	Total.				
* 3	154	141	295	148	137	11	93

\* Includes one assistant, elementary school, assigned from March, 1918, but does not include special assistants.

CONTINUATION SCHOOL.

*School Year 1917-18.*

CLASSES.	Number of Regular Teachers.*	TOTAL REGISTRATION.			Average Number Belonging.	Average Attendance.	Average Absence.	Per Cent of Attendance.
		Males.	Females.	Total.				
Compulsory Classes . . . . .	43	5,598	3,914	9,512	4,859	4,460	399	91.8
Voluntary Classes . . . . .	1	20	51	71	66	61	5	92.0

\* Not including per diem teachers equivalent to 4.5 full time regular teachers.

## SUMMER REVIEW SCHOOLS.

1918.

NAME OF SCHOOL.	Total Registration.	Average Membership.	Average Attendance.	Percentage of Attendance.	Average Daily Number of Teachers.
High.....	324	311	294	94.5	16.9
Elementary:					
Bigelow.....	335	305	298	97.8	11.0
Shurtleff Branch.....	267	244	238	97.7	9.0
Charlestown.....	447	387	370	95.6	12.0
City.....	484	443	422	95.22	14.0
Dorchester.....	777	746	727	97.5	23.2
East Boston.....	440	410	397	96.8	14.0
Hugh O'Brien.....	399	375	357	95.3	12.7
Hyde Park.....	285	267	260	97.0	8.5
Lewis.....	573	523	480	91.77	18.0
West End.....	547	520	507	97.5	16.5
Totals:					
Elementary.....	4,554	4,221	4,046	95.85	138.9
High.....	324	311	294	94.5	16.9
Totals, High and Elementary.....	4,878	4,532	4,340	95.76	155.8

NOTE.— For other Summer Review School statistics, see pages 24, 25, and 34.

**PLAYGROUNDS.***Number of Teachers School Year 1917-18.*

SEASONS.	First Assistants.	Assistants.	Sand Garden Assistants.	Supervisors.	Play Teachers.	Totals.
<b>1917.</b>						
Fall (September 10 to December 15):						
Men.....				1	43	44
Women.....	31	28	5	4	.....	68
Totals.....	31	28	5	5	43	112
<b>1918.</b>						
Spring (April 1 to June 29):						
Men.....				1	64	65
Women.....	20	11	5	4	.....	40
Totals.....	20	11	5	5	64	105
Summer (July 1 to July 31):						
Men.....				1	.....	1
Women.....	66	42	26	4	.....	138
Totals.....	66	42	26	5	.....	139
Summer (August 1 to September 3):						
Men.....				1	.....	1
Women.....	65	35	36	3	.....	139
Totals.....	65	35	36	4	.....	140

**SCHOOLHOUSE SUMMARY.***School Year Ending June 30, 1918.*

GRADE OF SCHOOL.	Number of Buildings.	Number of Portables. (Wood.)	Assembly Halls.	Drill Halls and Gymnasias.	CONSTRUCTION OF SCHOOLHOUSES.	
					Wood.	Brick.
Normal.....	1	.....	1	1	.....	1
High and Latin..	17	2	15	14	.....	17
Elementary.....	* 245	133	76	.....	54	191
Boston Trade School.....	1	.....	1	.....	.....	1
Trade School for Girls.....	3	.....	1	.....	.....	3
Horace Mann School.....	1	.....	2	.....	.....	1
Totals.....	268	135	96	15	54	214

\* Two (Patrick A. Collins and Sarah J. Baker buildings) are used exclusively for high school; and one (Paul Jones building) is used in part as a high school.

NOTE.— In addition to the above there were in use during the school year the following rented quarters: High Schools, 3; elementary schools, 9; and the Continuation School, La Grange street. A class was also conducted at Fort Strong, and one at Spectacle Island.

**SCHOOLROOMS AND SITTINGS.**

SCHOOLS.	Day Rooms.	Evening Rooms.	Day School Sittings.
Normal.....	22	.....	240
High and Latin (including all rooms in which instruction of any character is given).....	552	120	19,607
Elementary.....	2,563	118	103,041
Horace Mann School.....	15	.....	183
Industrial Schools.....	47	28	800
Totals.....	3,202	266	123,871

CLASS ROOMS IN NORMAL, DAY HIGH AND LATIN SCHOOLS.  
 (Including Laboratories and all Other Rooms in which Instruction of  
 any Character is Given.)

SCHOOLS.	Rooms.	Gymnasias and Drill Halls.
Normal.....	22	* G.
Public Latin School.....	33	† D. H. and G.
Girls' Latin School.....	25	* G.
Brighton High School.....	29	D. H. and G.
Charlestown High School.....	23	G.
Dorchester High School.....	61	G.
East Boston High School.....	‡ 29	G.
English High School.....	§ 61	† D. H. and G.
Girls' High School.....	53	G.
High School of Commerce.....	53	G.
High School of Practical Arts.....	30	G.
Hyde Park High School.....	15	D. H.
Mechanic Arts High School.....	45	.....
Roxbury High School.....	¶ 43	D. H.
South Boston High School.....	29	G.
West Roxbury High School.....	24	G.
Total.....	574	

\* Used jointly.      † Used jointly.      ‡ Including Paul Jones School.  
 § Including Patrick A. Collins Schoolhouse and Franklin Union.  
 ¶ Including Sarah J. Baker Annex and Boston Clerical School.

CLASS ROOMS IN DAY ELEMENTARY DISTRICTS.  
(Including Regular Schoolhouses, Portables, Hired Quarters and  
Improvised Rooms in Halls, Corridors and Basements.)

June 30, 1918.

DISTRICT.	Class Rooms.	DISTRICT.	Class Rooms.
Abraham Lincoln.....	53	John Cheverus.....	49
Agassiz.....	21	John Winthrop.....	45
Bennett.....	47	Lawrence.....	33
Bigelow.....	33	Lewis.....	61
Bowditch.....	31	Longfellow.....	33
Bowdoin.....	30	Lowell.....	33
Bunker Hill.....	25	Martin.....	49
Chapman.....	32	Mary Hemenway.....	58
Charles Sumner.....	34	Mather.....	62
Christopher Gibson.....	24	Minot.....	15
Dearborn.....	51	Norcross.....	35
Dillaway.....	34	Oliver Hazard Perry.....	23
Dudley.....	44	Oliver Wendell Holmes.....	93
Dwight.....	29	Phillips Brooks.....	40
Edmund P. Tileston.....	24	Prescott.....	23
Edward Everett.....	40	Prince.....	22
Elihu Greenwood.....	35	Quincy.....	39
Eliot.....	57	Rice.....	28
Emerson.....	39	Robert G. Shaw.....	30
Everett.....	24	Roger Wolcott.....	71
Francis Parkman.....	18	Samuel Adams.....	57
Franklin.....	35	Sherwin.....	30
Frederic W. Lincoln.....	22	Shurtleff.....	21
Frothingham.....	18	Theodore Lyman.....	39
Gaston.....	27	Thomas Gardner.....	36
George Putnam.....	66	Thomas N. Hart.....	29
Gilbert Stuart.....	31	Ulysses S. Grant.....	37
Hancock.....	60	Warren.....	31
Harvard.....	29	Washington.....	46
Henry Grew.....	22	Washington Allston.....	32
Henry L. Pierce.....	55	Wells.....	60
Hugh O'Brien.....	38	Wendell Phillips.....	43
Hyde.....	31	William E. Russell.....	32
Jefferson.....	35	Horace Mann (Special).....	15
John A. Andrew.....	28		
		Total.....	2,578

## SEATING CAPACITY.

## NORMAL, LATIN AND DAY HIGH SCHOOLS.

(Seats Available for "Home" Seating.)

June 30, 1918.

SCHOOLS.	Regular Seats.	Hall Seats.	Portable Seats.	In Rented Quarters.	In Base- ments.	In Portable Buildings.	Totals.
Normal School.....	240						240
Public Latin School.....	1,083		395				1,478
Girls' Latin School.....	673		253				926
Brighton High School.....	665		42				707
Charlestown High School.....	450		270				720
Dorchester High School.....	1,585	96	477		24	125	2,307
East Boston High School.....	655		148	38			841
English High School.....	1,910	130	63	400	42		* 2,545
Girls' High School.....	2,217						2,217
High School of Commerce.....	1,794						1,794
High School of Practical Arts.....	415		464				879
Hyde Park High School.....	473	112	29	†			614
Mechanic Arts High School.....	941		28				969
Roxbury High School.....	1,522		168				‡ 1,690
South Boston High School.....	824		153				977
West Roxbury High School.....	843	100					943
Totals.....	16,290	438	2,490	438	66	125	19,847

\* Including Patrick A. Collins Schoolhouse and Franklin Union.

† Y. M. C. A. Gymnasium.

‡ Including Sarah J. Baker Annex and Boston Clerical School.

# SEATING CAPACITY OF DAY ELEMENTARY SCHOOLS.

*June 30, 1918.*

DISTRICT.	REGULAR SEATS.			EXTRA SEATS.												TOTAL NUMBER OF SEATS.					
	Grades.	Kinder- garten.	Total.	PORTABLE SEATS IN REGULAR ROOMS.			HALL CLASSES.			BASEMENT.			PORTABLE BUILDINGS.			RENTED QUARTERS.			Grades.	Kinder- garten.	Total.
				Grades.	Kinder- garten.	Total.	Grades.	Kinder- garten.	Total.	Grades.	Kinder- garten.	Total.	Grades.	Kinder- garten.	Total.	Grades.	Kinder- garten.	Total.			
Abraham Lincoln.....	2,096	40	2,136	2	4	6													2,098	94	2,188
Agassiz.....	958	45	1,003																958	45	1,003
Bennett.....	1,550	180	1,730									217							1,767	180	1,947
Bigelow.....	1,228	60	1,288																1,258	60	1,318
Bowditch.....	1,044	110	1,154	57		57													1,151	110	1,261
Bowdoin.....	1,062	145	1,207	42		42													1,104	145	1,249
Bunker Hill.....	925	100	1,025	1		1													926	100	1,026
Chapman.....	1,244	120	1,364	9		9	42												1,295	120	1,415
Charles Sumner.....	1,192	150	1,342	8		8													1,244	150	1,394
Christopher Gibson.....	952	67	1,019				40												1,130	67	1,197
Dearborn.....	2,118	138	2,256	8		8													2,213	138	2,351
Dillaway.....	1,417	116	1,533	38		38													1,455	116	1,571
Dudley.....	1,276	116	1,392	24		24													1,300	116	1,416



Dwight.....	946	946	132	92	40	132	92	40	132	1,038	40	1,078
Edmund P. Tileston.....	881	50	831	.....	.....	96	96	.....	96	977	50	1,027
Emerson.....	1,397	1,397	118	8	110	139	139	.....	147	1,544	110	1,654
Everett.....	1,056	52	1,108	.....	.....	.....	.....	.....	.....	1,056	52	1,108
Francis Parkman.....	760	60	820	27	.....	.....	.....	.....	27	787	60	847
Franklin.....	1,556	56	1,612	.....	.....	.....	.....	.....	* 50	1,556	106	1,662
Frederic W. Lincoln.....	861	80	941	5	.....	94	94	.....	99	960	80	1,040
Frothingham.....	850	55	905	.....	.....	.....	.....	.....	.....	850	55	905
Gaston.....	1,137	44	1,181	38	38	47	47	.....	85	1,222	44	1,266
George Putnam.....	2,272	126	2,398	30	30	358	358	.....	55	2,600	181	2,841
Gilbert Stuart.....	1,153	.....	1,153	42	120	.....	.....	.....	42	1,195	120	1,315
Hancock.....	2,038	345	2,383	28	28	.....	.....	.....	335	2,401	345	2,746
Harvard.....	816	.....	816	94	94	.....	.....	.....	.....	816	118	934
Henry Grew.....	675	88	763	26	.....	.....	.....	.....	26	701	117	818
Henry L. Pierce.....	1,830	111	1,941	6	.....	.....	.....	.....	.....	527	111	2,468
Hugh O'Brien.....	1,581	52	1,633	.....	.....	521	521	.....	.....	2,357	99	1,799
Hyde.....	1,113	100	1,213	17	10	119	119	.....	15	1,169	110	1,279
Jefferson.....	1,101	106	1,207	9	.....	.....	.....	.....	.....	1,700	99	1,799
John A. Andrew.....	1,290	.....	1,290	.....	.....	.....	.....	.....	.....	1,165	106	1,271
John Cheverus.....	1,293	155	1,448	21	.....	.....	.....	.....	53	1,290	53	1,343
John Winthrop.....	1,840	100	1,940	.....	.....	255	255	.....	276	1,569	155	1,724
Lawrence.....	1,173	65	1,238	16	.....	.....	.....	.....	.....	1,840	100	1,940
Lewis.....	1,803	165	2,058	.....	.....	172	172	.....	466	2,359	165	2,524

\* Lincoln House (free).

SEATING CAPACITY OF DAY ELEMENTARY SCHOOLS.  
June 30, 1918.—Concluded.

District.	REGULAR SEATS.			EXTRA SEATS.												TOTAL NUMBER OF SEATS.												
	Grades.	Kindergarten.	Total.	PORTABLE SEATS IN REGULAR ROOMS.			HALL CLASSES.			BASEMENT.			PORTABLE BUILDINGS.			RENTED QUARTERS.			TOTAL NUMBER OF EXTRA SEATS.									
				Grades.	Kindergarten.	Total.	Grades.	Kindergarten.	Total.	Grades.	Kindergarten.	Total.	Grades.	Kindergarten.	Total.	Grades.	Kindergarten.	Total.	Grades.	Kindergarten.	Total.							
Longfellow.....	1,270	52	1,322				33						116			116						149			149	1,419	52	1,471
Lowell.....	1,275	118	1,393	9		9							27			27						36			36	1,311	118	1,429
Martin.....	1,637	166	1,803	42		42																42			42	1,679	166	1,845
Mary Hemenway.....	1,457	106	1,563	70		70	96						493			493						659			659	2,116	106	2,222
Mather.....	2,384	125	2,509										44			44						140			140	2,524	125	2,649
Minot.....	592	40	632				30															30			30	622	40	662
Norcross.....	1,428	100	1,528	17		17																17			17	1,445	100	1,545
Oliver Hazard Perry.....	1,156		1,156	55		55							15			15						15	55		70	1,171	55	1,226
Oliver Wendell Holmes.....	3,238	261	3,499	6		6	28						485			485	92	53	145			611	53	664	3,849	314	4,163	
Phillips Brooks.....	1,631	150	1,781										48			48						48			48	1,679	150	1,829
Prescott.....	857	51	908																							857	51	908
Prince.....	1,047	68	1,115																							1,047	68	1,115
Quincy.....	1,216	184	1,400	40		40																40			40	1,256	184	1,440



## EXTENDED USE OF THE PUBLIC SCHOOLS, 1917-18.

## SCHOOL CENTERS.

ACTIVITY:	Total Attendance.	Average Attendance.
School Center Activities.....	205,817	426
Public Lectures.....	31,263	377
Use of School Buildings (through June 30, 1918).....	* 33,801	238
Total.....	270,881	.....
Duplications.....	31,263	.....
Net Total Attendance.....	239,618	.....

\* Not included above.

High school buildings were opened for drilling by various companies of State Guards 43 times during July, 1917, with an attendance of 2,170, and 10 times during June, 1918, with an attendance of 375.

Summer activities of the Roxbury School Center, 13 sessions during July, August and September, 1917, total attendance, 3,431.

Committee meetings, attendance 150.

## DUPLICATIONS.

Reported under both Public Lectures and School Center Activities . . . . .	31,263
---	--------

## WORKERS EMPLOYED.

TITLE.	Charlestown School Center.	Dorchester School Center.	East Boston School Center.	Roxbury School Center.	South Boston School Center.	North End School Center.	West End School Center.
Managers.....	1	1	1	1	1	1	1
Assistant Managers *.....	1	1	.....	1	.....	.....	.....
Special Leaders.....	2	4	4	1	2	2	1
Leaders.....	2	2	3	2	3	2	5
Pianists.....	2	2.	1	1	1	1	1
Helpers.....	3	2	1	10	2	1	1
Matrons.....	.....	.....	1	1	1	.....	1
Totals.....	11	12	11	17	10	7	10

\* Some portion of the time of each assistant manager was given to centers where no assistant manager was appointed.

Numbers varied somewhat from month to month. The above figures taken from the April, 1918, pay roll.

This table does not include volunteer workers or leaders of self-supporting clubs.





CLUBS AND OTHER ACTIVITIES. — *Concluded.*

Activities.	CHARLESTOWN SCHOOL CENTER.			DORCHESTER SCHOOL CENTER.			EAST BOSTON SCHOOL CENTER.			ROXBURY SCHOOL CENTER.			SOUTH BOSTON SCHOOL CENTER.			NORTH END SCHOOL CENTER.			WEST END SCHOOL CENTER.				
	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.		
Preparedness.....																							
Printing.....																							
Red Cross Work.....				72	6	12	179	9	20	126	13	9											
Rehearsals and Committees.....				95	3	31				628	21	30											
Roxbury Military Cadets.....										326	8												
Social and Other Clubs.....	103	12	8	173	12	14	583	25	23	1,516	108	14	223	3	74	10	1	10	3,181	261	12		
State Guard.....				98	4	24	592	10	59														
Volunteers of Judea.....																							
Whist.....	2,348	42	56	292	16	18				458	8	57											
Totals.....	9,514			17,648			18,898			35,889			9,511			10,469			40,702				



AFTERNOON CLASSES.

AFTERNOON ACTIVITIES.	CHARLESTOWN SCHOOL CENTER.			DOUBLEDAY SCHOOL CENTER.			EAST BOSTON SCHOOL CENTER.			ROXBURY SCHOOL CENTER.			SOUTH BOSTON SCHOOL CENTER.			NORTH END SCHOOL CENTER.			SHERWIN SCHOOL CENTER.			WEST END SCHOOL CENTER.			
	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	Total Attendance.	Sessions.	Average Attendance.	
Committees.....																									
Dancing (Girls' Group).....				2,574	20	129																			
Dramatics.....																									
Food Demonstrations.....																									
Girl Scouts.....								129	4	32															
Home Millinery.....				107	12	9																			
Immigrant Mothers' English Club.....																									
Mothers' and Home-makers' Club.....	5,121	26	197	2,547	32	80	435	10	43	2,725	25	109	1,169	19	62	1,169	394	10	39						
Motion Pictures.....	659	2	329	4,210	12	351	250	2	125	4,925	9	517	1,000	3	333										
Red Cross Work.....				400	1	400																			
Rehearsals.....																									
Social and Other Clubs.....																									
Whist.....				30	1	30				383	2	190													
Totals.....	5,780			9,868			904			9,655			2,402			394							985		

THE FOLLOWING TABLE IS A RECORD OF THE NUMBER OF CERTIFICATES ISSUED TO WORKING CHILDREN AND YOUNG PEOPLE FOR TWO YEARS UNDER THE ACTS OF 1913, CHAPTER 779.

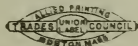
Month.	EMPLOYMENT CERTIFICATES.						EDUCATIONAL CERTIFICATES.					
	1916-17.			1917-18.			1916-17.			1917-18.		
	New Certificates.	Re-Issues.	New Certificates.	Re-Issues.	New Certificates.	Re-Issues.	New Certificates.	Re-Issues.	New Certificates.	Re-Issues.	New Certificates.	Re-Issues.
September	608	738	874	1,811	1,013	2,380	1,022	2,499	44	86	19	100
October	812	1,718	707	1,282	1,137	2,383	1,000	2,544	85	181	74	107
November	436	845	403	951	1,106	2,144	857	2,191	61	141	44	65
December	394	633	282	667	1,054	1,841	833	1,775	47	65	26	53
January	362	840	276	677	749	2,119	698	2,033	47	94	23	56
February	269	672	463	593	612	1,638	669	1,712	30	76	18	41
March	201	767	499	955	833	2,123	849	2,269	39	81	32	64
April	312	691	433	958	668	1,736	703	2,289	19	54	18	58
May	460	928	537	1,074	718	2,009	839	2,308	21	51	11	65
June	1,583	763	1,577	966	1,502	2,243	1,333	2,172	40	66	15	59
July	939	530	2,112	1,028	1,214	2,007	1,592	2,649	40	78	21	67
August	611	663	596	959	873	2,131	896	2,380	22	85	23	61
Totals	7,017	9,788	8,759	11,924	11,509	24,754	11,291	27,124	495	1,058	324	706

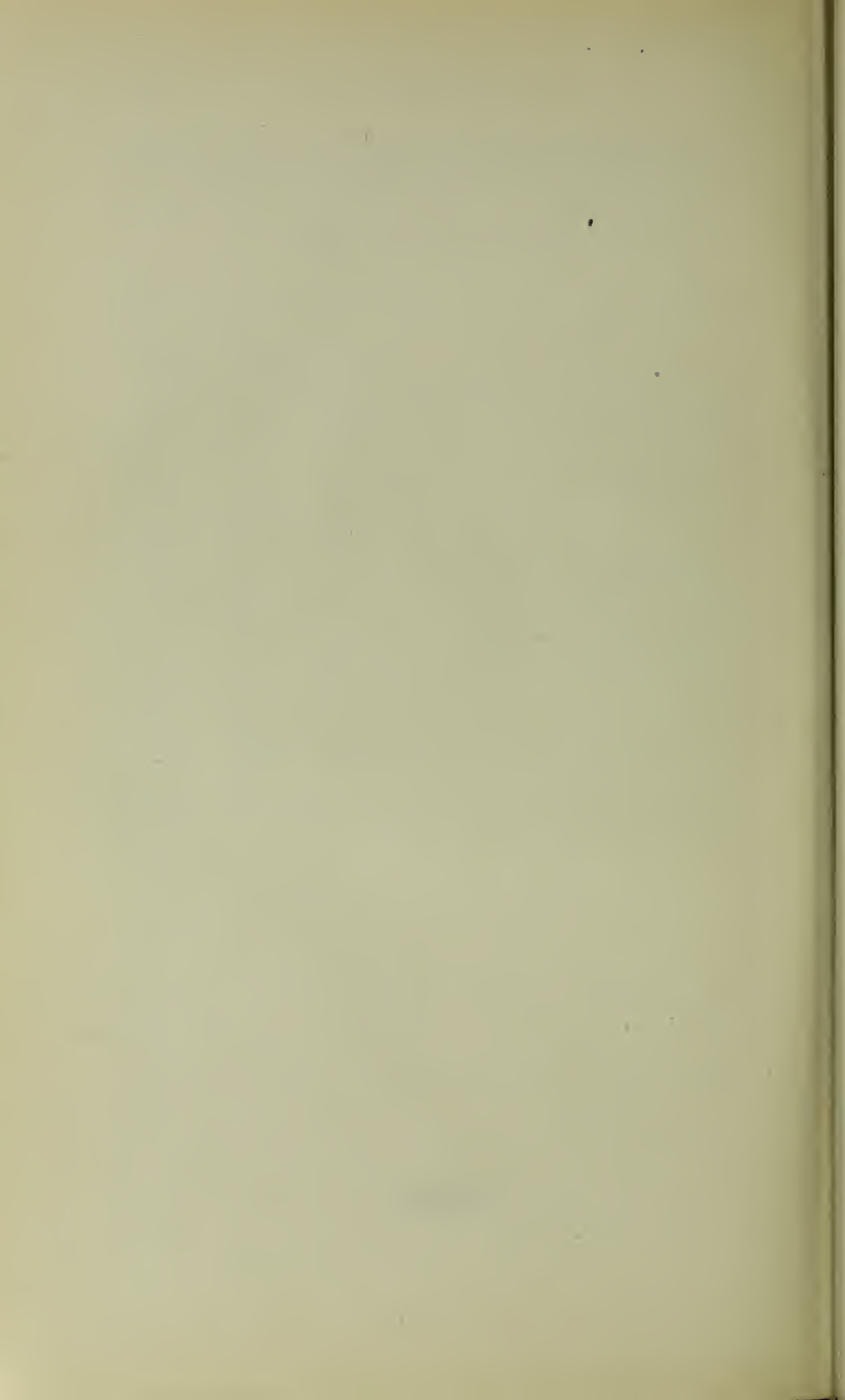
The following table is the result of a canvass by the Superintendent of all minors residing in Boston as of April 1, 1918, taken in compliance with the General Acts of 1917, chapter 102, Registration of Minors.

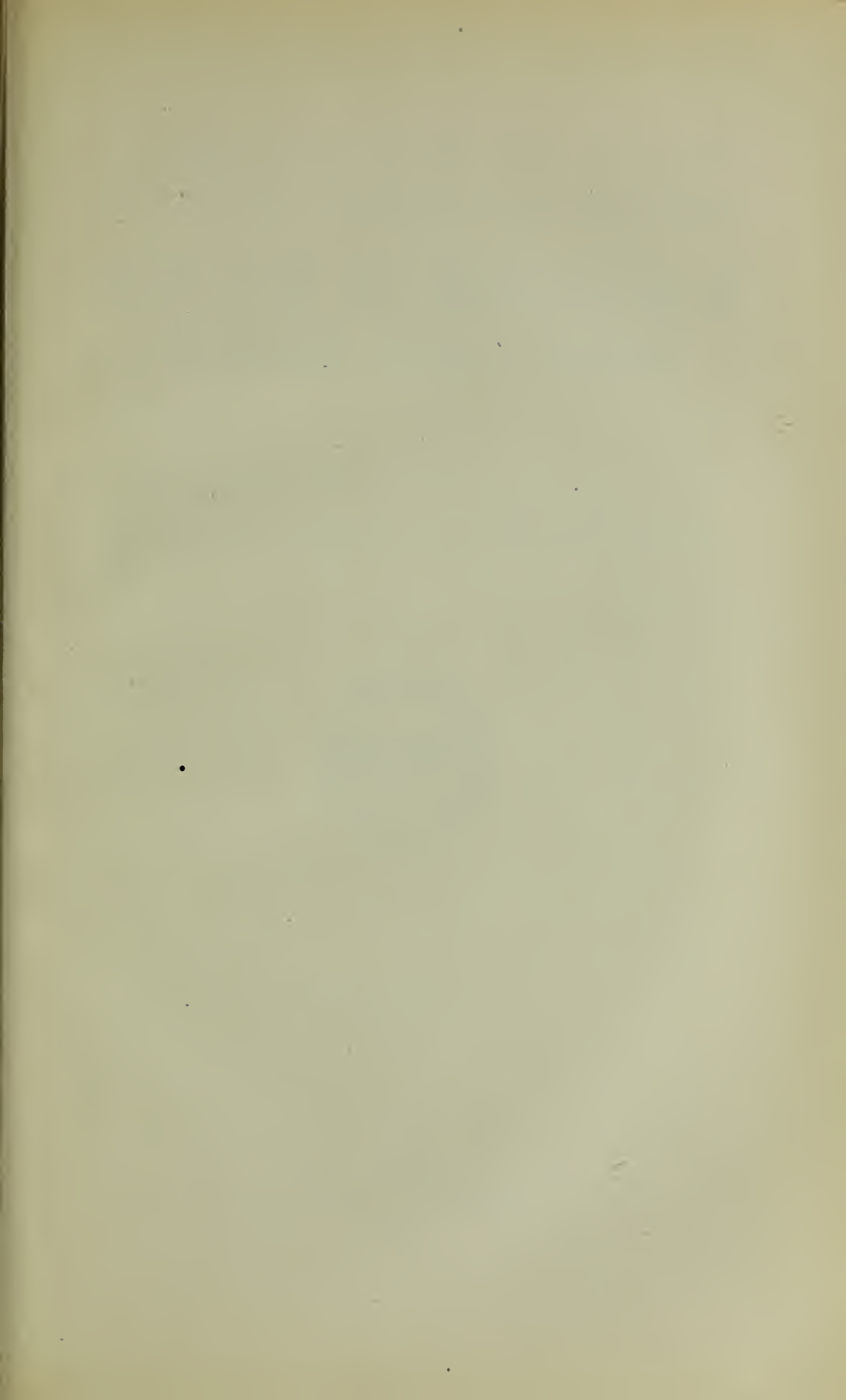
## REGISTRATION OF MINORS.

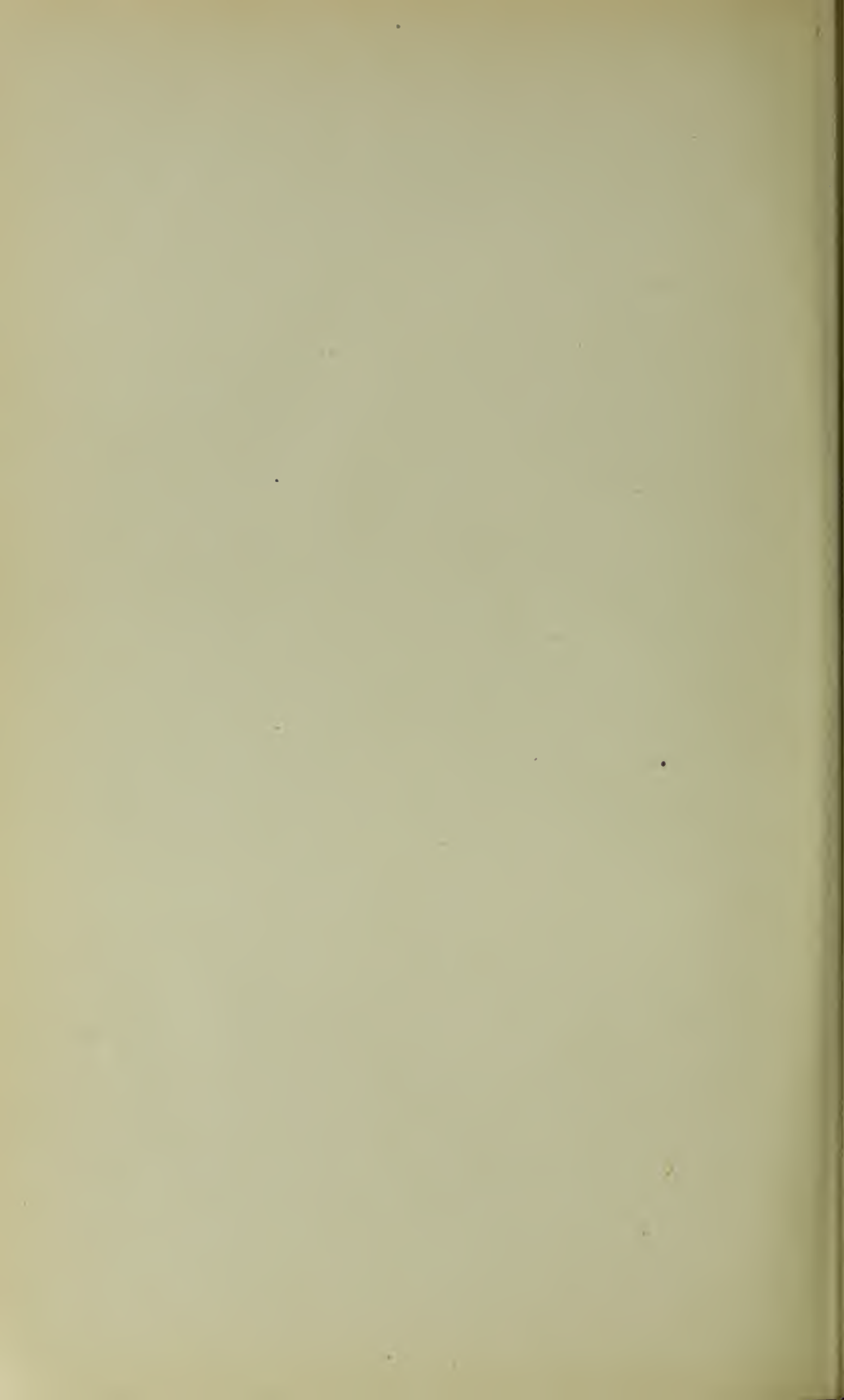
*April 1, 1918.*

GROUP.	ENROLLMENT OF PUPILS.		
	5 to 7 Years.	7 to 14 Years.	14 to 16 Years.
Boston public schools.....	16,591	66,763	19,453
Private schools.....	155	790	320
Business schools.....		1	243
Professional schools.....	6	706	247
Parochial schools.....	5,002	16,990	2,101
Schools outside Boston.....	30	390	240
Charitable institutions.....	30	79	20
Institutions for educational and custodial purposes.....	111	535	131
Physically or mentally defective children not enrolled in any school.....		71	4
Employment certificates.....			5,586
Special home permits.....			162
Grand totals.....	21,925	86,325	28,507
Educational certificates of illiterates.....			2,136









SCHOOL DOCUMENT NO. 13—1918  
BOSTON PUBLIC SCHOOLS

ORGANIZATION AND ADMINISTRATION OF  
INTERMEDIATE SCHOOLS IN BOSTON

BULLETIN NO. XVII OF THE DEPARTMENT OF  
EDUCATIONAL INVESTIGATION AND MEASUREMENT



SEPTEMBER, 1918

CITY OF BOSTON  
PRINTING DEPARTMENT

1918

September 30, 1918.

At its meeting on June 7, 1918, the Board of Superintendents recommended the publication of the accompanying report on organization and administration of intermediate schools as a school document.

In order to preserve the continuity of the publications of the Department of Educational Investigation and Measurement, which department prepared this report, the Board also approved the printing of the document as a bulletin of the department.

---

IN SCHOOL COMMITTEE, September 23, 1918.

*Ordered,* That three thousand (3,000) copies of a report on "Organization and Administration of Intermediate Schools in Boston," recommended for publication by the Board of Superintendents, be printed as a school document.

Attest:

THORNTON D. APOLLONIO,  
*Secretary.*



# TABLE OF CONTENTS.

	PAGE
Introduction . . . . .	5
I. THE INTERMEDIATE OR JUNIOR HIGH SCHOOL IN THEORY AND PRACTICE.	
The Intermediate School Defined . . . . .	7
Essential Characteristics of the Intermediate School . . . . .	7
What Others Say of its Essential Character- istics . . . . .	13
What the Intermediate Schools in Boston Should do . . . . .	15
Difficulties in the Establishment of a System of Intermediate Schools in Boston . . . . .	17
Professional Recognition and Endorsement of the Movement . . . . .	20
General Educational Significance of the Inter- mediate School . . . . .	21
II. DEVELOPMENT OF INTERMEDIATE SCHOOLS IN BOS- TON.	
Origin . . . . .	24
Organization, Administration, and Supervision . .	27
Present Status . . . . .	31
Teachers . . . . .	34
Courses of Study . . . . .	36
Methods of Instruction . . . . .	36
The Work of Councils on Intermediate Schools and Classes . . . . .	37
III. THE EDUCATIONAL SYSTEM OF BOSTON IN ITS RE- LATION TO INTERMEDIATE SCHOOLS.	
The Elementary Schools . . . . .	39
1. Size and Growth . . . . .	39
2. Number and Distribution of Graduates . .	44
3. Number of Pupils and Classes in Grades VII, VIII, and IX . . . . .	48
4. Schoolhouse Accommodations . . . . .	53
5. Conclusions . . . . .	57
The Secondary Schools . . . . .	57
1. Size and Growth . . . . .	58
2. Schoolhouse Accommodations . . . . .	59
3. Number of First-year Pupils . . . . .	60
The Present Intermediate Schools . . . . .	61

	PAGE
IV. ORGANIZATION AND ADMINISTRATION OF INTER- MEDIATE SCHOOLS IN BOSTON.	
Assistant Superintendents in Charge . . . .	61
Endorsement of Intermediate Schools and Rapid Advancement Classes . . . . .	62
Courses of Study, Grade IX . . . . .	62
Time Allotments, Grades VII and VIII . . . .	67
Grade VII, Minimum, Suggested, Maximum .	67
Grade VIII, Minimum, Suggested, Maximum,	68
Point System of Credit Adopted . . . . .	69
Credit in Senior High School for Work Done in Intermediate Schools . . . . .	70
Departmental Organization . . . . .	70
Recitation Periods . . . . .	71
Daily Program . . . . .	71
Admission, Grading, Classification, and Scholar- ship Records of Pupils . . . . .	72
Admission of Pupils to High and Latin Schools from Intermediate Schools . . . . .	73
Preparation of Teachers . . . . .	74
Outlines of Work for Intermediate Schools and Classes . . . . .	75
Elimination of German . . . . .	75

## INTRODUCTION.

In May, 1916, the superintendent directed the department of educational investigation and measurement to make a study of the organization and administration of a system of intermediate or junior high schools for Boston. The scope of the study is indicated in the following statement in the superintendent's letter:

It is desirable that an investigation and report should be made upon the organization and administration of intermediate departments or junior high schools, looking toward the establishment of as close relations as possible, both to elementary and to high schools, and the organization of the work of the seventh, eighth and ninth grades according to the needs of children in these grades and with due regard to our local conditions.

While much attention has been given to the subject of junior high schools during the past few years, its organization and administration is still in an experimental stage. It has not seemed worth while, therefore, to undertake any comprehensive study of junior high schools in other cities as a basis for the organization of a system of such schools for Boston. While some information concerning what has been done elsewhere has been gathered, the department is convinced that the best system of intermediate or junior high schools for Boston is a system which is made to grow out of and which is thoroughly adapted to the present local school system. This report is, therefore, the result of a study of local conditions in Boston and the application of modern educational principles to that situation for the purpose of providing a better system of education for the boys and girls in the public schools.

As in the study of high school organization and expenditures, as well as in other studies of a similar nature, the method of studying the junior high school situation in Boston has been one of coöperation between the department and a representative group of administrative officers of the school system who are concerned with the study. In his letter directing that this study be made the superintendent indicated that an advisory committee had already been appointed by him, as follows:

Representing the high schools:

John F. Eliot . . . . .	East Boston High School.
Oscar C. Gallagher . . . . .	West Roxbury High School.
Myron W. Richardson . . . . .	Girls' High School.
William B. Snow . . . . .	English High School.
James E. Thomas . . . . .	Dorchester High School.

Representing the elementary districts:

Arthur L. Gould . . . . .	Dearborn District.
William W. Howe . . . . .	Henry L. Pierce District.
Augustus H. Kelley . . . . .	Ulysses S. Grant District.
W. Lawrence Murphy . . . . .	Mary Hemenway District.
George W. Ransom . . . . .	Abraham Lincoln District.

During the preparation of Section I the department discussed its plans and methods of work with the above committee as well as with Mr. Burke, assistant superintendent in charge, and the superintendent of schools. Two general conferences were held with the above committee, one on May 18 and one on June 6, 1916. The first meeting was devoted to a general discussion of the problems involved in establishing a system of intermediate or junior high schools in Boston. At the second meeting a report was presented by Mr. Ballou defining certain aspects of the problem. The final draft of the section was prepared and distributed to each member of the committee, and was formally approved, section by section, in conference. Certain additions have recently been made, but it is believed that they are not inconsistent with the report as agreed to by the committee. For reasons which it is not necessary to present here, the later sections of the report have not been discussed with the committee as a whole.

Section IV of this report on the organization and administration of intermediate schools is intended to cover all the official orders which have been passed by the School Committee or the Board of Superintendents and all the executive orders of the superintendent's office under which intermediate schools and classes have been organized. After intermediate school work has been authorized in his district, a master may find in this section of the report his authority and direction for operating intermediate schools and classes.

FRANK W. BALLOU,  
*Assistant Superintendent*  
*in charge of Educational Measurement.*

## I. THE INTERMEDIATE OR JUNIOR HIGH SCHOOL IN THEORY AND PRACTICE.

### THE INTERMEDIATE SCHOOL DEFINED.

The term "intermediate or junior high school" is a name which is at present applied to such a variety of modifications of our common educational organization that the term has no clearly defined and accepted meaning. As an illustration, consider the grades covered in the organization of junior high schools in various parts of the country. In some systems the junior high school covers only Grades V to VII, inclusive. In other cities it covers Grades VII to X, inclusive. All the possibilities between these extremes are also to be found. The most common type of organization, however, which is called intermediate or junior high school is the combination of Grades VII and VIII. The next most frequent combination is a grouping of Grades VII, VIII, and IX. In other respects, likewise, there is little common practice to be found in these schools throughout the country.

Even though the intermediate school cannot be defined exactly, some definition of its essential characteristics is necessary. In making this explanatory definition it should be understood that modifications from this type are numerous and for some time must be so. The type described appears to be that best suited to the educational needs in Boston and the one toward which all preliminary attempts at organization may legitimately tend. The intermediate school for Boston has been defined as follows:

The intermediate school is either a separate school or department of a school organized on a departmental basis, which receives pupils when they are expected to have completed the sixth year of elementary school work and when they are about to enter the adolescent stage, which provides three years of work covering in general grades VII and VIII of the present elementary school and the first year of the present secondary school, and which offers differentiated courses of study for pupils according to their interests, capacities, and probable future educational careers.

### ESSENTIAL CHARACTERISTICS OF THE INTERMEDIATE SCHOOL.

Although the intermediate school has been defined above, there is so little consensus of opinion on the subject that it seems desirable to explain further the essential characteristics of this reorganization of elementary and secondary education. Therefore, the significance of some phases of the definition is here described.

1. *The intermediate school is either a separate school or a department of the school organized on a departmental basis.*

In introducing the intermediate school into Boston as an integral part of the present educational system, three possible types of institution may be considered.

(a) The intermediate school may be organized as an independent institution, separate from either an elementary school or a high school. The independent intermediate school means a centralized school to which pupils in Grades VII and VIII in the adjoining elementary districts would be transferred and first-year high school pupils retained. It would have its separate master and in its organization and administration would be independent of other schools. The chief advantage of an independent school is that it would be free from present elementary or high school methods and practices, and would be, thereby, the better able to work out its own educational problems. While some masters have volunteered to allow their seventh and eighth grade pupils to go to an adjoining intermediate school if established, there is reason to believe that the elementary school-masters of the city as a whole do not look with favor on such a decapitation of their schools. From many points of view the independent school may be considered more promising than any other type of intermediate school organization. If Boston is to have intermediate schools the city will not be satisfied with any type short of the best. However, it is probable that this type can be only gradually introduced into Boston. It is recommended that the independent school be tried in Boston whenever the opportunity presents itself.

(b) The intermediate school might be associated with the present high school under the direction of the head master of the high school. Where the intermediate school is associated with the high school, the elementary school consists of six grades, and junior and senior high schools together make six grades. This arrangement is known as the six-six plan. In Boston the Public Latin School and the Girls' Latin School each maintains such an organization. Such a system of organization is not, therefore, new to Boston. In view of the fact that the high school buildings of the city are now overcrowded, there is no possibility of incorporating the seventh and eighth grades of the elementary schools into the present high school organization. Indeed, the intermediate school is urged for Boston in part because it will relieve materially overcrowded conditions in the high schools. This

type of junior high school, therefore, does not appear to be adapted to educational conditions in Boston, and hence is not recommended for the city.

(c) The intermediate school might be associated with the present elementary school either in the same building or in a separate building under the direction of the master of the elementary district. This type of organization of intermediate schools differs from the independent school largely in its method of administration rather than in its primary essentials. In this type the intermediate school would be the middle three years of the six-three-three plan. It would be organized departmentally and its organization would differ materially, therefore, from the organization of Grades IV, V, and VI, which might be housed in the same building.

This arrangement seems to be a logical development. Two of the three years of the intermediate school now belong to the elementary school. To associate the intermediate school with the elementary school rather than the high school will undoubtedly make intermediate instruction more economical than it would be if associated with the high school. Furthermore, the association of the intermediate school with the present elementary districts makes possible the utilization of some vacant rooms in elementary buildings. In addition, there are several elementary school buildings being constructed which will afford opportunity for the intermediate school organization. In spite of one important disadvantage, this is the type of intermediate school organization which is recommended for immediate adoption in the City of Boston.

The disadvantage of this type of organization lies in the fact that there is a possible danger that intermediate schools so associated with the earlier grades will represent altogether too largely merely a ninth grade system, and that the present methods of instruction, organization and administration found in the earlier grades of the elementary school will dominate in the intermediate school. This possible danger becomes more apparent since it is proposed for the present to provide teachers for the three grades of the intermediate school largely or entirely from the teachers now found in elementary grades. Whether this danger becomes real will depend upon the extent to which teachers who are appointed to intermediate classes adopt the fundamental idea of the intermediate school, study its problems and thereby qualify themselves for the new work to which they are to be assigned.

To what extent they do this will depend in part upon the supervision and educational leadership which they receive.

In the preceding paragraphs analysis has been made of the three types of institution which might possibly be developed in Boston, and two have been recommended for trial. It should not be understood from this that intermediate classes are not desirable in those districts where it is not possible to retain the ninth grade pupils. On the contrary, intermediate classes are desirable in every district where some differentiation of work is possible in the seventh and eighth grades in order to provide diversified work for varying needs of upper grade pupils. Pupils who enjoy such work in one district in the seventh and eighth grades may very well be accommodated in an intermediate school in an adjoining district for the ninth grade work. The selection of a foreign language to be offered to seventh and eighth grade pupils in a district should be made, at least in part, on the basis of the language work offered in the adjoining intermediate school, in order that the ninth grade pupils of said district may be accommodated in the intermediate school if desirable.

Of all the characteristics of the varying types of intermediate or junior high schools throughout the country, departmental teaching is the most common. As far as investigations thus far made have considered the matter, departmental teaching is an essential part of the organization of the work in intermediate schools. One danger in departmentalizing the teaching in the intermediate schools should be avoided in Boston. If the work of the seventh grade is placed entirely on a departmental basis, there will be a greater break between the one teacher which a pupil has in the sixth grade and the ten or a dozen which he would have in the seventh grade than there is now between the one teacher which the pupil has in the eighth grade and the five or six different teachers which he has in the present high school. This break between the sixth and seventh grades can be avoided only by a gradual introduction of the departmental teaching throughout the period of the intermediate school. In the seventh grade a pupil should not have more than three different teachers, exclusive of special teachers of music, manual training, domestic science, and the like. In the ninth grade of the intermediate school, which corresponds to the first-year high school, the pupil should not meet more teachers than he meets now in the first year of the four-year senior high school.



2. *A school which receives pupils when they are expected to have completed the sixth year of elementary school work and when they are about to enter the adolescent stage.*

The fundamental purpose of the intermediate school is to improve the instruction of pupils through a better adaptation to their needs of the subject-matter and methods of instruction. The courses of study and the methods of teaching must be neither elementary nor high school courses and methods, but they must be subordinate to the interests of adolescent boys and girls.

Many pupils who have reached the age of twelve or thirteen years, whether having completed the sixth grade of the elementary school or not, ought to be transferred to the intermediate school, where differentiated work can be provided for them more nearly in accordance with their interests, capacities and needs.

In addition the intermediate school will also afford an opportunity to take care of those boys and girls who are now required by law to attend high school, but who do not find any interest in the work now provided for them in those schools which they are required to attend. With a system of intermediate schools throughout the city, a large proportion of these pupils would never enter the senior high school but would complete their schooling in an intermediate school.

3. *A school which provides three years of work covering in general Grades VII and VIII of the present elementary school and first year of the present secondary school.*

To organize the Boston school system so that it will include the intermediate school transforms the present eight-four year plan of elementary and secondary education into the six-three-three year plan, the middle three years of which are spent in the intermediate school. This is the type of organization recommended for Boston.

The courses of study for the intermediate school cannot be appropriated from the present elementary courses in Grades VII and VIII or from the first-year high school course. On the contrary, these courses are being reorganized on the basis of adolescent interests and needs. In the typical intermediate school the academic course of study will discard many of the reviews and some of the drills of the present seventh and eighth grade work. The intermediate school affords opportunity for modern language instruction to those pupils who plan to take a modern language in the high schools. It substitutes a mathematics course of three years, consisting of a well integrated, composite course in

arithmetic, algebra and geometry, for the present chronological treatment of these subjects. The English even in the third year of the intermediate school should not be primarily to meet college entrance requirements, but should be organized in consideration of the fact that a considerable proportion of the intermediate school pupils will not complete senior high school work, to say nothing of entering college. The science, history and geography work must likewise undergo thorough reorganization such as the above courses have already undergone at the hands of councils of teachers from elementary and high schools.

The prevocational courses for those pupils who leave school early may well be patterned after the courses in those prevocational centers where the work is most intensive and diversified.

4. *A school which offers differentiated courses of study for pupils according to their interests, capacities and probable future educational careers.*

The intermediate school which is proposed for Boston will provide for two general groups of pupils, namely, those who are going to continue their school training for some time and those who are likely to discontinue school work at an early age. Those who are to continue their school work for some time will enter either a specialized secondary school or a high school offering a general course of study. Those who are to leave school soon will probably not enter any secondary school. Both groups of pupils will continue their work at least through the eighth grade in the intermediate school.

(1) Those pupils who desire to enter the Trade School for Girls, the Boston Trade School, Mechanic Arts High School, or the High School of Practical Arts are permitted to do so at the end of their eighth year in the intermediate school. This provision is made on the assumption that the intermediate school cannot undertake to offer such pupils equivalent or better education than is provided them in our well developed trade and specialized secondary schools. Ultimately it is believed that this practice may need to be modified, particularly with regard to those entering the trade or Latin schools. Nevertheless, this appears to be the best arrangement for the present.

(2) Those pupils who enter the general high school pursue in the first year either a college preparatory course or a commercial course. There is no doubt about the possibility of the intermediate school offering academic or college preparatory instruction equivalent to that given in the first year of our present high

school course. Further, it is the unanimous opinion of the advisory committee on intermediate schools that the first-year commercial course in the general high school, as well as the first-year work in the High School of Commerce, is not sufficiently specialized to make it impossible to duplicate it. Hence it is proposed to retain in the ninth year in the intermediate school all pupils who propose to enter the general high school or the High School of Commerce, where they would take either a college preparatory, general, or commercial course. It is understood, of course, that this proposal refers only to those schools in which junior high school work has already been established.

Exceptions are made of the Public Latin School and of the Girls' Latin School. Pupils who desire to prepare for college in either one of the Latin schools should seek admission to those schools at the beginning of the seventh grade rather than after completing eight years of the work in the elementary school. Pupils desiring to enter one of the Latin schools at the end of the eighth year will have their cases considered on their individual merits.

(3) The pupils who are likely to discontinue school work at an early date constitute a group who have heretofore received altogether too little attention from those preparing courses of study or determining the organization and administration of our school system. It cannot be denied that these pupils have not received an opportunity equivalent to that provided pupils who go to the high school and to college. The intermediate school provides an opportunity for giving these pupils the consideration to which they have always been entitled. For the boys, prevocational work of the shop variety should be provided; and for the girls, intensive work in household science and arts should be offered. It is not expected that prevocational work for boys and girls will be the same in the several districts. In one district where a large proportion of the pupils leave school at the end of the elementary school period the prevocational work in the intermediate school should be the large feature. In another district where nearly all of the pupils enter the senior high school the amount and character of the prevocational work should be less intensive and less extensive.

#### WHAT OTHERS SAY OF ITS ESSENTIAL CHARACTERISTICS.

It will help us to define what the intermediate school is if we consider what it is not. Those who have discussed the inter-

mediate school have defined it both positively and negatively. The following quotations are taken from the writings of those who have undertaken to set forth the meaning of this reorganization of our school system.

Professor Davis writes: \*

First, however, it ought to be made clear that the true six-six plan is not established or even approximated by merely adopting any one of the following changes by itself, namely:

1. Transferring the seventh and eighth grades from the ward buildings to the high school building.
2. Departmentalizing the work of the seventh and eighth grades.
3. Having the seventh and eighth grade classes taught by the high school teachers.
4. Segregating the pupils of the seventh, eighth, and ninth grades by themselves.
5. Promotion by subject within the seventh and eighth grades.

Superintendent Horn writes: †

One of the first things which our experience showed is that you cannot establish a junior high school by merely cutting off one year of the elementary school and two years of the high school, putting these grades into one building and calling them a junior high school.

The junior high school is not an elementary school. Neither is it a sort of mixture of the two in equal proportions. If it is in reality an institution worthy of its place in our educational economy, it is an institution which is neither an elementary school nor a high school, but a provision for the needs of those children for whom neither of the older institutions made suitable provision. It partakes to some extent of the nature of each but it is essentially different from either.

Assistant Superintendent Burke writes: ‡

The intermediate or junior high school should be neither elementary nor high; rather it should be both. The teachers should be neither elementary nor high but both. The organization of the school beginning as elementary should gradually approach the regimen of the high school, with departmental instruction, promotion by subjects, more independence and self-control by pupils, and possibly in its last days a school of one session. Pupils would enter the school as elementary but they would emerge full-fledged high school pupils. The chasm now existing between high and elementary schools would be bridged, a consummation devoutly to be wished.

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\* The Subject-Matter and Administration of the Six-Three-Three Plan of Secondary Schools. By Calvin O. Davis. Published by the University of Michigan.

† The Junior High School in Houston, Texas. By P. W. Horn. Elementary School Journal. Volume 16, pages 91-95.

‡ Report on Intermediate or Junior High School. By Assistant Superintendent Jeremiah E. Burke. Annual Report of the Superintendent, 1915, page 124.

## WHAT THE INTERMEDIATE SCHOOLS IN BOSTON SHOULD DO.

The improvements which the intermediate schools should bring about in Boston may be classified around the following topics:

- I. Those relating to the pupils themselves.
- II. Those relating to social and economic conditions.
- III. Those relating to the course of study.
- IV. Those relating to teaching.
- V. Those relating to the organization and administration of schools.

Each of these topics is discussed in the following pages. Under each topic is a statement of a condition which the intermediate school is expected to improve, or an educational principle which the intermediate school is expected to recognize. Subordinate to the statement of condition or principle is indicated the way in which the intermediate school is expected to improve that condition or to recognize that principle.

## I. Those relating to the pupils themselves.

1. Individual differences in capacities, interests, and probable future activities are not now sufficiently recognized.

*The intermediate school in Boston should provide:*

- (1) Different work for different types of pupils.
  - (a) Languages — for those going to general high school and probably to college.
  - (b) Prevocational work — for boys leaving school soon to go into industry.
  - (c) Household arts — for girls whether leaving school early or not.
  - (d) Pre-commercial work — for boys and girls who take commercial courses in high school or who leave school early to go into commercial pursuits.
- (2) Different methods of teaching in varying subjects.
- (3) A period for educational exploration for all pupils.
2. Development of pupil — intellectually, morally, and physically — is a continuous process by day, week, month, and year.

*The intermediate school in Boston should:*

- (1) Bridge the gap between elementary and high schools.
- (2) Provide gradual transition from one teacher in Grade VI to several teachers in Grade IX.

NOTE.— Gradual transition means that a pupil should not have more than three different teachers in Grade VII, and in Grade IX not more than he would meet in high school.

## II. Those relating to social and economic conditions.

1. Education should fit a person to be socially and individually efficient.
2. Varying social and economic conditions and differing individual capacities and interests require differentiation of work for pupils.

*The intermediate school in Boston should provide:*

- (1) Integrating courses; *i. e.*, those making for good citizenship, common ideals, and patriotic solidarity.
- (2) Differentiating courses; *i. e.*, those providing educational exploration to test individual capacity in order to promote individual efficiency.
3. Equal educational opportunity for all pupils means that no one class or group is to be unduly favored. Those leaving school early should have as much consideration while they remain in school as those going to college.

*The intermediate school in Boston should provide:*

- (1) Prevocational work for boys leaving school early.
- (2) Prevocational work for girls leaving school early.
- (3) Earlier language instruction for those going to the general high school.
4. Larger educational results should be secured from the present expenditure of time, energy, and money.

## III. Those relating to the course of study.

1. The course of study in the upper grades is now overloaded because of an effort to give pupils intensified as well as diversified courses before they finish the elementary school course.

*The intermediate school in Boston should provide:*

- (1) Minimum essential courses in all subjects.
- (2) Gradual differentiation of work beginning with Grade VII, so that every pupil will not be expected to try to do everything, much of which cannot be done effectively.
- (3) Opportunity for pupils to try themselves out in various lines of prevocational work.
2. The present elementary course leads too exclusively to high school (as the high school, until recently, has led too exclusively to college).

*The intermediate school in Boston should give:*

- (1) Equal consideration to those preparing to leave school and those preparing to continue through high school.
- (2) Courses as well organized to fit pupils to leave school as are those which fit pupils to take up high school work.

## IV. Those relating to teaching.

1. The methods of teaching in Grades VII and VIII are too much like the methods of the earlier grades.
2. The methods of teaching in first-year high school are on the whole not well adapted to first-year high school pupils.

*The intermediate school in Boston should provide:*

- (1) Gradual departmental teaching, which will mean more enthusiasm among teachers who will enjoy teaching their specialties.

- (2) Fewer drills and less review than now prevail in Grades VII to VIII; more thinking and reasoning should be substituted.

V. Those relating to the organization and administration of schools.

1. Important advantages to the pupils in intermediate school organization are to be noted.

*The intermediate school in Boston will provide for:*

- (1) Promotion by subject rather than by grade. Pupils will not be required to take over subjects in which they have shown proficiency.
  - (2) Limited election of curriculum or subjects, beginning with the seventh grade and increasing somewhat through the ninth grade.
  - (3) Educational and vocational guidance for pupils, based on the tangible results of the trying-out period.
  - (4) Supervised study.
2. Important economies in the general administration of education in the city should also be noted.

*The intermediate school in Boston should make possible:*

- (1) Utilization of class rooms in elementary schools which are now vacant. These rooms are worth \$12,000 each to the City of Boston at the present cost of construction.
- (2) Needed relief for overcrowded high school buildings by withholding the ninth grade from entering the high school.

#### DIFFICULTIES IN THE ESTABLISHMENT OF A SYSTEM OF INTERMEDIATE SCHOOLS IN BOSTON.

In the establishment of a system of intermediate schools in Boston some difficulties present themselves. Several of the larger and more important ones are here discussed.

1. The present location of buildings is not the most favorable for the establishment of intermediate schools or classes. The present buildings were built to house pupils progressing through an educational system consisting of eight years in the elementary school and four years in the high school. It is not surprising, therefore, that they should not be wholly adapted to a school system organized on the six-three-three year plan. In most cases present buildings can be readily adapted to the intermediate school plan. In view of the rapid growth in population and in school attendance in several parts of the city, several new buildings are now in process of erection, or must be provided for within the next few years. These buildings will make possible the introduction of an intermediate school system in those districts. Further, ninth grade classes may be retained in those elementary school buildings in which there are now vacant rooms owing to reduction in the number of pupils attending such schools.

2. A second serious difficulty in the establishment of a system of intermediate schools in Boston is the apparent unwillingness of elementary school principals to approve of the removal of the seventh and eighth grade classes from their respective districts, in order that they may be housed in a central independent intermediate school. This is a difficulty which is met not only in Boston but in other cities where intermediate or junior high schools have been established. Usually, however, when it is urged that such schools exist for the education of the pupils, and when the intermediate school has demonstrated its success in increasing the effectiveness of the education provided, principals have willingly sacrificed their personal desires for the benefit of the children. A few principals in Boston have already volunteered to allow the transfer of their seventh and eighth grade classes to an adjoining intermediate school when such a school is established. It is hoped that when a favorable occasion presents itself elementary school principals will sanction a trial of an independent intermediate school which will draw its pupils from the seventh and eighth grades of the surrounding territory.

3. The third serious difficulty to be mentioned here is the lack of specially trained teachers who understand the significance of the reorganization of educational methods and practices involved in the establishment of intermediate schools. While this is a difficulty of the immediate future, it is a difficulty which will soon be overcome. Interest in the intermediate school among teachers and masters will prompt them to qualify within a reasonable time for their new work by making necessary preparation for it.

The success of the intermediate schools will depend largely on the teachers in them and every effort should be made to increase the probability of their success. During the school year 1917-18 conferences on the new courses of study in the various subjects were held for the several groups of teachers now teaching in intermediate schools, or in anticipation of offering instruction in them. General courses for teachers on the aims, methods, and desired results in the intermediate school should be regularly carried on as a means of assisting teachers to make adequate preparation for their new work.

4. The fourth difficulty in the establishment of a system of intermediate schools in Boston is the absence of suitable courses



of study and text-books for these schools. Courses of study have already been prepared in several subjects and are now being prepared in others. They represent a considerable modification of the usual course of study for the seventh, eighth and ninth years, and hence need to be studied carefully by those who are to use them. Some text-books for junior high school work are already on the market, although for the most part they are but slight modifications of text-books printed for use in the upper grades or first-year high school. Only as the intermediate school establishes itself as an integral part of our educational system can its needs for courses of study and text-books be satisfactorily met.

5. Another difficulty, and the last to be noted, lies in establishing a satisfactory relationship between the parts of our educational system. Our high schools must adjust themselves to receiving not only pupils who have completed the present eight-year elementary school course but also those who have completed the ninth year in our intermediate school system. In this connection, there are several problems of administration which must be met, such as the credit to be allowed in the senior high school for work done in the intermediate school, and the supervision of intermediate school work by councils consisting of elementary and high school teachers.

These difficulties are defined in order to indicate that intermediate schools cannot be introduced into Boston without overcoming some obstacles. However, the hopes and aspirations for the intermediate school among those promoting its introduction into the school system are such that these difficulties will undoubtedly be overcome as the plans for the intermediate school are worked out. The Boston masters and teachers are already working out their own courses of study and they can write their own text-books, if necessary. The coöperation of head masters of high schools and elementary school principals will result in making the necessary administrative arrangements for the present and for the future. Further, whatever is best for the school children of Boston will decide what should be done in the establishment and development of the intermediate school. This is the answer which has been given elsewhere. The same idea has already resulted in many diversified and highly developed educational enterprises in the Boston school system. The intermediate school is as fundamental and as important as any of them.

PROFESSIONAL RECOGNITION AND ENDORSEMENT OF THE  
MOVEMENT.

At the meeting of the Department of Superintendence in Detroit in 1916 the subject of the intermediate or junior high school occupied a large place in the several programs. Likewise, it has been discussed in smaller educational meetings throughout the country. Periodical literature on the subject is voluminous. The discussion in favor of differentiated courses of study in the seventh and eighth grades began only a few years ago. Since then educational journals have carried numerous articles covering this subject and a discussion of other phases of the intermediate or junior high school movement. "Educational Administration and Supervision" for September, 1916, was a junior high school number. The October, 1916, number of "Education" contained a bibliography of nearly one hundred fifty references on the subject of intermediate or junior high schools. The Fifteenth Yearbook of the National Society for the Study of Education and the report of the committee of the High School Masters' Club of Massachusetts on the junior high school have already been referred to in the earlier part of this report.

The intermediate or junior high school plan has been officially endorsed by a number of states, by educational associations, and by those who have conducted educational surveys. The following is a list of such endorsements prepared by Johnston and published in "Educational Administration and Supervision" in March, 1915:

United States Commissioner of Education.

United States Bureau of Education.

Associations:

1. National Association of State Universities.
2. North Central Association of Colleges and Secondary Schools.
3. State Teachers' Associations of:
  - Washington.
  - Oregon.
  - Idaho.
  - Montana.

Committees:

Committee on Economy of Time of the N. E. A.

Commission on Reorganization of Secondary Education.

State Departments of Education:

California.

Michigan.

New York.

North Dakota.

## Universities:

Chicago.

Michigan.

## School Surveys:

Boise City, Idaho.

Butte, Montana.

New York City.

Portland, Oregon.

Springfield, Illinois.

State of Vermont.

The above statement of endorsements was prepared three years ago. Since then many other associations have approved the intermediate or junior high school plan. A survey committee, appointed by the Boston Finance Commission to make a report on certain phases of the Boston school system, recommended the establishment of intermediate schools in the following language (page 36):

We understand that there are now twenty intermediate or junior high school centers for differentiated seventh and eighth grade work. We recommend the extension of this movement by the inclusion of the first high school year with the seventh and eighth grades and by the systematic development of properly located three-grade junior high schools.

#### GENERAL EDUCATIONAL SIGNIFICANCE OF THE INTERMEDIATE SCHOOL.

The most profound and far-reaching fact that has entered into the thinking of professional educators during the past ten years is that of individual differences among pupils. For a long time pupils were differentiated according to sex and other individual characteristics. Differentiation and classification of pupils has been going on steadily along other lines. In Boston we now have separate classes for the deaf, the physical and mental defective, and those with defective vision. We have ungraded and special English classes for types of pupils. We also have rapid advancement classes for those who can complete the required work faster than the majority. The whole vocational guidance movement is recognition of the fact that young people differ and that some of them are better qualified for some positions than others.

The intermediate school logically carries out this same principle of differentiation by applying it to the whole school population. The pupils of an elementary school represent differing capacities for school work; possess different purposes in going to school; and entertain different ambitions after the period of schooling is over.

The results from standard tests show also that they differ greatly in respect to what they get out of their school work. The recognition of these facts lies at the foundation of the intermediate or junior high school movement.

In the intermediate school in Boston it is proposed to begin to differentiate pupils at the beginning of the seventh grade according to their probable future educational careers. Some pupils know definitely that they are ultimately going to college. For them a foreign language and other work which will best fit them for college will be provided. Some pupils know that they will enter high school to pursue a commercial course. Their work will be adapted to their needs. Some pupils know that they are going to leave school to go to work at the earliest moment that the law will permit them to do so. The prevocational work for them will be for the purpose of preparing them to leave school. And, lastly, there will be some pupils who do not know what they are going to do; whose purposes are not defined and whose future educational careers are uncertain. Their education will continue to be broad and general, so that later they may take up more specialized work when they desire to do so.

Many arguments are urged in favor of the intermediate or junior high school.\* The intermediate school is urged because it will be cheaper to offer ninth grade instruction in such a school than in the present four-year high school. This apparently should be so and it is hoped that it will be. The intermediate school is urged as a means of bridging the gap between the present elementary and high schools, and certainly, as Mr. Burke points out, there is urgent need of this. This advantage would probably materialize in case due attention is given to the matter in the organization and administration of the intermediate school. The intermediate school is urged as a means of correcting what is now assumed to be an accidental arrangement of our system of elementary and secondary education according to the eight-four year plan. This desirable result may be achieved, provided proper attention is given to it in the organization and administration of the intermediate schools. It is argued on the one hand that the present elementary school course of study is undemocratic, in that the course is prepared largely for those who are going on indefinitely in school work rather than for those who find it necessary for one reason or another to leave school early. On the other hand, the attempt to compromise in the course of study, in order

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\* For a discussion of the arguments for and against the junior high school, see pages 17-21 in the Fifteenth Yearbook of the National Society for the Study of Education.

to serve the needs of those who go on and those who leave, has not been successful, because in the country as a whole not more than fifty per cent of the elementary school graduates reach the second year of high school. In Boston in particular the intermediate school is urged as a means of reducing the present high school congestion and it undoubtedly will do this. It is urged also for Boston as a means of utilizing more fully and more effectively the present elementary school buildings. While the intermediate school may accomplish one or all these things, its chief purpose, after all, is to provide more suitable instruction for the boys and girls in our present seventh and eighth grades and in the first year of high school. The above arguments in its favor are merely incidental to the primary and fundamental purpose of the intermediate school, viz., to furnish boys and girls with better education than is being furnished now under our present system of organization.

The intermediate school means opportunity; opportunity to improve our whole system of educational administration; opportunity to readjust our methods of organization and administration within the school; opportunity to recast our courses of study so that they will more nearly meet the needs of pupils; opportunity to modify our methods of teaching. In indicating how this is to be done, I can do no better than to base my statement on Superintendent Horn's report.\* While Superintendent Horn has used the phrase "Junior High School," he is discussing the type of institution which in Boston will be known as an intermediate school.

Superintendent Horn indicates how better education is to be provided for boys and girls in the intermediate schools as follows:

1. By using methods of instruction more mature than those generally used in the elementary schools, yet less mature and less like university methods than those commonly used in the high schools.
2. By using methods of discipline and control that are not such as are generally used with small children, and yet not such as are used in high schools.
3. By keeping in school through this critical period many of the boys and girls who would ordinarily drop out on account of lack of provision for their needs at this special time.
4. By furnishing a convenient stopping place for those pupils who cannot remain in the high school for four years, and keeping them in school at least a year or two longer than they would otherwise stay, and allowing them to drop out at the end of that time with at least a fairly good equipment for entering the competitions of the modern industrial world.

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\* Elementary School Journal. Volume 16, pages 91-95.

5. By providing greater elasticity in the course of study in the seventh, eighth, and ninth years.
6. By allowing the pupils who are to take foreign language study in the high school to begin a modern foreign language in the seventh grade.
7. By giving special attention to the child and his interests rather than to the subject-matter as is now too often the case in many high schools.

## II. DEVELOPMENT OF INTERMEDIATE SCHOOLS IN BOSTON.

The following sketch of the intermediate classes in Boston covers their (a) Origin, (b) Organization, Administration, and Supervision, (c) Present Status, (d) Teachers, (e) Courses of Study, and (f) Methods of Instruction.

### ORIGIN.

Every development in school administration or reorganization of a school system is preceded by a period of agitation. The profession must be conscious of an unsatisfactory condition which needs improving and must be convinced that the proposed reorganization will bring about the desired improvement. In addition, the lay public must be educated to understand the meaning and significance of the proposed reorganization. Many educational schemes never proceed beyond the stage of professional and public agitation.

Following the agitation comes the period of trial and experimentation, in which any project is subjected to close scrutiny. Rare indeed is it that both the profession and the public do not produce severe and frequently unjust critics. The professional and lay criticisms of proposed changes usually prevent any modifications which do not promise a reasonable degree of success. Conservative progress is the price paid for democratic control of education.

Boston has passed through its period of agitation of the intermediate school project and is well along in its stage of experimentation. This subject was assigned by the superintendent to Assistant Superintendent Burke for his especial consideration and the systematic agitation began January 14, 1913, when he first discussed the subject at a meeting of the principals' association. A little later a conference on the same topic was held with the School Committee. From that time on, the subject has been discussed before home and school associations, teachers' associations, principals' associations, the Board of Superintendents, and the School Committee.

The agitation in favor of a reorganization of the public school

system through the introduction of the intermediate school was based on conditions in the public school system which were in need of improvement. It was recognized that the courses of study in Grades VII and VIII are too elaborate; that the instruction is bookish; that quality of achievement is sacrificed to quantity; that eight years is too long for instruction devoted exclusively to the so-called "fundamentals"; that our present divisions of the school system into elementary and secondary schools are artificial, accidental, illogical, and indefensible; that transition from elementary to high school is too sudden and abrupt; that mortality among first-year high school pupils is appalling; and that the cause of this mortality and wreckage among first-year high school pupils is an impassable void between the elementary grades and the high school.

Those who favored a reorganization also indicated what ought to be done to improve the present system. It was urged that we should eliminate nonessentials and simplify the course of study; motivate the instruction and relate it to industrial and social life; differentiate work for pupils at the end of the sixth grade; bridge the gap between the elementary grades and the high school; remove the arbitrary distinctions between these two divisions of our school system; introduce into the grades some subjects of the high school grades and reserve for the high school some of the more difficult subjects now found in the elementary schools; and correlate the work in all subjects throughout the entire twelve years.

Many advantages were suggested for the proposed system of intermediate or junior high schools. It was pointed out that the chief advantage educationally would be in the atmosphere created by such a school; that a longer period would be provided within which pupils might "find themselves"; that a ninth year in intermediate school would provide better education for those unemployed boys and girls who now by law must attend the regular high schools; that several courses of study should be offered with various options, which should be flexibly administered, so that a pupil might transfer easily from one to another; that the reconstruction of courses in accordance with the proposed reorganization will shorten by a full year the time necessary for many pupils to complete the course; that the cost of instruction in the ninth year will be much less under the proposed plan of organization than it is at present; and, finally, that relief will be afforded our overcrowded high schools by retaining the ninth-year pupils in intermediate schools.

As a result of arguments in favor of the intermediate school, the first official action was taken by the Board of Superintendents at its meeting on May 2, 1913, when, on motion of Assistant Superintendent Burke, it was

*Voted*, To recommend to the School Committee that the superintendent of schools be authorized, in such districts as he may designate, so to modify the course of study as to permit instruction in a modern foreign language for pupils of the seventh and eight grades who intend to enter high school.

The passage of the above motion by the Board of Superintendents was followed at once by action of the School Committee at its meeting on May 5, 1913, when the following order was offered by the superintendent:

*Ordered*, That the superintendent is hereby authorized, in such districts as he may designate, so to modify the course of study as to permit instruction in a modern foreign language for pupils of the seventh and eighth grades who intend to enter high school.

The above order was laid over and was finally approved by the School Committee at its meeting on June 9, 1913.

Pursuant to this order, Assistant Superintendent Burke reported to the Board of Superintendents on December 12, 1913, that intermediate classes in foreign languages for pupils who were preparing for high school had been organized in four elementary districts as follows:

	FRENCH.		GERMAN.	
	Classes in Grade		Classes in Grade	
	VII	VIII	VII	VIII
Henry L. Pierce .....	2	1		
Mary Hemenway .....	2	1		
Chapman .....			2	1
Edward Everett .....			1	1

Six additional districts provided similar work in 1914. During 1915 ten other districts were added, making twenty districts in all.

The School Committee promoted the success of foreign language instruction by authorizing the superintendent, at its meeting on October 5, 1914, to assign an additional special assistant to elementary districts in which intermediate classes had been



organized. This authorization has continued to date, and these districts are thereby provided with an additional teacher, at comparatively little expense, who renders assistance in the instruction of intermediate classes.

By virtue of the discretionary authority conferred by the School Committee at its meeting May 5, 1913, the superintendent from time to time authorized the establishment of intermediate classes in modern foreign languages in twenty or more districts. At its meeting on June 5, 1916, the School Committee called a halt in the extension of these classes by limiting such classes to the twenty-three following-named districts during the school year 1916-17:

Abraham Lincoln.	John Winthrop.
Blackinton.	Lewis.
Chapman.	Lowell.
Dearborn.	Mary Hemenway.
Dillaway.	Norcross.
Edmund P. Tileston.	Oliver Hazard Perry.
Edward Everett.	Oliver Wendell Holmes.
Eliot.	Robert G. Shaw.
Emerson.	Roger Wolcott.
George Putnam.	Thomas N. Hart.
Hancock.	Ulysses S. Grant.
Henry L. Pierce.	

As a result of a preliminary report of the department on the conditions in the several districts carrying on intermediate class work, the superintendent ordered that the ninth grade be organized in the following-named districts in September, 1917:

Abraham Lincoln.	Lewis.
Emerson.	Mary Hemenway.
Hancock.	Robert G. Shaw.
Henry L. Pierce.	Ulysses S. Grant.
John Winthrop.	

Later the Chapman district was added to the above list, making ten districts in which the three years' work of the intermediate school was carried on during the school year 1917-18.

#### ORGANIZATION, ADMINISTRATION, AND SUPERVISION.

From the beginning the organization and supervision of intermediate classes has been under the direction of Assistant Superin-

tendent Burke through the assignment to him by the superintendent of the special subject, "Problems general to high schools and to intermediate schools."

The initial organization of intermediate classes consisted largely of the introduction of foreign language instruction. No other courses of study were ready for use until sometime after the opening of the schools in September, 1916. While some schools had modified their courses of study in other subjects somewhat by that time, nevertheless, by far the greatest change which had taken place in our school system looking toward the establishment of intermediate schools was the opportunity offered pupils in selected districts to study a modern foreign language. To date, the changes in the other subjects are still in the experimental stage.

The establishment of classes in modern foreign language has been voluntary on the part of principals. No masters have been required or even urged to organize such classes. The selection of the particular foreign language to be offered in a given district has been determined largely by the presence in the district of someone qualified to teach it.

In all districts the taking of a modern foreign language has been optional with the pupils. It has been expected that those who are going on to high school are the ones to whom this instruction will make the most appeal, and for whom such work will be most profitable. As will be shown later, only about one half of the pupils in Grades VII and VIII in districts where a foreign language is offered have pursued such instruction.

Time for a foreign language has been found by eliminating much of technical English grammar, and by a reduction in the amount of time devoted to English, geography and arithmetic. In most schools pupils who have not maintained a comparatively high standing in all of their work, particularly in English, have been discouraged from undertaking the study of a foreign language in the seventh grade. The modifications in the instruction offered have been largely in the interest of those pupils who are going on into high school and probably to college. The whole field of vocational education, both commercial and industrial, in intermediate schools remains to be developed. The prevocational work already organized opens the way for this.

From the beginning it was planned that pupils pursuing modern foreign language instruction in intermediate classes should receive credit for such instruction toward a high school diploma. The amount of credit which they shall receive is determined by the Board of Superintendents.

At its meeting on June 7, 1915, the Board of Superintendents agreed to recommend to the School Committee that "pupils who have completed two years of instruction in a modern foreign language in a Boston elementary day school shall be credited five points therefor toward a high school diploma on the recommendation of the Board of Superintendents." At the end of each school year the principal certifies to the Board of Superintendents a list of pupils who have satisfied this requirement. The secretary of the Board of Superintendents in turn informs the head masters of those high schools which the pupils concerned are to attend of the amount of credit to which each pupil is entitled. By this plan the determination of the amount of credit is removed entirely from the school in which the pupil took his work and from the school to which he is to go.

One of the largest agencies in the development of the intermediate classes in Boston has been the "intermediate councils." These councils have to do with the preparation of courses of study, with methods of teaching their respective subjects, and the instruction of teachers in the aims, scope and requirements of the prescribed courses.

At the time of the introduction of foreign language instruction into the elementary schools a council of eight members was appointed, consisting of several heads of department of modern foreign languages in the high schools. This original committee of eight recognized at once the inter-relation of the work in foreign language in the elementary and in the high school. Actuated by a commendable spirit of coöperation, the original council of eight members invited to their conferences the teachers of modern foreign languages in the grades. The first work of this united council was the preparation of the courses of study in French and German, which have been published as School Document No. 13, 1915.

Not only has this council prepared the course of study, but its members have inspected thoroughly the modern language work in the elementary grades. This council has inspected the quantity and quality of the instruction given, and it was on the basis of their recommendation that the Board of Superintendents fixed the amount of credit to which pupils should be entitled on the completion of the two years of work in modern foreign languages in the elementary schools.

A council on English was selected in the same way. It was made up of seven high school heads of department and six teachers of English in intermediate classes. The council undertook to

unify the work in English in Grades VII and VIII of the elementary school and in the first year of the high school, in order that the work might be sequential, uninterrupted, and free from repetition. A course of study prepared by the English council was printed as School Document No. 9, 1916. Following the preparation of this course of study the council held approximately two meetings per month for the purpose of analyzing the significance of the course of study and indicating the educational ends to be achieved through its use. Similar councils have been organized for other subjects. The following tabulation will show the sources from which teachers were drawn to constitute the various councils:

COUNCIL.	Number High School Teachers.	Number Intermediate School Teachers.	Total Number on Committee.
Modern language * . . . . .	8	10	18
English . . . . .	7	6	13
Mathematics . . . . .	8 †	2	10
Science . . . . .	5 ‡	6	11
Commercial . . . . .	7	9	16
History-Geography . . . . .	8 §	12	20
Latin . . . . .	7	10	17

\* This council prepared the course of study in French and German and part of the course of study in Italian prepared by Paul V. Donovan, master of the Blackinton School, and the course of study in Spanish prepared by Marie A. Solano, head of the department of Spanish in the South Boston High School.

† Includes the head of department of mathematics in the Boston Normal School.

‡ Includes the head of department of science in the Boston Normal School.

§ Includes the heads of departments in the Boston Normal School in geography, history, and assistant in geography.

Intermediate classes have been developed into intermediate schools of three grades — seventh, eighth and ninth — in ten districts. Boston plans for the present to develop these intermediate schools under the jurisdiction of the masters of elementary districts. Elementary masters are to be the executive heads of these schools. Inasmuch as a considerable part of the work of the intermediate schools is of mutual concern to elementary and high school teachers, the intermediate council, consisting of high school and intermediate school teachers, has been formed to keep in close touch with the work of the intermediate school, in order that the pupil's education begun in any given subject may be a continuous development, unbroken by any sudden change from one type of school to another. It is con-

templated that a representative of each council will visit the instruction in the intermediate school and submit a report to the council for the council's approval. On the basis of the council's action the Board of Superintendents will give or withhold credit in the high school for work done in the intermediate schools.

It is appropriate to close this section with a statement of the fundamental principles underlying the organization of intermediate schools formulated by the Board of Superintendents, to be found on pages 33 and 34 of School Document No. 5, 1916:

The Board of Superintendents is of the opinion:

1. That the principles underlying the organization of intermediate or junior high school classes, as outlined in the aforementioned report,\* are fundamentally and educationally sound.

2. That the experiment as conducted in the seventh and eighth grades of the several elementary school districts in Boston has proven practicable and successful, and warrants extension to include the ninth grade as well.

3. That in the organization of intermediate or junior high school classes, the segregation of all the pupils of the seventh, eighth and ninth grades as a distinct unit, in a separate building, is desirable.

4. That at present it is advisable to retain this intermediate unit as an integral part of the administrative machinery of the elementary school to which it may be attached.

5. That so long as this administrative relationship of elementary and intermediate schools is maintained, unquestionably a financial saving will be effected.

6. That principals and teachers both of elementary and of high schools should view intermediate schools as of mutual educational interest, and should volunteer heartiest professional coöperation.

7. That an ideal organization for a junior high school would seem to call for an independent administration of its own, differing from elementary and high, but embodying the best features of both. The Board of Superintendents desires to reserve its final opinion concerning this type of organization, however, until that proposed in recommendation No. 4 above has been given a satisfactory trial.

8. That as new buildings are erected in districts having intermediate classes, provision be made either in the parent building or in the new one for the segregation of the pupils of the seventh, eighth, and ninth grades, the ninth grade pupils to pursue first-year high school work.

9. That pending the time when such buildings may be completed, the experiment be tried of withholding some ninth grade classes in a few elementary districts where conditions are favorable, and of giving pupils instruction comparable with that of the first-year classes in the high school

#### PRESENT STATUS.

No phase of the discussion of intermediate classes in Boston better illustrates the experimental stage in which such classes

\* In substance a report similar to the report of Assistant Superintendent Burke on the intermediate schools, Appendix B of the Annual Report of the Superintendent, 1915.

are to be found than a description of their present status. As has already been pointed out, 23 of the 68 elementary districts have introduced intermediate school work into Grades VII and VIII. Since the Blackinton School was merged with the John Cheverus District, instruction in Spanish has been dropped from the Blackinton School. The Italian classes in the Eliot School were dropped because a suitable teacher could not be found. In the beginning particular attention was given to instruction in a modern foreign language. Gradually, courses in mathematics, English, science, history, geography, commercial subjects, manual arts for boys, and household arts for girls have been or are being worked out. In some schools instruction in a modern foreign language represents all that has been done. In other schools modifications in the courses of study in language, mathematics, English and history have already been made.

The following tabulation was made from answers to questionnaires sent out by the department of educational investigation and measurement, and may be taken as indicating the modifications which had been made by December 31, 1916, in the various subjects of study in the twenty-three districts indicated.

Table Showing Modifications in Subjects Indicated.

ELEMENTARY DISTRICTS.	Language.	Mathematics.	English.	Others.
Abraham Lincoln.....	French.	No.	No.	
Chapman.....	German.	No.	Yes.	
Dearborn.....	German.	Yes.	Yes.	
Dillaway.....	Spanish.	Yes.	Yes.	
Edmund P. Tileston.....	French.	Yes.	Yes.	Science.
Edward Everett.....	German.	Yes.	Yes.	
Eliot.....	None.	Yes.	Yes.	
Emerson.....	German.	No.	No.	
George Putnam.....	French.	Yes.	Yes.	History.
Hancock.....	Italian.	No.	No.	
Henry L. Pierce.....	French.	Yes.	Yes.	
John Cheverus.....	None.	No.	No.	
John Winthrop.....	Spanish.	Yes.	No.	
Lewis.....	French.	No.	Yes.	
Lowell.....	German.	Yes.	Yes.	
Mary Hemenway.....	French.	Yes.	Yes.	
Norcross.....	Spanish.	No.	No.	
Oliver Hazard Perry.....	Spanish.	No.	No.	
Oliver Wendell Holmes.....	French.	Yes.	Yes.	
Robert G. Shaw.....	German.	Yes.	Yes.	{History. Geography.
Roger Wolcott.....	French.	Yes.	Yes.	
Thomas N. Hart.....	Spanish.	Yes.	Yes.	
Ulysses S. Grant.....	French.	Yes.	Yes.	

The first column gives a list of schools having intermediate classes; the second column indicates the language offered; in the third column "No" means that the mathematics course for intermediate classes has not yet been introduced; "Yes" means

that it has. The column headed English is to be interpreted similarly. In a few schools some modifications have been made in the science, history and geography courses as indicated.

While twenty-three districts have introduced intermediate school work, nevertheless not all pupils in the seventh and eighth grades in these schools are at present participating in such work. The following table shows the number of pupils taking intermediate school work and the number not taking such work in Grade VII and VIII in the districts indicated in the school year 1916-17.

ELEMENTARY DISTRICTS.	GRADE VII.		GRADE VIII.	
	Number Pupils Taking Intermediate School Work.	Number Pupils Not Taking Intermediate School Work.	Number Pupils Taking Intermediate School Work.	Number Pupils Not Taking Intermediate School Work.
Abraham Lincoln.....	55	111	69	123
Chapman.....	43	68	40	83
Dearborn.....	122	49	85	47
Dillaway.....	42	114	35	97
Edmund P. Tileston.....	77	.....	71	.....
Edward Everett.....	84	117	156	.....
Eliot.....	50	100	.....	97
Emerson.....	159	.....	66	33
George Putnam.....	84	* 150	90	† 108
Hancock.....	123	‡ 34	86	.....
Henry L. Pierce.....	82	93	75	110
John Winthrop.....	131	.....	98	14
Lewis.....	201	.....	45	164
Lowell.....	42	74	35	83
Mary Hemenway.....	88	132	92	104
Norcross.....	34	94	23	59
Oliver Hazard Perry.....	40	81	46	.....
Oliver Wendell Holmes.....	290	.....	.....	308
Robert G. Shaw.....	125	38	120	.....
Roger Wolcott.....	128	123	94	141
Thomas N. Hart.....	47	66	37	60
Ulysses S. Grant.....	78	35	108	.....
Totals.....	2,125	1,479	1,471	1,631

\* Includes 32 in rapid advancement class. † Includes 30 in rapid advancement class.

‡ Prevocational class.

The preceding table shows that about 58 per cent of the seventh grade pupils are taking intermediate school work in the schools which offer it, and about 47 per cent of the eighth grade pupils. It is, of course, the expectation that all pupils will ultimately participate in the departmental organization, and that industrial courses and commercial courses will be provided, particularly for those pupils who will not enter high school.

#### TEACHERS.

The procuring of suitable teachers is an important administrative problem. Whether they should be selected from the high schools, or from the elementary schools, or whether special or additional preparation should be required of them, is uncertain. It will be generally agreed that teachers for these schools must be familiar with the spirit and purpose of the intermediate school and realize the opportunity which it offers for improvement of methods of teaching.

At present the teachers of intermediate classes are being selected from among the teachers of upper grade classes in the elementary schools. Although most of them have qualified only for elementary school teaching in Boston, a considerable portion of them have had the necessary college training and teaching experience to make it possible for them to qualify to offer instruction in high schools. In general, they are not surpassed in teaching ability by teachers offering instruction in the high schools.

Great care has been exercised in Boston to select only those teachers who have expressed an interest in the reorganization of Grades VII, VIII, and IX, and whose teaching ability is such as to promise reasonable success in these classes. A letter from Assistant Superintendent Burke, addressed to elementary school principals, will illustrate this point.

The Board of Superintendents is preparing to extend the work in the intermediate classes of the elementary grades by the introduction of a course in mathematics. This course will differ essentially both in content and in methods from the present work in arithmetic, and will include to a considerable extent related arithmetic, algebra and geometry.

The selection of teachers for this departure is as vital as was the selection of teachers for the modern language classes. The teachers should have pursued at least elementary courses in algebra and geometry; but what is infinitely more important, he or she should be mentally receptive of the most progressive thought upon the nature and the scope of mathematics in the intermediate grades. It is proposed that the teachers who are selected for this work shall meet as frequently as bi-weekly with representatives of



the council on mathematics for the intermediate grades for the development and integration of the subject-matter to be presented practically in the class room.

If you yourself are in sympathy with the points of view herein expressed, and if you have in your corps a teacher who has the necessary qualifications for the work, will you kindly send the name of the teacher to me, in order that I may arrange for the conferences.

It is expected that the teachers who begin this pioneer work shall give instruction in mathematics departmentally in the seventh, eighth and ninth grades, when the intermediate or junior high schools are established.

The first part of the above letter emphasizes the care with which teachers have been selected. The second part of the letter indicates a form of training which has been undertaken in order to prepare teachers for their departmental work. Each council is made up of the high school heads of department of a given subject and the teachers of that subject in intermediate classes. Together they go over the course of study, outlining the details of the work to be covered and discussing the methods by which the best results may be secured. These council meetings constitute a fine means of carrying on what might be called "after-training" of teachers for a new line of professional work. The nature of the discussion is such that teachers readily find practical application of the results of the discussion in their class room work.

In addition to the assistance which is being rendered teachers already in the service to qualify for teaching intermediate classes special provision has been made in the Boston Normal School for instructing prospective teachers of modern languages in intermediate schools. This instruction is provided for the college graduate section in the Boston Normal School. Admission is contingent upon the pupil's having pursued intensive courses in foreign language instruction in college and having shown proficiency in those studies. These courses are offered in the afternoon following the regular hours of the Normal School. Teachers of these classes are selected from the high school staff and are teachers who have no superior in their subjects. With the opportunities offered teachers of experience to qualify for instructing intermediate classes, and with the provision in the Normal School for training prospective teachers, it is believed that an adequate corps of teachers may be procured.

Looking toward the preparation of merit lists of prospective teachers for the intermediate schools, the Board of Superintendents offered examinations in January, 1918, by which candidates

might qualify as teachers. While several candidates presented themselves, it is expected that a larger number will do so as soon as the plan has been more fully developed and its details become better known.

#### COURSES OF STUDY.

The following is a list of the courses of study which have been authorized for use in intermediate classes and published by the School Committee:

SUBJECT.	Date of Authorization.	School Document Number.	Year.
French.....	October 18, 1915.....	13	1915
German.....	October 18, 1915.....	13	1915
English.....	September 25, 1916....	9	1916
Mathematics.....	September 25, 1916....	12	1916
Italian.....	September 25, 1916....	13	1916
Spanish.....	September 25, 1916....	14	1916
Science.....	June 14, 1917.....	7	1917
Clerical practice.....	June 26, 1918.....	7	1918

#### METHODS OF INSTRUCTION.

Advocates of the intermediate or junior high school have pointed out that the organization of the intermediate school offers an opportunity for revising fundamentally our courses of study and our methods of instruction, adapting each more nearly to the needs of the pupils. Contemporaneous with the movement for the introduction of intermediate classes and schools into the Boston school system has been carried on an agitation looking toward the improvement of methods of instruction in foreign languages. This was first brought to the attention of the School Committee on November 19, 1914, when Assistant Superintendent Burke discussed a report which he had prepared for the Board of Superintendents on this subject. As a result of that discussion, the Board of Superintendents recommended and the School Committee approved the following:

That oral and aural instruction in foreign languages be emphasized.

That candidates for teaching positions in Boston be examined even more rigidly than heretofore in their ability to speak correctly the modern foreign languages which they aspire to teach.

That pupils in the Normal School who have shown proficiency in the study of a modern foreign language be permitted to continue the study of this

language as a part of their Normal School course, in order to qualify as teachers of a foreign language in our elementary grades.

That the methods pursued with this class of pupils shall be distinctively of the conversational type.

This change in the methods of instruction in modern foreign languages is unique among the subjects offered in the intermediate classes. It is confidently expected that in due time quite as complete a modification of methods of teaching may be found in the instruction offered in several of the other subjects. Unless such changes take place in the methods of instruction, the intermediate school will have missed one of its greatest opportunities.

#### THE WORK OF COUNCILS ON INTERMEDIATE SCHOOLS AND CLASSES.

As a means of coördinating intermediate and high school work councils consisting of representatives from the high school and from the intermediate school were organized. The part that they have played in the organization and establishment of intermediate school work in Boston is so well stated by Assistant Superintendent Burke in his last annual report that his statement is included here in full as follows:

Any discussion of the development and the progress of intermediate schools or classes would be incomplete without recognition of the contribution made toward their success by the various councils on this newer type of schools.

These councils, appointed by the superintendent of schools, are seven in number, namely, Councils on English, on Science, on Modern Foreign Languages, on Mathematics, on History and Geography, on Latin, and on Commercial Subjects. Membership upon these councils includes representative teachers of both high schools and intermediate classes.

During the past few years the Council on English has prepared an admirable course of study for the seventh, eighth and ninth grades of the intermediate classes, while the Council on Modern Foreign Languages and the Council on Mathematics have prepared equally excellent outlines for the seventh and eighth grades. During the past year the Council on Modern Foreign Languages has revised its course of study and included therein work for the ninth grade, and the Council on Mathematics is now engaged in making a similar revision so far as mathematics is concerned. During the past year, likewise, all the other councils — the Councils on History and Geography,

on Latin, on Science, and on Commercial Subjects — have arranged excellent outlines of work in their respective subjects. It should be observed, however, that the study of Latin is restricted to the ninth grade, and that the Council on Commercial Subjects has devoted its energies heretofore chiefly to defining the work in "clerical practice" for the ninth grade classes.

None of these councils are embarrassed by limitations superimposed by school authorities. On their own initiative they are doing constructive pioneer work along original lines. Conferences are held by them frequently, and the entire subject matter of the curricula is being thoroughly reviewed and revised. A notable illustration is the procedure of the Council on Mathematics. This council has undertaken the task of having mathematics taught as a unit in intermediate classes. Making simplified arithmetic a center, the council purposes to associate with arithmetic constructive or intuitional geometry and the elements of algebra. It expects thereby to lead the pupils gradually to an acquaintance with arithmetic, geometry and algebra, not as fragments but as a mathematical unit, and by this means to forestall the dangers and difficulties that confront pupils when they begin the study of algebra and geometry for the first time in the high school course.

In order that the teachers of mathematics in the intermediate classes may realize clearly this newer viewpoint of teaching mathematics, and in order that they may have at hand concretely and in detail subject matter for class room instruction, four members of this council have volunteered to meet in four district divisions all the teachers of mathematics in intermediate grades or classes. As a result of these conferences a body of material will be assembled suitable for presentation to seventh, eighth and ninth grade pupils, and at the same time the most progressive methods of mathematics teaching will become more thoroughly understood and more keenly appreciated.

Thus, during all this period of reconstruction of intermediate school programs, we are deeply indebted to the members of these councils who, not as theorists but as practical school-folk with a vision, are courageously meeting the problems that arise, and in the laboratory of the class room are solving difficulties, discovering new principles and practices, and arriving slowly but sanely at some very definite educational conclusions.

### III. THE EDUCATIONAL SYSTEM OF BOSTON IN ITS RELATION TO INTERMEDIATE SCHOOLS. \*

This section of the report consists of a general survey of those schools which are affected by the establishment of a system of intermediate schools in Boston. Some of the data is to be found in other school documents, but usually not in the form here presented. Some of the data have been collected especially for this study. The statistical facts here presented are necessary as a basis for the discussion in later sections of the report. The subject-matter in this section will be grouped around the following topics:

- The elementary schools.
- The secondary schools.
- The present intermediate classes.

#### THE ELEMENTARY SCHOOLS.

Only those aspects of the elementary school system of Boston are here treated which affect or are affected by the establishment of intermediate schools.

##### 1. *Size and Growth.*

Since it is proposed to organize intermediate schools as a part of the present elementary districts, the size of those districts becomes an important consideration in the establishment of such schools. The following tabulation shows the average number of pupils belonging in each elementary district on June 30, 1916. The districts are grouped according to size. Those followed by an asterisk (\*) now have intermediate classes in Grade VII, or Grade VIII, or both. Those followed by two asterisks (\*\*) also have Grade IX.

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\* This section, as well as the preceding section of this report, was prepared during the school year 1916-17. The figures included are the latest which were then available. The situation which they portray and the conclusions drawn therefrom would not be materially changed if the figures were taken a year later. They are, therefore, printed as they were originally prepared.

TABLE I.

## Average Number of Pupils Belonging June 30, 1916.

[From Annual Statistics, Document No. 16, page 9.]

GROUP I.		John Winthrop ** . . . . .	1,385
Over 2,000 Pupils.		Lawrence . . . . .	1,026
Eight Districts.		Longfellow . . . . .	1,213
Abraham Lincoln ** . . . . .	2,146	Lowell * . . . . .	1,120
Eliot * . . . . .	2,246	Norcross * . . . . .	1,086
Hancock ** . . . . .	2,125	Quincy . . . . .	1,101
Lewis ** . . . . .	2,002	Robert G. Shaw ** . . . . .	1,118
Mather . . . . .	2,278	Theodore Lyman . . . . .	1,379
Oliver Wendell Holmes * . . . . .	3,187	Thomas Gardner . . . . .	1,305
Samuel Adams . . . . .	2,283	Thomas N. Hart * . . . . .	1,077
Wells . . . . .	2,131	Ulysses S. Grant ** . . . . .	1,200
		Warren . . . . .	1,065
		William E. Russell . . . . .	1,101
GROUP II.		GROUP IV.	
1,500 to 2,000 Pupils.		Less than 1,000 Pupils.	
Eight Districts.		Twenty-three Districts.	
Dearborn * . . . . .	1,874	Agassiz . . . . .	717
George Putnam * . . . . .	1,769	Bunker Hill . . . . .	706
Martin . . . . .	1,768	Christopher Gibson . . . . .	931
Mary Hemenway ** . . . . .	1,717	Dwight . . . . .	814
Phillips Brooks . . . . .	1,573	Edmund P. Tileston * . . . . .	718
Roger Wolcott * . . . . .	1,892	Everett . . . . .	755
Washington . . . . .	1,605	Francis Parkman . . . . .	650
Wendell Phillips . . . . .	1,504	{ Frederic W. Lincoln . . . . .	815
		{ Oliver Hazard Perry * . . . . .	842
		Frothingham . . . . .	794
GROUP III.		Gaston . . . . .	968
1,000 to 1,500 Pupils.		Gilbert Stuart . . . . .	988
Twenty-nine Districts.		Harvard . . . . .	764
Bennett . . . . .	1,272	Henry Grew . . . . .	604
Bigelow . . . . .	1,087	Hyde . . . . .	895
Bowditch . . . . .	1,111	Jefferson . . . . .	649
Bowdoin . . . . .	1,063	Minot . . . . .	570
Chapman ** . . . . .	1,121	Prescott . . . . .	757
Charles Sumner . . . . .	1,108	Prince . . . . .	887
Dillaway * . . . . .	1,302	Rice . . . . .	955
Dudley . . . . .	1,322	Sherwin . . . . .	938
Edward Everett * . . . . .	1,459	Shurtleff . . . . .	791
Elihu Greenwood . . . . .	1,177	Washington Allston . . . . .	965
Emerson ** . . . . .	1,309		
Franklin . . . . .	1,186	Total . . . . .	<u>85,884</u>
Henry L. Pierce ** . . . . .	1,481		
Hugh O'Brien . . . . .	1,496		
John A. Andrew . . . . .	1,279		
John Cheverus * . . . . .	1,362		

Regarding the size of districts, it is to be noted that

- 8 districts have more than 2,000 pupils. (Group I.)
- 8 districts have from 1,500 to 2,000 pupils. (Group II.)
- 29 districts have from 1,000 to 1,500 pupils. (Group III.)
- 23 districts have less than 1,000 pupils. (Group IV.)

To date the organization of intermediate classes has been wholly voluntary on the part of the masters and hence there has been a minimum of systematization in the establishment of such classes in adjoining school districts or in different sections of the city. It is encouraging to find, however, that generally speaking the twenty-three districts in which intermediate classes now exist are among the larger elementary districts of the city.

The following table will show the facts:

GROUP.	Total Districts in Group.	Number Districts Having Intermediate Classes.	Per Cent of Districts in Group with Intermediate Classes.
I.....	8	5	63
II.....	8	4	50
III.....	29	12	41
IV.....	23	2	9

The above table shows that five of the eight largest elementary districts already have intermediate classes. At the other extreme it is to be noted that only two of the twenty-three districts with less than 1,000 pupils have started intermediate classes in Grades VII and VIII.

From these facts it would appear reasonable to develop complete intermediate schools first in those districts where intermediate classes already exist, and then as soon as feasible to introduce intermediate classes gradually or wholly into other districts where such classes do not now exist. As will be pointed out later, the size of the elementary district is not the most fundamental consideration in determining the wisdom of establishing intermediate schools, but rather the number of pupils participating in such an organization.

Some sections of the city are growing at a fast rate, whereas in other areas the public school population is steadily decreasing. The figures in the following table show the reason for congestion in some elementary districts and for vacant rooms in other districts.

TABLE II.

Average Number of Pupils Belonging in Elementary Schools in June from 1907 to 1916.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Abraham Lincoln.....	* 879	* 954	* 947	* 940	1,986	2,222	2,237	2,234	2,192	2,146
Agassiz.....	1,400	1,349	832	794	745	711	684	683	709	717
Bennett.....	1,017	1,027	1,043	1,072	1,045	1,049	1,075	1,158	1,235	1,272
Bigelow.....	1,431	1,400	1,335	1,275	1,250	1,215	1,206	1,214	1,144	1,087
Bowditch.....	1,301	1,274	1,235	1,203	1,176	1,098	1,052	1,071	1,081	1,111
Bowdoin.....	1,110	1,079	1,132	1,120	894	945	1,000	1,043	1,081	1,063
Bunker Hill.....	859	837	900	870	803	785	754	746	739	706
Chapman.....	1,227	1,212	1,223	1,210	1,188	1,139	1,157	1,176	1,126	1,121
Charles Sumner.....	1,006	1,037	918	916	936	946	1,029	1,070	1,080	1,108
Christopher Gibson.....	914	913	950	961	860	860	866	864	873	931
Dearborn.....	1,858	1,888	1,911	1,898	1,873	1,818	1,804	1,828	1,843	1,874
Dillaway.....	1,516	1,480	1,420	1,300	1,221	1,241	1,225	1,223	1,240	1,302
Dudley.....	1,586	1,604	1,517	1,660	1,608	1,544	1,541	1,501	1,416	1,322
Dwight.....	1,195	1,155	1,229	1,184	1,136	1,047	962	964	880	814
Edmund P. Tileston.....							520	606	677	718
Edward Everett.....	1,292	1,313	1,334	1,390	1,356	1,389	1,429	1,460	1,460	1,459
Elihu Greenwood.....						560	1,067	1,120	1,140	1,177
Eliot.....	1,994	2,029	2,004	2,037	2,060	2,102	2,146	2,276	2,242	2,246
Emerson.....	1,239	1,270	1,341	1,178	1,161	1,156	1,186	1,246	1,279	1,309
Everett.....	1,092	1,096	1,120	1,096	1,024	984	901	845	828	755
Francis Parkman.....			630	663	648	645	636	643	653	650
Franklin.....	1,530	1,520	1,591	1,601	1,480	1,324	1,238	1,374	1,254	1,186
{Frederic W. Lincoln.....	959	1,003	1,014	1,017	984	964	921	895	866	815
{Oliver Hazard Perry.....	1,156	1,174	1,133	1,108	1,091	1,058	911	892	884	842
Frothingham.....	1,270	1,269	1,245	1,221	1,139	1,002	908	888	869	794
Gaston.....	1,242	1,242	1,250	1,253	1,201	1,136	1,029	986	958	968
George Putnam.....	1,142	1,178	1,198	1,155	1,193	1,234	1,450	1,591	1,661	1,769
Gilbert Stuart.....	845	861	827	822	794	772	817	890	940	988
Hancock.....	1,983	1,941	1,965	1,997	2,020	2,048	2,021	2,204	2,152	2,125
Harvard.....	1,034	1,007	1,019	1,003	976	977	917	858	823	764
Henry Grew.....						302	560	616	603	604
Henry L. Pierce.....	1,018	1,097	1,192	1,245	1,290	1,319	1,320	1,419	1,471	1,481
Hugh O'Brien.....	1,580	1,572	1,555	1,600	1,618	1,552	1,538	1,577	1,549	1,496
Hyde.....	1,137	1,160	1,091	1,078	999	1,022	980	966	942	895

\* Brimmer.



Table II.—*Concluded.*

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Jefferson.....	819	823	779	761	733	686	695	651	646	649
John A. Andrew.....	1,288	1,316	1,383	1,409	1,384	1,379	1,331	1,284	1,299	1,279
{Blackinton.....	993	1,033	1,065	1,207	500	519	568	588	641	692
{John Cheverus.....					681	676	636	677	691	670
John Winthrop.....	1,153	1,192	1,078	1,155	.....	789	1,327	1,313	1,370	1,385
Lawrence.....	1,108	1,087	1,119	1,141	1,102	1,097	1,081	1,085	1,003	1,026
Lewis.....	1,521	1,614	1,635	1,678	1,788	1,841	1,810	1,922	1,981	2,002
Longfellow.....	954	974	949	987	982	1,025	1,081	1,164	1,181	1,213
Lowell.....	1,222	1,177	1,201	1,269	1,187	1,145	1,142	1,127	1,157	1,120
{Comins.....	1,133	1,184	1,281	1,260	1,260	1,196	1,199	1,167	1,133	1,147
{Martin.....	906	835	808	816	784	790	726	706	699	621
Mary Hemenway.....	1,319	1,365	1,403	1,435	1,393	1,420	1,443	1,531	1,642	1,717
Mather.....	1,995	2,044	2,046	2,020	2,091	2,061	2,135	2,256	2,212	2,278
Minot.....	737	763	750	738	665	638	637	602	618	570
Norcross.....	1,170	1,101	1,079	1,086	1,059	1,054	1,069	1,101	1,078	1,086
Oliver Wendell Holmes.....	1,614	1,846	1,977	2,204	2,405	2,559	2,701	2,912	2,985	3,187
Phillips Brooks.....	1,898	1,936	1,960	2,131	2,361	1,722	1,459	1,557	1,568	1,573
Prescott.....	984	946	953	984	962	907	891	851	799	757
Prince.....	1,021	954	900	888	835	882	926	914	902	887
Quincy.....	1,197	1,203	1,239	1,274	1,242	1,246	1,221	1,166	1,145	1,101
Rice.....	723	804	848	933	963	879	907	931	991	955
Robert G. Shaw.....	693	697	767	760	766	797	850	928	1,017	1,118
Roger Wolcott.....	1,581	1,696	1,562	1,689	1,666	1,805	1,459	1,570	1,650	1,892
Samuel Adams.....	1,279	1,307	1,454	1,576	1,640	1,737	1,902	2,256	2,234	2,283
Sherwin.....	1,118	1,122	1,095	1,060	1,018	955	966	942	982	988
Shurtleff.....	889	877	850	847	813	771	741	760	772	791
Theodore Lyman.....	1,875	1,554	2,092	2,174	2,155	1,807	971	1,127	1,321	1,379
Thomas Gardner.....	1,302	1,292	1,247	1,252	1,248	1,214	1,274	1,338	1,322	1,305
Thomas N. Hart.....	1,253	1,181	1,207	1,216	1,165	1,152	1,092	1,094	1,083	1,077
Ulysses S. Grant.....						354	1,246	1,279	1,193	1,200
Warren.....	951	1,046	1,019	1,092	1,062	1,042	1,026	1,039	1,043	1,065
Washington.....	1,993	2,026	2,097	2,009	1,846	1,741	1,692	1,705	1,694	1,605
Washington Allston.....	850	807	791	819	808	807	801	799	915	965
Wells.....	2,294	2,390	2,281	2,164	2,089	2,089	2,265	2,345	2,254	2,131
Wendell Phillips.....	1,301	1,329	1,321	1,355	1,552	1,552	1,567	1,556	1,570	1,504
William E. Russell.....	1,559	1,573	1,484	1,483	1,409	1,319	1,246	1,207	1,190	1,101
Totals.....	80,505	81,435	81,821	82,739	81,369	81,819	83,170	85,577	85,871	85,884

The Oliver Wendell Holmes District numbered 1,614 pupils in 1907 and reached 3,187 pupils in 1916 — an increase of 97 per cent. The Samuel Adams District had 1,279 pupils in 1907 and in 1916 had 2,283 pupils — an increase of 77 per cent. On the other hand, the Dwight School had 1,195 children in 1907 and in 1916 it had only 814 — a decrease of 32 per cent. The Everett School had 1,092 pupils in 1907 and in 1916 it had only 755 — a decrease of 31 per cent. The Oliver Hazard Perry District had 1,156 children in 1907, whereas in 1916 it had only 842 — a decrease of over 27 per cent.

### 2. Number and Distribution of Graduates.

Since the intermediate school is to consist of Grades VII and VIII of the elementary school and the first year of the secondary school, and also because the number of pupils concerned is an important factor in determining the possibility of organizing an intermediate school, it is essential to know the number of graduates in each elementary district. In addition to this it is necessary to know what portion of the elementary school graduates would be likely to participate in the work of an intermediate school if one were organized in the district. The following table gives this information for each elementary district:

TABLE III.  
Number and Distribution of Graduates.

	Total Number of Graduates, June, 1916.	Left Public School System.	Entered Specialized Schools.	Entered General High School.	Probably Moved into Another District.
GROUP I.					
Abraham Lincoln.....	168	43	24	100	1
Eliot.....	76	22	3	51	.....
Hancock.....	85	27	17	38	3
Lewis.....	228	21	33	174	.....
Mather.....	264	55	44	163	2
Oliver Wendell Holmes.....	295	19	22	254	.....
Samuel Adams.....	121	33	13	74	1
Wells.....	109	12	6	89	2
GROUP II.					
Dearborn.....	140	37	20	79	4
George Putnam.....	177	9	40	128	.....

Table III.—Continued.

	Total Number of Graduates, June, 1916.	Left Public School System.	Entered Specialized Schools.	Entered General High School.	Probably Moved into Another District.
Martin.....	158	29	50	79	.....
Mary Hemenway.....	166	15	21	130	.....
Phillips Brooks.....	167	10	16	141	.....
Roger Wolcott.....	163	19	13	129	2
Washington.....	102	20	18	64	.....
Wendell Phillips.....	183	23	11	149	.....
GROUP III.					
Bennett.....	128	13	22	93	.....
Bigelow.....	111	29	12	70	.....
Bowditch.....	71	6	16	49	.....
Bowdoin.....	78	13	10	55	.....
Chapman.....	89	12	14	63	.....
Charles Sumner.....	105	6	17	81	1
Dillaway.....	118	21	21	76	.....
Dudley.....	133	9	30	94	.....
Edward Everett.....	129	16	27	82	4
Elihu Greenwood.....	122	8	5	107	2
Emerson.....	82	9	12	61	.....
Franklin.....	66	7	11	46	2
Henry L. Pierce.....	155	7	14	133	1
Hugh O'Brien.....	155	32	26	96	1
John A. Andrew.....	71	19	14	36	2
John Cheverus.....	108	14	23	71	.....
John Winthrop.....	94	10	7	77	.....
Lawrence.....	71	25	12	34	.....
Longfellow.....	100	8	10	82	.....
Lowell.....	100	14	31	54	1
Norcross.....	74	22	13	38	1
Quincy.....	84	21	6	57	.....
Robert G. Shaw.....	112	17	26	68	1
Theodore Lyman.....	82	32	11	39	.....
Thomas Gardner.....	99	14	18	67	.....
Thomas N. Hart.....	76	12	9	55	.....
Ulysses S. Grant.....	105	20	10	75	.....
Warren.....	109	26	15	68	.....
William E. Russell.....	138	15	22	101	.....

Table III.—*Concluded.*

	Total Number of Graduates, June, 1916.	Left Public School System.	Entered Specialized Schools.	Entered General High School.	Probably Moved into Another District.
GROUP IV.					
Agassiz.....	76	16	16	44	.....
Bunker Hill.....	53	7	10	36	.....
Christopher Gibson.....	80	9	4	67	.....
Dwight.....	44	16	6	21	1
Edmund P. Tileston.....	69	8	7	53	1
Everett.....	70	4	16	49	1
Francis Parkman.....	76	4	11	61	.....
{ Frederic W. Lincoln.....	65	4	24	36	1
{ Oliver Hazard Perry.....	82	6	23	52	1
Frothingham.....	99	14	5	80	.....
Gaston.....	89	12	20	56	1
Gilbert Stuart.....	70	11	15	44	.....
Harvard.....	82	10	18	54	.....
Henry Grew.....	72	14	5	50	3
Hyde.....	59	16	6	37	.....
Jefferson.....	53	13	15	25	.....
Minot.....	72	7	19	46	.....
Prescott.....	79	15	13	51	.....
Prince.....	82	12	8	62	.....
Rice.....	117	20	17	79	1
Sherwin.....	74	9	17	48	.....
Shurtleff.....	68	10	8	49	1
Washington Allston.....	134	19	17	98	.....
Totals.....	7,332	1,107	1,115	5,068	42

The preceding table shows the number of graduates in each elementary district in June, 1916, and what became of them on leaving elementary school. The first column of figures is self-explanatory; each succeeding column is explained in the following paragraphs:

*Left Public School System.*— This column shows the number of pupils who left the public school system in June, 1916, either to go to work, to go to private school, to move out of town, or to remain at home.

*Entered Specialized Schools.*—This column shows the number of pupils in each district who entered the Boston Trade School, the Trade School for Girls, Mechanic Arts High School, or the High School of Practical Arts in September, 1916. The organization of ninth grade classes in any district should be undertaken only when it is reasonably certain that the intermediate school can provide education equivalent to that offered in the first year of high school. Since each of the four schools aforementioned is a school with a highly specialized course of study, planned to meet the needs of groups of pupils with well-defined purposes in view, and provided with special technical equipment, it is not at all likely that these could be duplicated in an intermediate school. Further, it would be an unjustifiable expenditure of public money to attempt to duplicate in the intermediate schools the expensive shop and laboratory equipment of these specialized schools. It is proposed, therefore, to allow those pupils who desire to enter the High School of Practical Arts or Mechanic Arts High School to do so at the end of their eight-year course or to enter the Boston Trade School or the Trade School for Girls without graduation under the same conditions that they do at the present time.

*Entered General High School.*—This column shows the number of pupils in each district who entered a high school in September, 1916, to pursue a general course, a college preparatory course, or a commercial course. Included in this column are the pupils who entered a district high school, or the central high schools, *e. g.*, Public Latin, Girls' Latin, English High, Girls' High, or High School of Commerce. It is believed that the first-year courses offered in any of these schools can be duplicated in the intermediate schools.

The pupils indicated in this column are the only high school pupils with whom the intermediate school is at present concerned. These pupils will be further considered in a later table.

*Probably Moved into Another District.*—This column includes relatively a small number of pupils who moved from one high school district to another between the time of graduation from the elementary school and admission to high school.

The totals of Table III show that of the 7,332 graduates in June, 1916, 1,107, or 15 per cent, left the public school system; 1,115, or 15 per cent, entered specialized schools, and 5,068, or 69 per cent, entered a general high school. Hence, of the 7,332 elementary school graduates of June, 1916, the intermediate school is concerned with 5,068, or 69 per cent of the total.

3. *Number of Pupils and Classes in Grades VII, VIII and IX.*

The complete organization of an intermediate school will consist of those elementary school graduates who contemplate taking a general, college preparatory, or commercial course, together with seventh and eighth grade pupils of the present elementary school. The number of pupils or classes necessary to constitute a successful intermediate school is of fundamental importance. As yet there is no fact basis for determining this number. After careful consideration, approximately ten classes is suggested as a fair minimum number of seventh, eighth, and ninth grade classes necessary for an economic organization. The advisory committee on intermediate schools and the Board of Superintendents have approved this number. This number is suggested merely as a basis of procedure and is subject to change. Varying conditions in different districts make any such standard subject to exceptions.

The following table shows the number of pupils and classes in Grades VII, VIII, and IX (estimated) in each district and the total. The number of pupils and classes in Grades VII and VIII was secured directly from principals in reply to questionnaires No. 1 and 3. The estimate of the number of ninth grade pupils and classes in each district was compiled from the annual statistical document and from the "400" cards in the superintendent's office. The last column in the table shows how many classes there would be if an intermediate school were organized in each district, based on forty or forty-five pupils in a class.

TABLE IV.  
Number of Pupils and Classes in Grades VII, VIII and IX.

	GRADE VII.		GRADE VIII.		GRADE IX.		Total Number Classes VII, VIII, IX.
	Pupils.	Classes.	Pupils.	Classes.	Pupils.	Classes.	
GROUP I.							
Abraham Lincoln.....	216	5	192	4	100	3	12
Eliot.....	129	3	87	2	51	2	7
Hancock.....	159	4	89	2	38	1	7
Lewis.....	195	4½	236	6	174	4	14½
Mather.....	201	5	236	6	163	4	15
Oliver Wendell Holmes.....	351	9	321	8	254	6	23
Samuel Adams.....	145	4	149	4	74	2	10
Wells.....	119	3	121	3	89	2	8

Table IV.—Continued.

	GRADE VII.		GRADE VIII.		GRADE IX.		Total Number Classes, VII, VIII, IX.
	Pupils.	Classes.	Pupils.	Classes.	Pupils.	Classes.	
GROUP II.							
Dearborn.....	175	4	142	3	79	2	9
George Putnam.....	235	6	205	5	123	3	14
Martin.....	147	4	201	5	79	2	11
Mary Hemenway.....	220	5	195	4	130	3	12
Phillips Brooks.....	153	4	145	4	141	3	11
Roger Wolcott.....	250	6	234	5	129	3	14
Washington.....	116	3	112	3	64	2	8
Wendell Phillips.....	158	4	176	4	149	3	11
GROUP III.							
Bennett.....	135	4	172	5	93	2	11
Bigelow.....	143	4	133	4	70	2	10
Bowditch.....	106	2½	104	2	49	1	5½
Bowdoin.....	84	2	86	2	55	2	6
Chapman.....	127	3	115	3	63	2	8
Charles Sumner.....	155	3	108	2	81	2	7
Dillaway.....	158	4	132	3	76	2	9
Dudley.....	106	3	88	2	94	2	7
Edward Everett.....	200	5	156	4	82	2	11
Elihu Greenwood.....	117	3	149	4	107	3	10
Emerson.....	160	4	102	3	61	2	9
Franklin.....	60	2	69	2	46	1	5
Henry L. Pierce.....	177	4	185	5	133	3	12
Hugh O'Brien.....	181	4	184	4	96	2	10
John A. Andrew.....	177	4½	86	2½	36	1	8
John Cheverus.....	132	3½	128	3½	71	2	9
John Winthrop.....	126	3	112	3	77	2	8
Lawrence.....	70	2	71	2	34	1	5
Longfellow.....	149	3	121	2	82	2	7
Lowell.....	118	3	117	3	54	2	8
Norcross.....	129	3	82	2	38	1	6
Quincy.....	98	4*	114	5*†	57	2	11½
Robert G. Shaw.....	160	4	116	3	68	2	9
Theodore Lyman.....	107	3§	95	3§	39	1	7*

\* Includes 2 prevocational classes.

† Includes 1 rapid advancement class.

‡ Includes ½ prevocational classes.

§ Includes 1 prevocational class.

Table IV.—*Concluded.*

	GRADE VII.		GRADE VIII.		Grade IX.		Total Number Classes, VII, VIII, IX.
	Pupils.	Classes.	Pupils.	Classes.	Pupils.	Classes.	
Thomas Gardner.....	135	3	90	2	67	2	7
Thomas N. Hart.....	111	2½	98	2½	55	2	7
Ulysses S. Grant.....	114	3	107	3	75	2	8
Warren.....	87	2	78	2	68	2	6
William E. Russell.....	129	3	127	3	101	3	9
GROUP IV.							
Agassiz.....	78	2	75	2	44	1	5
Bunker Hill.....	67	2	45	2	36	1	5
Christopher Gibson.....	145	3	135	3	67	2	8
Dwight.....	78	2	72	2	21	1	5
Edmund P. Tileston.....	79	2	72	2	53	2	6
Everett.....	87	2	79	2	49	1	5
Francis Parkman.....	65	2	63	2	61	2	6
{ Frederic W. Lincoln.....	87	2	101	3	36	1	6
{ Oliver Hazard Perry.....	131	3	46	1	52	2	6
Frothingham.....	114	3	95	2	80	2	7
Gaston.....	117	3	70	2	56	2	7
Gilbert Stuart.....	126	3	98	2	44	1	6
Harvard.....	83	2	94	2	54	2	6
Henry Grew.....	70	1½	70	1½	50	2	5
Hyde.....	98	2½	68	2	37	1	5½
Jefferson.....	107	2½	59	2	25	1	5½
Minot.....	77	2	73	2	46	1	5
Prescott.....	60	2	90	2	51	2	6
Prince.....	125	3	102	2	62	2	7
Rice.....	102	2½	116	3	79	2	7½
Sherwin.....	51	1½	51	1½	48	1	4
Shurtleff.....	80	2	81	2	49	1	5
Washington Allston.....	128	3	118	3	98	2	8
Totals.....	8,875	221	8,039	202½	5,068	135	558½

Attention has already been called to the fact that the important consideration in determining where to establish intermediate schools is not the size of the elementary district but the number of pupils and classes in Grades VII, VIII, and IX where such a school is contemplated. The force of this will be shown in the following discussion of the four groups of schools.



*Group I.*—Although the Eliot and Hancock Schools have over 2,100 pupils each, there are only seven classes in the seventh, eighth, and ninth grades for an intermediate school organization in either district. In this same group the Lewis and Mather Schools, with approximately the same number of pupils, have fourteen and one half classes and fifteen classes, respectively, for an intermediate school organization. The Wells School, likewise, numbers approximately as many pupils as the Hancock and has only eight classes. The Oliver Wendell Holmes, with over 3,000 pupils, has twenty-three classes for an intermediate school organization. In other words, with 50 per cent larger enrollment, the Oliver Wendell Holmes has more than three times as many classes for an intermediate school as has the Hancock or the Eliot. Of the eight schools in this group, five have ten classes or more and three have fewer than ten classes for an intermediate school organization.

*Group II.*—Considerable variation in number of classes exists among the schools of this group. The Washington, with over 1,600 pupils, has only eight classes for an intermediate school organization, whereas the Wendell Phillips — an adjoining school, with 1,500 pupils — has eleven such classes. The Dearborn District, which is one of the largest in this group, has only nine classes in Grades VII, VIII, and IX. Of the eight schools in this group, six have ten classes or more for an intermediate school organization, and two districts — the Dearborn and the Washington — have only nine and eight classes, respectively.

*Group III.*—The differences in the number of pupils continuing through the seventh and eighth grades and into the high school among the elementary districts in Group III are still more striking than in the preceding groups. The Bowditch, with 1,100 children, would provide only five and one half classes for an intermediate school organization, whereas the Elihu Greenwood District, with the same number of pupils, would provide ten such classes. The Franklin District, with nearly 1,200 children, would provide only five classes, whereas the Bigelow District, with approximately 1,100 children, would provide twice as many classes. Of the twenty-nine elementary districts in this group, only seven would provide ten or more classes for an intermediate school organization, and twenty-two would provide fewer than ten classes.

*Group IV.*—Two districts in Group IV — the Christopher Gibson and the Washington Allston — would provide eight classes for an intermediate school organization — the largest

number in any school in this group. The Sherwin, with approximately the same number of pupils, would provide only four classes for such an organization. Of the twenty-three districts in this group, not a single district would provide ten classes — the number tentatively fixed as a reasonable minimum for the establishment of an intermediate school. It is interesting to note that the Christopher Gibson and the Washington Allston Districts, with less than a thousand pupils, would provide more classes for an intermediate school organization than would the Eliot and the Hancock Districts with two and a half times as many pupils.

From this it becomes clear that the local conditions in each district must be the chief basis for determining the desirability of establishing an intermediate school in that district.

Summary Table.

	Number with 10 Classes or more.	Number with Less than 10 Classes.
Group I — over 2,000 pupils.....	5	3
Group II — 1,500-2,000 pupils.....	6	2
Group III — 1,000-1,500 pupils.....	7	22
Group IV — less than 1,000 pupils.....	0	23
Totals.....	18	50

The preceding table is a summary of the table on pages 48-50 and shows that there are eighteen elementary school districts in Boston which meet the provisional minimum standard of ten classes in Grades VII, VIII, and IX for organizing an intermediate school; and that there are fifty districts, some of them among the largest of the city, which do not reach this minimum standard. The eighteen districts which meet this standard are:

Abraham Lincoln.\*\*  
Bennett.  
Bigelow.  
Edward Everett.\*  
Elihu Greenwood.  
George Putnam.\*  
Henry L. Pierce.\*\*  
Hugh O'Brien.  
Lewis.\*

Martin.  
Mary Hemenway.\*\*  
Mather.  
Oliver Wendell Holmes.\*  
Phillips Brooks.  
Quincy.  
Roger Wolcott.\*  
Samuel Adams.  
Wendell Phillips.

Of these eighteen districts, which as far as number of classes is concerned might qualify for the establishment of intermediate schools, the eight marked with an asterisk (\*) now have intermediate classes in Grades VII and VIII; two asterisks (\*\*) indicate ninth grade also. In addition to completing the organization of intermediate schools in those districts where such classes already exist, it is recommended that steps be taken at once to establish intermediate classes in the other ten districts of this group where the superintendent deems it expedient, looking toward the final establishment of a complete intermediate school in those districts.

#### 4. *Schoolhouse Accommodations.*

This study concerns itself with schoolhouse accommodations exclusively from the standpoint of available rooms for retaining ninth grade pupils in intermediate schools. Rooms may be available for this purpose in present buildings or in buildings now under construction. Both possibilities are here described.

Vacant rooms in present elementary buildings may be due to a purely temporary shift in population or to a relatively permanent reduction in public school population due to actual moving away of people or the attendance of pupils at private schools. One of the most difficult problems in the administration of a public school system is adequate housing of the school children. To solve the problem requires not only keen foresight in determining the trends and shifts of population, but also an adequate plan for getting schoolhouses built. Most cities are still in the stage of attacking the problem; few have solved it. Most cities find themselves in the position of the City of Boston today, with vacant class rooms in one section of the city and the pupils who might occupy them in another section of the city.

Data showing the number of vacant rooms in school buildings is at best only suggestive and is never conclusive or final. If such data were gathered on a different date during the same year or during another school year they would be different. In view of this no attempt has been made to verify the data presented here. The fact that it does not differ materially from similar information collected by the superintendent for another purpose indicates that it is sufficiently reliable for our purpose.

Information in the following table was collected directly from masters in reply to questionnaires sent to them in February and March, 1917. In a few districts vacant rooms are found where

portables are in use. On the other hand, some districts use a class room exclusively for sewing, when most schools carry on sewing in regular rooms. Such conditions have been disregarded because they will offset each other to some extent, and because the information is accurate enough for our purposes.

TABLE V.

## Number of Vacant Rooms by Districts.

GROUP I.		Longfellow . . . . .	0
Abraham Lincoln . . . . .	4	Lowell . . . . .	1
Eliot . . . . .	1	Norcross . . . . .	3
Hancock . . . . .	1	Quincy . . . . .	4
Lewis . . . . .	3	Robert G. Shaw . . . . .	2
Mather . . . . .	0	Theodore Lyman . . . . .	1
Oliver Wendell Holmes . . . . .	0	Thomas Gardner . . . . .	0
Samuel Adams . . . . .	0	Thomas N. Hart . . . . .	0
Wells . . . . .	6	Ulysses S. Grant . . . . .	4
GROUP II.		Warren . . . . .	2
Dearborn . . . . .	0	William E. Russell . . . . .	5
George Putnam . . . . .	0	GROUP IV.	
Martin . . . . .	3	Agassiz . . . . .	0
Mary Hemenway . . . . .	0	Bunker Hill . . . . .	3
Phillips Brooks . . . . .	1	Christopher Gibson . . . . .	0
Roger Wolcott . . . . .	0	Dwight . . . . .	2
Washington . . . . .	2	Edmund P. Tileston . . . . .	1
Wendell Phillips . . . . .	3	Everett . . . . .	5
GROUP III.		Francis Parkman . . . . .	0
Bennett . . . . .	2	{ Frederic W. Lincoln . . . . .	1
Bigelow . . . . .	1	{ Oliver Hazard Perry . . . . .	1
Bowditch . . . . .	0	Frothingham . . . . .	3
Bowdoin . . . . .	0	Gaston . . . . .	0
Chapman . . . . .	0	Gilbert Stuart . . . . .	2
Charles Sumner . . . . .	0	Harvard . . . . .	3
Dillaway . . . . .	0	Henry Grew . . . . .	2
Dudley . . . . .	8	Hyde . . . . .	1
Edward Everett . . . . .	0	Jefferson . . . . .	5
Elihu Greenwood . . . . .	2	Minot . . . . .	0
Emerson . . . . .	0	Prescott . . . . .	3
Franklin . . . . .	4	Prince . . . . .	0
Henry L. Pierce . . . . .	0	Rice . . . . .	3
Hugh O'Brien . . . . .	1	Sherwin . . . . .	1
John A. Andrew . . . . .	1	Shurtleff . . . . .	1
John Cheverus . . . . .	5	Washington Allston . . . . .	0
John Winthrop . . . . .	3	Total . . . . .	<u>112</u>
Lawrence . . . . .	2		

**Summary Table.**

25 districts have 0 vacant rooms.
14 districts have 1 vacant room.
9 districts have 2 vacant rooms
10 districts have 3 vacant rooms.
4 districts have 4 vacant rooms.
4 districts have 5 vacant rooms.
1 district has 6 vacant rooms.
1 district has 8 vacant rooms.

The above table shows that in March, 1917, there were 112 vacant rooms in the sixty-eight elementary districts of Boston; that only twenty-five of the sixty-eight districts had no vacant rooms, and that one district had as many as eight class rooms not in use. The above figures show that there is an average of nearly two vacant rooms per elementary school district throughout the city.

On the other hand, the schoolhouse accommodations in some districts at present are wholly inadequate for the children of the district and only by a wise administrative policy can the School Committee avoid a continuance of this congestion, and in some cases in a much exaggerated form.

The importance of utilizing every one of these vacant rooms where possible is frequently overlooked. At present prices it costs approximately \$12,000 per room to build an elementary school building. If these vacant rooms can be utilized for class room purposes it means a utilization of a room that is now worth \$12,000. These 112 vacant rooms represent to the School Committee a value of \$1,344,000 in physical equipment.

This is important in the plan for establishing intermediate schools, not only because to retain the first-year high school pupils in the intermediate school will require the use of additional rooms, but also because the introduction of a system of intermediate schools into the Boston school system will afford an unparalleled opportunity to make use of many of these vacant rooms. The extent to which this can be done is limited largely by the amount of re-defining of boundaries of elementary districts which the School Committee will permit.

After careful and extended consideration the School Committee declined to approve the recommendation of the superintendent that certain districts in South Boston be consolidated and intermediate schools be established. If the School Committee

continues this policy it means that the number of intermediate schools that can be successfully established is decidedly limited. More recently the School Committee approved the consolidation of two districts in Charlestown, although for the present no intermediate school is contemplated as a result.

In discussing schoolhouse accommodations the number of portable buildings should be considered. Reports to the superintendent of schools, in reply to Circular No. 30, show that there were 122 portables occupied by classes on December 8, 1916. In addition, there were five portable buildings not occupied, making a total of 127 portable buildings used or available for use in the City of Boston. Obviously these portables are largely in use in those districts where there is a rapid growth in school population. For example, in the Mary Hemenway District there were eleven portables and in the Oliver Wendell Holmes there were eleven. The Henry L. Pierce District had thirteen portable buildings in use,—the largest number in use in any one district in the city. In addition, twenty-two classes are accommodated in rented quarters.

To provide adequate schoolhouse accommodations for the children now housed in portable buildings or in rented quarters, new accommodations have recently been completed in the following districts:

16 room building . . . . .	Henry L. Pierce District.
16-room building . . . . .	Mary Hemenway District.
16-room building . . . . .	Robert G. Shaw District.
8-room building . . . . .	Ulysses S. Grant District.

In addition to the above the following accommodations will be ready for occupancy in September, 1918:

8-room building . . . . .	George Putnam District.
8-room building . . . . .	Roger Wolcott District.

In addition to these new school accommodations three buildings or additions have been authorized as follows:

10-room building . . . . .	Dearborn District.
8-room building . . . . .	John Cheverus District.
8-room building . . . . .	Roger Wolcott District.
10-room building . . . . .	Hancock-Eliot District.
24-room building . . . . .	Oliver Wendell Holmes District.

It is to be observed that if all of the buildings now in the process of construction were available for occupancy at once they would not be sufficient to relieve the city of its portable and rented

accommodations. Intermediate schools are contemplated in each one of the above districts, and their establishment is largely contingent on the completion of these buildings.

### 5. *Conclusions.*

As a result of the preceding study the following conclusions have been reached:

1. While the size of a district is to be considered in the establishment of intermediate schools, the number of classes in seventh, eighth, and ninth grades in the district is a matter of more fundamental importance.

2. While eight elementary districts of the city have over 2,000 pupils, three of them probably do not provide the necessary number of seventh, eighth, and ninth grade classes to constitute a satisfactory intermediate school organization.

3. Of the sixty-eight elementary districts only eighteen districts provide the number of seventh, eighth, and ninth grade classes probably necessary to establish a satisfactory intermediate school.

4. Although there are 127 portable buildings in use in elementary districts, and also twenty classes accommodated in rented quarters, there are at the same time 112 vacant rooms in elementary districts throughout the city.

5. At the present cost of schoolhouses these 112 vacant rooms represent an investment of \$1,344,000. Whether these 112 vacant rooms can be utilized for elementary school or intermediate school purposes depends largely on the amount of redefining of elementary districts which the School Committee will approve.

6. The organization of intermediate schools is limited by available rooms; these rooms may be either some of the 112 vacant rooms now existing in certain elementary districts or the rooms provided by newly constructed buildings now in the process of erection.

7. New buildings or additions to old buildings now completed will provide a total of a hundred or more additional class rooms for elementary or intermediate school purposes. If all of these rooms were available for occupancy at once they would not be sufficient to relieve the city of its portable or rented quarters.

### THE SECONDARY SCHOOLS.

Only those aspects of the high and Latin schools of Boston which directly relate to the establishment of intermediate schools will be discussed.

1. *Size and Growth.*

Three of Boston's secondary schools enroll more than 2,000 pupils; three enroll more than 1,000, and the smallest has nearly 500 pupils enrolled. The growth of the secondary schools in Boston has been phenomenal. The average number of pupils belonging on June 30, 1907, was 7,106, and in 1916 it was 16,882. This change represents an increase of 138 per cent in attendance over a period of nine years, and there are those who feel that the maximum increase has not yet been fully reached. This extraordinary growth is not limited to a few schools, but is general throughout the city.

The following table shows the size of each school by years from 1907 to 1916; also the growth of each school over that period and the percentage of increase in average number belonging in 1916 over 1907.

TABLE VI.  
Average Number of Pupils Belonging in High and Latin Schools in June from 1907 to 1916.

SCHOOL.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	Per Cent Increase 1916 Over 1907.
Public Latin.....	568	587	667	761	756	762	773	774	870	970	71
Girls' Latin.....	392	473	568	620	656	597	577	613	626	686	75
Brighton High.....	263	294	338	325	344	348	358	404	444	546	108
Charlestown High..	246	299	366	422	478	434	399	373	452	487	98
Dorchester High...	1,110	1,074	1,127	1,350	1,408	1,575	1,666	1,810	2,108	2,288	106
East Boston High..	344	386	436	496	545	531	559	632	781	894	159
English High.....	903	919	1,030	1,259	1,480	1,679	1,742	1,834	2,046	2,151	138
Girls' High.....	1,049	1,070	1,308	1,531	1,739	1,852	1,924	2,052	2,089	2,074	98
High School of Commerce.....	126	310	493	666	785	911	1,015	1,181	1,332	1,531	1,115
High School of Practical Arts.....		95	220	346	460	530	584	690	751	728	* 666
Hyde Park High.....						225	382	447	500	612	† 163
Mechanic Arts High.	672	727	985	1,252	1,301	1,329	1,270	1,390	1,257	1,110	65
Roxbury High.....	577	600	722	787	856	769	773	915	967	1,077	86
South Boston High.	472	498	556	652	678	712	663	624	803	962	104
West Roxbury High.	384	414	499	583	635	639	646	654	688	766	73
Totals.....	7,106	7,746	9,315	11,050	12,121	12,893	13,331	14,393	15,714	16,882	138

\* Increase 1916 over 1908.

† Increase 1916 over 1912.



## 2. *Schoolhouse Accommodations.*

The extraordinary growth of high and Latin schools has greatly overtaxed the schoolhouse accommodations for high school pupils. In marked contrast with the situation in the elementary schools, in the fifteen high and Latin schools there are only two unused class rooms and one of these is a basement room. In addition, twelve classes occupy basement rooms; twenty-two classes recite in corridors or libraries, or in rooms not intended for recitation purposes; three classes are in portable buildings, and one class is in rented quarters.

Further, at the beginning of the school year 1916-17, Dorchester High School, English High School, South Boston High School, and West Roxbury High School were organized on the double shift or two-session plan, thereby undertaking to utilize the facilities of the building during a longer school day. South Boston High School has since been reorganized according to a normal program, but the other schools continued to operate a double session plan throughout the school year. In addition, the East Boston High School has an annex of four classes located in the Paul Jones building, some distance from the main school.

To provide more class rooms for high school purposes an addition to the Hyde Park High School is now being built. The School Committee has also authorized the purchase of land for a new building for the Public Latin School, thereby releasing the whole building now occupied by the Public Latin and the English High School for the work of the English High School alone.

In view of the overcrowded conditions in our high school buildings, it is clear that the buildings now being erected, and those contemplated in the near future, will be wholly inadequate to bring the desired relief to the high schools in order that they may return to normal plans of organization and administration. Necessary high school relief may come from the establishment of intermediate schools, thereby relieving high schools of some of the first-year pupils by retaining them in the intermediate schools. The establishment of intermediate schools could scarcely be justified as a means of relieving congestion in senior high schools; nevertheless, it is fortunate that intermediate schools are being established in Boston at this time, and that they will make it possible not only to utilize to a larger extent elementary school buildings, but will reduce the number of pupils attending the senior high schools and thereby relieve congestion in those schools.

### 3. Number of First-year Pupils.

A study of the number of pupils entering high schools to take first-year work will show the possibilities of providing relief for the high schools through the establishment of intermediate schools. The following table will furnish the basis for such a study.

TABLE VII.  
Number of Pupils Admitted in September, 1916.

SCHOOL.	Summer Review School.	Evening Elementary School.	Graduates Prior to 1916.	Out-of-town or Private Schools.	Regular Elementary Schools.	Total Admissions.
Public Latin.....	2	.....	.....	17	227	246
Girls' Latin.....	.....	.....	.....	8	95	103
Brighton High.....	2	.....	2	8	185	197
Charlestown High.....	.....	.....	2	1	255	258
Dorchester High.....	15	.....	1	21	654	691
East Boston High.....	10	.....	2	7	346	365
English High.....	10	2	10	15	644	681
Girls' High.....	8	.....	1	18	728	755
High School of Commerce.....	6	.....	8	11	593	618
High School of Practical Arts.....	3	.....	1	5	169	178
Hyde Park High.....	4	.....	1	6	271	282
Mechanic Arts High.....	4	1	2	5	323	335
Roxbury High.....	.....	.....	.....	9	397	406
South Boston High.....	2	1	1	1	360	365
West Roxbury High.....	3	.....	.....	3	301	307
Totals.....	69	4	31	135	5,548	5,787

As the table shows, 5,787 pupils entered the fifteen high schools of Boston in September, 1916. Sixty-nine of these came from the summer review schools; thirty-one were elementary school graduates of a previous year; 135 came from out of town, or from private schools, and 5,548 were graduates of the elementary schools in June, 1916. It is clear, therefore, that most of the pupils admitted to the first-year class of the high schools are graduates of the preceding June. Any plan which contemplates retaining any portion of the graduates of the elementary school in interme-

diated schools for ninth-year work will directly reduce the number of pupils taking first-year high school work in senior high schools.

#### THE PRESENT INTERMEDIATE SCHOOLS.

At present there are ten elementary school districts in which ninth grade classes have been organized. The following table gives a list of these schools together with the number of ninth grade pupils in each school:

SCHOOL	Number of Pupils in Ninth Grade, June, 1918.
Abraham Lincoln.....	73
Chapman.....	54
Emerson.....	68
Hancock.....	28
Henry L. Pierce.....	119
John Winthrop.....	53
Lewis.....	136
Mary Hemenway.....	112
Robert G. Shaw.....	59
Ulysses S. Grant.....	43
Total.....	745

From the standpoint of relieving overcrowded high schools the above table is interesting. The table shows that 745 pupils have been receiving high school instruction in intermediate schools and that the high schools have been correspondingly reduced in enrollment by virtue of that fact. Approximately 150 pupils will be added to that list during the school year 1918-19 as a result of the inauguration of the ninth grade work in the George Putnam District in September, 1918.

#### IV. ORGANIZATION AND ADMINISTRATION OF INTERMEDIATE SCHOOLS IN BOSTON.

##### ASSISTANT SUPERINTENDENTS IN CHARGE.

The administration of intermediate schools is closely associated with the administration of both elementary and high schools.

This fact is recognized by the assignment of assistant superintendents. Assistant Superintendents Burke and Ballou have been assigned to problems of high school organization, with Mr. Burke assuming the leadership. Assistant Superintendents Ballou and Burke have been assigned to problems of intermediate school organization, with Mr. Ballou assuming the leadership.

#### ENDORSEMENT OF INTERMEDIATE SCHOOLS AND RAPID ADVANCEMENT CLASSES.

At the meeting of the Board of Superintendents on June 19, 1918, the Board of Superintendents reaffirmed its strong belief in the intermediate school as a means of bringing about needed educational reorganization in the upper grades of the elementary school and in the secondary school. The Board also adopted a general comprehensive plan of administration. Such a plan is needed at once for the operation of those schools which have retained the ninth grade and will serve as a guide for those schools which contemplate such action.

Further, the Board recorded its unqualified approval of the idea underlying the establishment of rapid advancement classes. The Board believes that such classes have fully demonstrated the possibility of selected pupils completing successfully the prescribed courses of study in a shorter time than the majority of pupils can. The Board recognizes that the rapid advancement class does not readily find a place in a school organized as the intermediate school is organized; *i. e.*, with departmental teaching, promotion by subject, and differentiation of work. The Board believes that flexibility of administration is one of the cardinal principles of successful school administration and looks forward to the immediate adoption of a plan of administration for the intermediate schools in which pupils of demonstrated ability may find opportunity to complete the combined six-year course of intermediate and high school in five years.

#### COURSES OF STUDY, GRADE IX.

Differentiation of pupils according to their capacities, interests, and probable future educational careers is one of the fundamental characteristics of a satisfactory intermediate school organization. In most cases differentiation may begin as early as the seventh grade, and will naturally be more marked in Grades VIII and IX as pupils become more mature. The usual courses offered in the

first year of the general high school have been adapted to intermediate school organization and should be gradually extended to Grades VIII and VII.

The following courses of study for Grade IX were recommended by the Board of Superintendents, the superintendent of schools, and authorized for use by the School Committee at its meeting, June 26, 1918.

**Academic Course.**

SUBJECT REQUIRED.	Number of 30-Minute Periods per Week in Intermediate Schools.	High School Diploma Points.
Art appreciation.....	2	1
Choral practice.....	1	1
Hygiene-physiology.....	1	1
Physical training.....	3	2
English.....	7	5
Foreign language.....	7	5
<i>Elective: At least one.</i>		
Modern foreign language.....	7	5
Mathematics.....	7	5
Introductory science.....	4	3
Ancient history.....	4	3

NOTES.

- (1) Normal preparatory pupils would take mathematics and history.
- (2) Drawing might be offered as an elective.

## Commercial Course.

SUBJECT REQUIRED.	Number of 30-Minute Periods per Week in Intermediate Schools.	High School Diploma Points.
Art appreciation.....	2	1
Choral practice.....	1	1
Hygiene-physiology.....	1	1
Physical training.....	3	2
English.....	7	5
Clerical practice.....	7	5
<i>Elective: At least one.</i>		
Modern foreign language.....	7	5
Mathematics.....	7	5
Introductory science.....	4	3
Industrial Boston and civics.....	4	3

NOTE.—(1) Ancient history, 3 or 5 points; freehand drawing, 3 points, and domestic art, 3 points, might be offered.

## Industrial Course (Boys).

SUBJECT REQUIRED.	Number of 30-Minute Periods per Week in Intermediate Schools.	High School Diploma Points.
Art appreciation.....	2	1
Choral practice.....	1	1
Hygiene-physiology.....	1	1
Physical training.....	3	2
English.....	7	5
Shop and drawing.....	15	7
Industrial Boston and civics.....	4	3
<i>Elective: Select one.</i>		
Related mathematics.....	5	4
Applied science.....	4	3

## Industrial Course (Girls).

SUBJECT REQUIRED.	Number of 30-Minute Periods per Week in Intermediate Schools.	High School Diploma Points.
Art appreciation.....	2	1
Choral practice.....	1	1
Hygiene-physiology.....	1	1
Physical training.....	3	1
English.....	7	5
Household science and arts.....	15	7
<i>Elective: Select two.</i>		
Industrial Boston and civics.....	4	3
Household mathematics.....	5	4
Applied science.....	4	3
Salesmanship.....	7	3

One of the most serious problems of administration confronting those in charge of intermediate schools has been the determination of an equitable arrangement for the carrying on of ninth grade work in intermediate schools and the securing of proper credit in the senior high schools for such work. Obviously the problem is one which concerns not only the intermediate schools but the high schools as well. Whatever plan is adopted must give due consideration to the interests of both types of school. To this end, at its meeting on January 24, 1918, the Board of Superintendents

*Voted,* That for the present and until the administrative needs of the intermediate schools are more clearly apparent, ninth grade classes shall be subject to all administrative regulations \* governing first-year work in Latin and day high schools, among which are:

(a) A full year's work consists of twenty points. (A point is the amount of prepared work represented by one period a week for one year in any subject.)

(b) A pupil of good health and ability may, for good reasons, be permitted to take more than the regular amount of work. All assignments of work exceeding twenty-five points must be recommended by the principal and approved by the assistant superintendent in charge of intermediate schools before being entered upon.

\* Until otherwise ordered, when the elementary school is dismissed by the no-school signal all junior high school classes will likewise be dismissed.

(c) A pupil may be permitted at any time during the school year, for reasons satisfactory to the parent or guardian, or to the principal, to take less than the regular amount of work, and this reduction may be required by the principal in case of unsatisfactory work in more than one subject.

(d) Prescribed work for ninth grade classes is as follows:

Physical training . . . . .	2 points.
Hygiene . . . . .	1 point.
English . . . . .	5 points.

(For other regulations see courses of study for intermediate schools.)

(e) Change from one elective subject to another is not permitted after the end of September, except when such a change is made necessary by the discontinuance of a class.

(f) Pupils who have completed two years of instruction in a modern foreign language in Grades VII and VIII of a Boston intermediate or elementary day school shall be credited with five points therefor toward a high school diploma on the recommendation of the Board of Superintendents.

The above statement clearly indicates that the Board of Superintendents does not necessarily look upon this administrative arrangement as permanent or final. It will be subject to modification from time to time as changes appear to be justifiable or necessary. Whatever modifications may ultimately be necessary, the plan of administering ninth grade work in intermediate schools, as provided above, is fair and just to all concerned. It places ninth grade work in intermediate schools under the same administrative arrangements that now govern corresponding work in high schools. Under this arrangement high schools have no advantage over intermediate and *vice versa*.

Beginning in September, 1918, and continuing until otherwise ordered, instruction in the appreciation of art shall be provided for all ninth grade intermediate classes, and sixty minutes per week shall be devoted to this subject.

Instruction in the subject will be planned primarily to develop appreciation of beauty in nature and the arts and will be under the direction of the director of manual arts and members of his department. One high school diploma point will be allowed for the subject.

The Board of Superintendents has determined:

1. That diploma points obtained for community civics by ninth grade pupils in intermediate schools shall satisfy the three-point history requirement for the high school diploma.

2. That diploma points obtained for introductory science in the ninth grade of intermediate schools shall satisfy the science requirement for the high school diploma.



TIME ALLOTMENTS, GRADES VII AND VIII.

The following time allotments for Grades VII and VIII in intermediate schools are those suggested for Grades VII and VIII for all schools of the city. As in the case of the time allotments for preceding grades, minimum, suggested, and maximum time allotments are given. These time allotments show the latitude which may reasonably be permitted in the time allotments of various subjects in Grades VII and VIII of intermediate schools and classes.

Time Allotment — Grade VII.

SUBJECT.	MINUTES PER WEEK.		
	Minimum.	Suggested.	Maximum.
Arithmetic.....	180	180	210
Drawing.....	75	90	120
Elementary science.....	45	60	60
English, spoken and written:			
(a) Composition, 50 per cent oral and 50 per cent written.....	75	90	120
(b) Dictation.....	30	30	50
(c) Corrective work (includes spelling).....	30	30	45
(d) Grammar.....	30	60	60
Geography.....	120	150	175
History.....	90	120	120
Household science and arts (girls*).....	90	90	120
Manual training (boys).....			
Hygiene and physiology.....	60	60	75
Music.....	45	60	75
Opening exercises.....	25	25	50
Penmanship.....	45	60	75
Physical training.....	60	75	90
Reading and literature.....	150	150	180
Recesses.....	100	100	100
Spelling.....	30	30	30
Optional. (For modern foreign language, clerical practice, or industrial work.).....	220	40	.....
Totals.....	1,500	1,500	

\* The suggested time allotment for household science and arts and for manual training is ninety minutes, instead of 120 minutes as formerly. This reduction in time makes it possible to provide for two classes in these subjects in the morning, instead of only one class as at present. The maximum time allotment of 120 minutes makes it possible to continue the former time allotment where that is desirable.

## Time Allotment — Grade VIII.

SUBJECT.	MINUTES PER WEEK.		
	Minimum.	Suggested.	Maximum.
Arithmetic.....	180	180	210
Drawing.....	75	90	120
Elementary science.....	45	60	60
English, spoken and written:			
(a) Composition, 50 per cent oral and 50 per cent written.....	75	90	120
(b) Dictation.....	30	30	50
(c) Corrective work (includes spelling).....	30	30	45
(d) Grammar.....	30	60	60
Geography.....	120	150	175
History.....	90	120	120
Household science and arts (girls*).....	90	90	120
Manual training (boys).....			
Hygiene and physiology.....	60	60	75
Music.....	45	60	75
Opening exercises.....	25	25	50
Penmanship.....	30	30	60
Physical training.....	60	75	90
Reading and literature.....	150	150	210
Recesses.....	100	100	100
Spelling.....	30	30	30
Optional. (For modern foreign language, clerical practice, or industrial work.).....	235	70	.....
Totals.....	1,500	1,500	.....

\* The suggested time allotment for household science and arts and for manual training is ninety minutes, instead of 120 minutes as formerly. This reduction in time makes it possible to provide for two classes in these subjects in the morning, instead of only one class as at present. The maximum time allotment of 120 minutes makes it possible to continue the former time allotment where that is desirable.

As in the syllabuses already published for Grades I to VI, inclusive, optional time is provided — forty minutes in Grade VII and seventy minutes in Grade VIII. With this optional time and by assigning to some of the subjects the minimum time allotments provided, it will be possible for each elementary master to provide time for a modern foreign language, for clerical practice, or for industrial work in addition to the subjects in the present course of study in Grades VII and VIII. The remainder of the optional time, if any, may be distributed as conditions dictate. Where possible it is suggested that the time devoted to English in Grades VII and VIII be increased over and above the suggested time.

POINT SYSTEM OF CREDIT ADOPTED.

The Latin schools have a course of study which is largely prescribed and which must be completed satisfactorily for a diploma. The general high schools have a series of curricula which allow pupils some electives. Each subject pursued is allowed diploma points in accordance with its estimated value and the time devoted to it in the school. In view of the desirability of providing a variety of work in the intermediate school, in the pursuit of which pupils will be allowed some freedom of choice, a point system of credit for work accomplished by pupils was necessary. The general plan of administration adopted by the Board of Superintendents makes the following provisions:

1. That a point system, similar to the high school system of diploma points, be adopted for intermediate schools.
2. That pupils completing intermediate and high school courses of study be required to earn at least 100 diploma points.
3. That the diploma points in the last three years of the high school remain the same as at present.
4. That the diploma points in the three years of the intermediate schools be distributed by subjects and years as follows:

SUBJECT.	GRADES.	
	VII-VIII.*	IX.
Drawing .....		3
English.....		5
Geography } .....		3
History } .....		
Household arts } .....		
Manual training } .....		
Hygiene and physiology .....		1
Mathematics .....		5
Music.....		1
Penmanship.....		
Physical training .....		2
Science.....		3
Latin .....		5
Modern foreign language or clerical practice.....		5
Prevocational. (Undetermined).....		
Totals.....		20-25

\* Since the time allotments and diploma points are now being revised, they are omitted here and will be furnished to principals later.

CREDIT IN SENIOR HIGH SCHOOL FOR WORK DONE IN  
INTERMEDIATE SCHOOLS.

By the rules of the School Committee the superintendent of schools is charged with the responsibility of awarding diplomas for the completion of work done in elementary or high schools. At the request of the superintendent of schools the Board of Superintendents considered the question of the amount of credit which pupils should be given in the senior high school for work done in intermediate schools. A conference committee is now working on this question and the results will be reported to principals later.

DEPARTMENTAL ORGANIZATION.

The most common characteristic of all intermediate or junior high school organization throughout the country is that of departmental teaching. It is felt that through a departmental organization teachers will bring greater interest to a few subjects than they can now bring to the large number of different subjects which elementary school teachers must teach in the usual class organization. More interest on the part of teachers should generate greater effort and produce better results.

All pupils in Grades VII and VIII in schools where intermediate classes have been organized and all pupils in Grades VII, VIII, and IX in intermediate schools are expected to participate in the departmental organization. Courses of study for intermediate schools have been arranged, covering:

- A. An academic course — for college preparatory students.
- B. A commercial course — for those planning to pursue commercial work in the high school or to leave school at an early date.
- C. Industrial (boys) or household arts (girls) courses — primarily for those who will not complete a high school course.

It is believed that most pupils will find their proper place in some one of these three lines of work.

It is desirable that the departmental plan of organization be limited in Grade VII, should be increased in Grade VIII, and should be approximately the same as in high schools in Grade IX. It is suggested that a pupil should not have more than three teachers in Grade VII (exclusive of special teachers of music,

manual training, and household arts), and in Grade IX not more than he will meet in the high school.

#### RECITATION PERIODS.

The high school day in Boston is usually divided into periods of forty to forty-five minutes each. There is no such uniformity in the amount of time devoted to the various subjects in the elementary school; most subjects receive less than thirty minutes and only a few subjects have periods of forty minutes. The departmental organization of intermediate schools requires a uniform length of period. Forty or forty-five minutes is probably too long a period for seventh-grade pupils. Something in the nature of a compromise, therefore, between the forty-minute period of the high school and the short periods of the elementary school suggests itself for the intermediate school.

A uniform period of thirty minutes in length in Grades VII, VIII, and IX is suggested. Reasonable deviations from thirty-minute periods may be approved by the assistant superintendents in charge. In view of this length of period and also in view of the forty-five minute period in the high schools, it is necessary to increase the number of periods per week in the ninth grade over the number in the high school, in order to give as much time to the various subjects in the intermediate school as is now given them in the high school. The course of study for Grade IX, intermediate schools, makes this provision.

#### DAILY PROGRAM.

The following schedule of a daily program will show how the thirty-minute periods may be provided for. In this schedule one minute has been allowed for the passing of classes. This probably is not sufficient in some cases, but masters may modify this schedule to meet local conditions.

A full period of thirty minutes should not be devoted to a subject like spelling or penmanship, but two such subjects may reasonably be taught by the same teacher within a thirty-minute period. It is suggested, also, that intermediate school principals consider the advisability of setting aside some period of the day when all of the pupils of a given grade can be assembled for choral practice, physical training, hygiene, and the new required course in art instruction.

**Schedule of Periods for Daily Program in Intermediate Schools.**

9.00 to 9.05 . . . . .	Opening exercises.
9.06 to 9.36 . . . . .	First period.
9.37 to 10.07 . . . . .	Second period.
10.08 to 10.38 . . . . .	Third period.
 10.38 to 10.58 . . . . .	 Morning recess.
10.59 to 11.29 . . . . .	Fourth period.
11.30 to 12.00 . . . . .	Fifth period.
 12.00 to 1.27 . . . . .	 Noon recess.
1.27 to 1.57 . . . . .	Sixth period.
1.58 to 2.28 . . . . .	Seventh period.
2.29 to 2.59 . . . . .	Eighth period.
3.00 to 3.30 . . . . .	Ninth period.

**ADMISSION, GRADING, CLASSIFICATION, AND SCHOLARSHIP  
RECORDS OF PUPILS.**

Pupils who have completed satisfactorily the course of study for the sixth grade of elementary schools are eligible for admission to intermediate schools.

Concerning the grading and promotion of pupils the Board of Superintendents made the following provisions:

1. Promotion by subject shall be established in all intermediate schools.

2. A grade of "C" shall be considered a passing grade in the following scale of rating:

A — Excellent.	D — Unsatisfactory.
B — Good.	E — Failure.
C — Passable.	

3. Pupils who earn thirty-five of the diploma points in the intermediate school shall be considered as having satisfactorily completed the course of study for said schools.

In all official reports pupils shall be reported as of their lower grade until they shall have made up all work of that grade, *i. e.*, pupils of the seventh grade failing in a subject and being advanced to the eighth grade in other subjects shall be reported as seventh grade pupils.

Looking toward the time when the Boston school system shall be considered as consisting of twelve years of continuous work, at a meeting held March 15, 1918, it was voted that the Board of

Superintendents adopt as an administrative policy the minimizing of giving formal diplomas and the holding of graduating exercises both in elementary and intermediate schools.

In view of the fact that the intermediate school consists of three grades (VII, VIII, and IX) no diplomas will be given pupils on completing the eighth grade. The giving of diplomas on the completion of ninth grade work is optional with the master.

Attention is called to the new "Certificate of Accomplishment in Day Elementary, Intermediate or High Schools," which has been provided for pupils who leave school permanently or upon the completion of the course of study in a given school; for example, a pupil who leaves school permanently to go to work may be given this certificate, indicating the stage of progress which he has reached when he leaves school, or a pupil who leaves an intermediate school at the end of the eighth grade to go to a specialized high school may be given such a certificate. The certificate will be more generally used for pupils who complete the ninth grade of an intermediate school where diplomas are not given.

Principals of intermediate schools will prepare scholarship records of all pupils who have pursued ninth grade work on Z blanks provided for that purpose.

Until further notice, and for the purpose of making possible comparisons with elementary school graduates, Z blank records will also be required, showing scholarship records of pupils who have pursued eighth grade work in intermediate schools.

#### ADMISSION OF PUPILS TO HIGH AND LATIN SCHOOLS FROM INTERMEDIATE SCHOOLS.

Pupils who complete eighth grade work in intermediate schools may be transferred to specialized high schools, viz., High School of Practical Arts and Mechanic Arts High School, or to the coöperative industrial course in any general high school. If they are fourteen years of age they may also be admitted to the Trade School for Girls or the Boston Trade School. A pupil who desires to attend either of the Latin schools may be so transferred by the assistant superintendent in charge of intermediate schools, provided in his judgment his scholastic record in the intermediate schools is such as to indicate probable success in the pursuit of Latin school work. All other pupils in intermediate schools will continue through the ninth year in those schools.

Transfers from the eighth grade of the intermediate schools to

the Latin schools should be the exception rather than the rule, because pupils who intend to pursue work in the Latin schools should elect to attend those schools at the end of the sixth grade rather than at the end of the eighth grade.

On completion of ninth-year work in the intermediate school pupils are admitted to the senior high school on the regular "400" card prescribed by the superintendent's office for all admissions to high school. According to instructions issued by the superintendent's office, masters will certify to the scholarship records of such pupils, and the record of scholarship and the admission to high school of such pupils must be approved by the superintendent's office.

#### PREPARATION OF TEACHERS.

From the beginning it has been recognized that the success of the intermediate school, as indeed the success of any school, depends primarily on the teacher. Unusual care has, therefore, been exercised in the selection of teachers for intermediate school work.

It seems appropriate, also, to call attention here to the plan which has been approved by the Board of Superintendents for the training of intermediate school teachers in the Normal School. The plan provides:

1. That Normal School students with special aptitude be given instruction in major subjects, chosen by them, at the beginning of the third year, with the exception of modern languages, which shall be begun at the beginning of the second year.

2. That courses in the following subjects be offered senior students:

History-geography.  
English.  
Modern languages.

Mathematics.  
Science.

3. That adjustment of the practice work be made to permit opportunities for observation and practice in intermediate classes.

4. That courses subsequent to graduation be established by the Board of Superintendents covering the above-named major subjects.

Attention is also called to the fact that teachers who have had two years of experience in the Boston schools are eligible to take the examination for the intermediate school certificate, which qualifies holders to teach in Grades VII, VIII, and IX of intermediate schools.



## OUTLINES OF WORK FOR INTERMEDIATE SCHOOLS AND CLASSES.

As has been indicated elsewhere, revised outlines of work have been prepared, covering many of the subjects of study in intermediate schools. All teachers are expected to follow the outlines which have appeared and to adopt for use at once any outlines which may hereafter be prepared.

## ELIMINATION OF GERMAN.

The Board of Superintendents will not approve of the extension of the study of German in elementary or intermediate schools. In those intermediate and elementary schools where German is now offered teachers should not stimulate additional pupils to pursue this language. Pupils who have begun the study of the German language, however, may be expected to complete enough work in this subject so that their securing of a diploma from the high school in the prescribed time will in no way be jeopardized.

# ANNOUNCEMENT.

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Bulletins published by the department are distributed by the Secretary of the School Committee, who will, so far as the supply on hand permits, fill mail applications for copies when such requests are accompanied by the price indicated.

- No. I. Provisional Minimum and Supplementary Lists of Spelling Words for Pupils in Grades I to VIII.  
School Document No. 8. 1914. *Out of Print.*
- No. II. Provisional Minimum Standards in Addition, Subtraction, Multiplication and Division for Pupils in Grades IV to VIII.  
School Document No. 9. 1914. *Out of Print.*
- No. III. Educational Standards and Educational Measurement.  
School Document No. 10. 1914. *Out of Print.*
- No. IV. Spelling. Determining the Degree of Difficulty of Spelling Words.  
School Document No. 10. 1915. *Out of Print.*
- No. V. Geography. A Report on a Preliminary Attempt to Measure Some Educational Results.  
School Document No. 14. 1915. *Out of Print.*
- No. VI. English. Determining a Standard in Accurate Copying.  
School Document No. 2. 1916. Price, 7 cents.
- No. VII. Arithmetic. Determining the Achievement of Pupils in the Addition of Fractions.  
School Document No. 3. 1916. Price, 7 cents.
- No. VIII. Report on High School Organization and Expenditures, 1916.  
Printed for local distribution only.
- No. IX. Penmanship. Determining the Achievement of Elementary School Graduates in Handwriting.  
School Document No. 6. 1916. Price, 7 cents.
- No. X. Arithmetic. The Curtis Standard Tests in Boston, 1912-1915. An Appraisal.  
School Document No. 15. 1916. Price, 7 cents.
- No. XI. Spelling. The Teaching of Spelling.  
School Document No. 17. 1916. *Out of Print.*
- No. XII. Standards in Silent Reading, With Suggestions on How Teachers May Test Their Pupils in Silent Reading.  
School Document No. 18. 1916. *Out of Print.*
- No. XIII. Arithmetic. The Value to the Teacher, to the Principal, and to the Superintendent of Individual and Class Records from Standard Tests.  
School Document No. 22. 1917. Price, 7 cents.
- No. XIV. A Plan for the Promotion of Teachers from Merit Lists.  
School Document No. 2. 1918. Price, 7 cents.
- No. XV. Arithmetic. Determining the Achievement of Pupils in Common Fractions.  
School Document No. 5. 1918. Price, 7 cents.
- No. XVI. English. Determining the Achievement of Pupils in Letter Writing.  
School Document No. 6. 1918. Price, 7 cents.
- No. XVII. Organization and Administration of Intermediate Schools in Boston.  
School Document No. 13. 1918. Price, 7 cents.







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