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REPORT

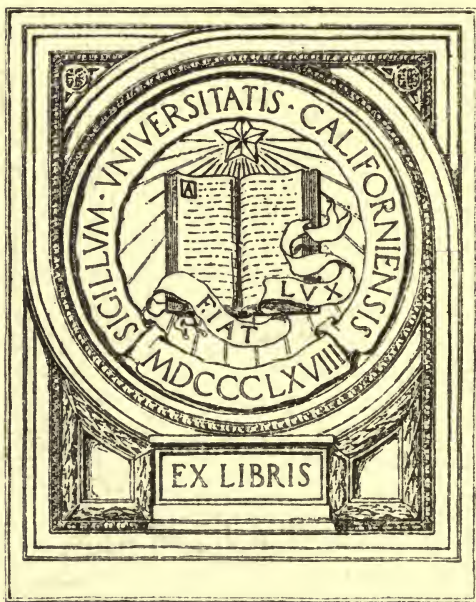
*of a Survey of the
School System
of Salt Lake City, Utah*

Authorized by a Resolution of the
Board of Education
May Fourth, Nineteen Fifteen



Submitted to the Board of Education
June thirtieth, Nineteen Hundred Fifteen

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Report of the Survey

of the Public School System of Salt Lake City, Utah

Authorized by resolution of the Board of Education,
May 4, 1915.

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Submitted to the Board of Education, June 30, 1915.

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TO THE
ADDRESS

DIRECTOR'S LETTER OF TRANSMITTAL.

Mr. Ledyard M. Bailey,
Chairman Survey Committee,
Salt Lake City, Utah.

Dear Sir:

I have the honor to submit to you herewith, for your committee, the final report of the survey of the public school system of your city, as authorized and directed by resolution of the Board of Education on May 4th, 1915.

The work on this survey was begun in Salt Lake City on May 10th, and finished on May 28th. During the progress of the work the members of the staff were in constant consultation, and the nature and scope of the report gradually shaped itself while we were in Salt Lake City. Before leaving the city the report was outlined, in some detail, and formed the subject of discussion for a number of evenings. As an outgrowth of this discussion the conclusions here presented were agreed upon.

To facilitate the work of the survey, as well as the writing of the different chapters, each member of the survey staff gave particular attention to the parts which he was to organize in written form. Since leaving Salt Lake City each member of the staff has written the parts assigned to him, the drawings to illustrate the conclusions have been made, and all have been submitted to the director, who has organized and unified the report. The responsibility for the report as a whole rests with the director of the survey, though the proper credit for the chapters written by the different members is indicated in parentheses at the beginning of each chapter.

In preparing the report we have tried to commend the good features of your school system, and to use criticism only as a basis for constructive recommendations. The larger aspects of your problem relate to buildings, teachers, and finance, and these have naturally received the major emphasis. It is hoped that the report may prove of much service to your board in handling the educational problems with which you have to deal, and in securing the new legislation which is so necessary if your schools are to make the progress they ought

to make. A city the character of yours cannot afford to rest content with the present situation. It is also hoped that the people of your city may find much in the report that will be of interest to them, and will serve to give them a more intelligent conception of the magnitude and intricacy of the problems of public education in a city such as yours.

The rapidity with which we were able to do the work is in part due to the courteous and helpful assistance rendered the members of the survey staff by every one with whom we had to deal. Especially is an expression of appreciation due to the entire office force of the different administrative departments of the school system, the school principals, and the teachers who assisted in the grading of the pupil tests. I also wish to take this opportunity to express my appreciation of the large capacity for work on the part of those associated with me on the survey.

Respectfully submitted,

ELLWOOD P. CUBBERLEY,

Director of the Survey.

Stanford University, California,

June 25th, 1915.

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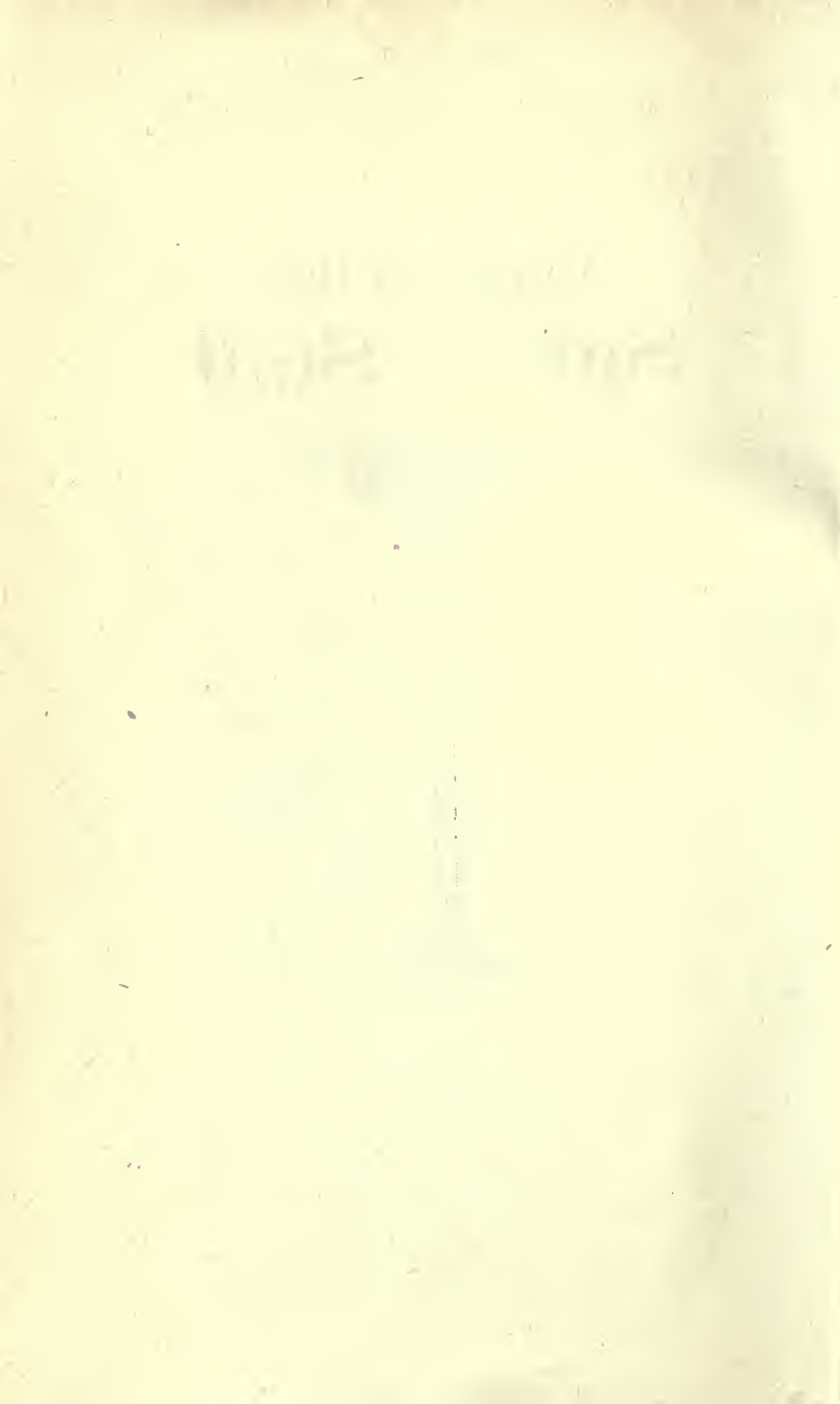
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Report of the
Survey Staff





PART I
**Organization and
Adminstration**

CHAPTER I.

THE PROBLEM BEFORE US.

(Cubberley)

Position of the City. It always leads to a clearer understanding of a problem such as we have before us for study if we first locate the city with which we are to deal. By this is meant not its geographical location, as that is well known, but rather its social and economic location among cities of its size and class. From such a study of the social and economic position and relationships the problem of public education, which is essentially a social and economic problem, stands out more distinctly than it otherwise can do. Such a social and economic study we shall first make, before proceeding to a detailed study of the accomplishments and needs of the educational organization of the city.

For the purpose of this study we shall compare Salt Lake City with a number of other cities of its size and class. In doing this we shall use in part the twenty-five other northern and western cities which, by the U. S. Census of 1910, were classed as growing cities and as having, at that time, between 75,000 and 125,000 inhabitants. As Salt Lake City had a population of 92,777 in 1910, and is estimated as now having a population of approximately 110,000, it will be seen that this group of cities includes those of a size and class with which Salt Lake City may be properly compared. For purposes of comparing Salt Lake City with western cities alone, another table of sixteen distinctly western cities, all of which had 25,000 or more inhabitants in 1910, will also at times be used. For all these cities, the reports of the U. S. Census for 1910, and the U. S. Census Bureau's annual **Statistics of Cities**, provide good data for comparative purposes.

Comparative Isolation of the City. One of the most conspicuous features of Salt Lake City, and one which in a way modifies its activities and needs, is its comparative isolation. One must travel to the east as far as Denver before one finds a city of its class, and to the west as far as Sacramento. Within a radius of 700 miles there is not only no community the size of Salt Lake City, but within this same radius but three cities having more than 15,000 inhabitants are found. One of these is the neighboring city of Ogden, and the other two are 400 miles to the north, in Idaho and Montana. In travelling to the eastward the summit of the continental divide must be crossed, while to the westward the desert and the Sierra Nevada Mountains block the way.

Beautifully situated on a rising slope between the Wasatch and the Oquirrh ranges of mountains, in a country rich in mineral and agricultural resources and in a valley of great fertility, with the state university and the state capitol within its bounds, the city stands as the mineral, agricultural, political, financial, social, and educational center of the state, and, to a large degree, of the inter-mountain plateau as well. Blessed with a fine climate, plenty of good water, abundant sunshine, good educational facilities, and a progressive people, the city has attracted to itself a population of good character and great virility, and one which has made for the city a somewhat independent position along social, educational, financial, and industrial lines. Forced to depend largely upon itself, the city has developed in a small way into a manufacturing and producing center of some local importance. The mining industry tributary to it is of large commercial value, and is destined to remain such for a long time to come. But, notwithstanding these developments, the city is essentially a home city, its population consisting very largely of a substantial middle class of the home-building and home-owning type, interested in good government, good schools, and the promotion of the home.

Growth in population. The growth of the city within the past quarter century has been very rapid. This may be seen from the following tabular statement.

Year.	Population.	Per Cent of Increase During Period.
1880	20,768	.....
1890	44,843	115.9 %
1900	53,531	19.4 %
1910	92,777	73.3 %
1915	110,000*	.....

*Estimate for July 1, 1915.

Among the cities of its size and class it was exceeded in rate of growth, from 1900 to 1910, by but three of the twenty-five cities we shall use for comparative purposes, as may be seen from the following table.

TABLE NO. 1.

SIZE AND RATE OF GROWTH OF TWENTY-SIX SE-
LECTED CITIES.*

City.	Population 1910	Rate of Increase 1900-1910
1. Troy, N. Y.	76,813	26.6 %
2. Somerville, Mass.	77,936	25.3 %
3. Duluth, Minn.	78,466	48.1 %
4. Youngstown, Ohio.	79,066	76.2 % †
5. Yonkers, N. Y.	79,803	66.5 %
6. Kansas City, Kan.	82,331	60.1 %
7. Tacoma, Wash.	83,743	122.0 % †
8. Lawrence, Mass.	85,892	37.3 %
9. Des, Moines, Ia.	86,368	39.0 %
10. Springfield, Mass.	88,926	43.3 %
11. Lynn, Mass.	89,336	30.4 %
12. Salt Lake City, Ut.	92,777	73.3 %
13. Camden, N. J.	94,538	24.5 %
14. Reading, Pa.	96,071	21.7 %
15. New Bedford, Mass.	96,652	54.8 %
16. Trenton, N. J.	96,815	32.1 %
17. Hartford, Conn.	98,915	23.9 %
18. Albany, N. Y.	100,253	6.5 %
19. Bridgeport, Conn.	102,054	43.7 %
20. Spokane, Wash.	104,402	183.3 % †
21. Cambridge, Mass.	104,839	14.1 %
22. Lowell, Mass.	106,294	11.9 %
23. Grand Rapids, Mich.	112,571	28.6 %
24. Dayton, Ohio	116,577	36.6 %
25. Fall River, Mass.	119,295	13.8 %
26. Omaha, Neb.	124,096	21.0 %

*This table contains every northern and western city which in 1910 had between 75,000 and 125,000 inhabitants, and which had increased in population during the preceding decade.

Of the distinctively western cities, with which Salt Lake City will also be compared for items of expense, only the Pacific coast cities exceed Salt Lake City in rate of growth from 1900 to 1910.

This means that Salt Lake City was among the few most rapidly growing American cities during the period. Averaged over the entire ten years from 1900 to 1910 the increase was equal to 11.2 persons per day. As the rate of growth, judged by the number of children in the schools, was more rapid toward the end of the period than during the earlier part of it, the rate toward the latter part of the period must have been at least as high as fifteen persons per day. The increase in the number of children in school would indicate that a growth at least as rapid as this still continues.

Character of the Population. In character the population is mostly of excellent racial stock. Figure 1 shows that 78 out of every 100 persons in the city, in 1910, were born in the United States, and 41 out of every 100 were born of parents both of whom also were born here. This is about average for all northern and western cities, being higher than in the manufacturing centers of the east and lower than in the residential cities of the West. Of the 21.0 % who were of foreign birth, it will be noticed that 9.3 per cent came from English-speaking lands, leaving but 11.8 per cent from non-English-speaking countries. Three-fourths of these were from German, Austrian, or Scandinavian countries. But 1.1 per cent were, at that time, from countries to the south and east of Europe (Italians, Greeks, the Balkan States, Armenia, Turkey) and but eight-tenths of 1 per cent were of the negro race. The miscellaneous group included but few Orientals.

This means that the city, in 1910, had a particularly select class of people, with no serious educational or social problem arising from the presence of a large number of foreign born, Orientals or negroes. Coming from countries where primary education has long prevailed, the number of illiterates in the population is naturally low. The average for the city in 1910 was 1.6 per cent, as against 7.7 per cent for the United States as a whole, and 6.9 per cent for the Mountain States. The foreign-born element showed an illiteracy of 4.4 per cent, and the native born but 0.25 per cent, with most of this among the few negroes.

The number of foreign born from the south and east of Europe has since increased, both in actual numbers and in percentage of the total population, and their settlement largely in that part of the city lying along the railroad tracks is cer-

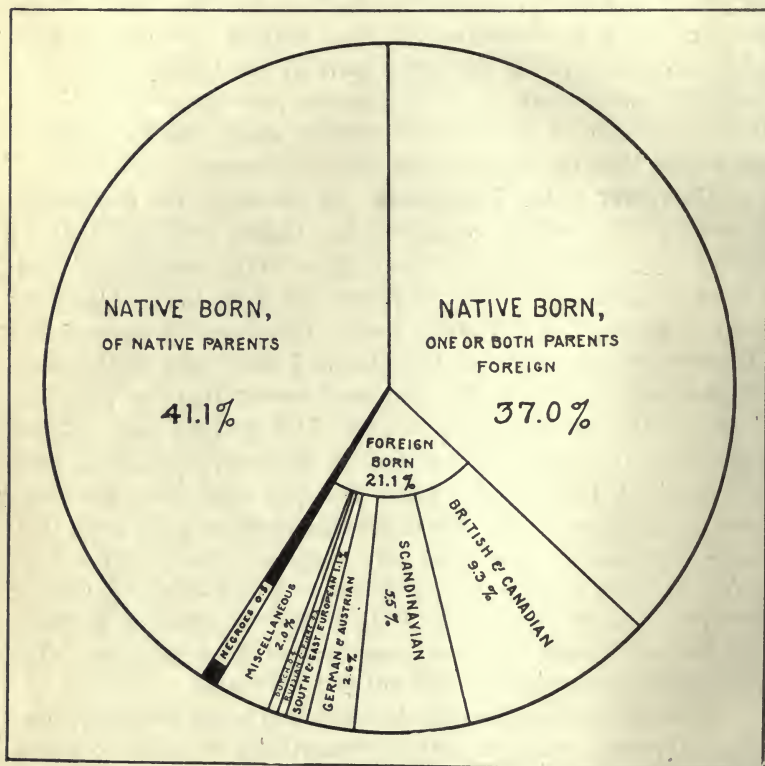


FIG. 1. THE ELEMENTS OF THE POPULATION OF SALT LAKE CITY.

tain to develop there what will in time become a serious educational and social problem. In a sense it has already become such. With the marked turn of immigration from the north and west of Europe to the countries to the south and east, that has characterized the immigration of the past fifteen years, Salt Lake City cannot hope to escape receiving an increasing

percentage of these more poorly educated and less well developed racial stocks.

The following table compares Salt Lake City with other cities of its size and class in the matter of the elements of its population.

TABLE NO. 2.

COMPOSITION OF THE POPULATION OF 26 SELECTED CITIES.

City	Percentage of the Whole Who Are		Foreign Born	Negroes
	Native Born of Native Parents	Native born with or both Parents Foreign Born		
1. Reading, Pa.	77.8 %	12.2 %	9.2 %	0.8 %
2. Des Moines, Ia.	62.3	22.3	12.0	3.4
3. Dayton, Ohio	62.0	21.9	11.9	4.2
4. Kansas City, Mo.	58.3	17.8	12.6	11.3
5. Camden, N. J.	52.4	24.5	16.6	6.4
6. Spokane, Wash.	52.3	26.1	20.3	0.7
7. Albany, N. Y.	44.4	36.4	18.1	1.0
8. Tacoma, Wash.	43.6	28.5	25.6	0.9
9. Omaha, Neb.	42.6	31.9	21.8	3.6
10. Troy, N. Y.	42.0	37.1	20.1	0.8
11. Salt Lake City, Ut.	41.1	37.0	21.1	0.8
12. Trenton, N. J.	40.0	30.2	27.2	2.7
13. Springfield, Mass.	40.2	32.2	25.9	1.7
14. Somerville, Mass.	38.3	34.5	26.9	0.3
15. Lynn, Mass.	37.1	31.3	30.6	0.8
16. Grand Rapids, Mich. ...	36.2	38.0	25.2	0.6
17. Youngstown, Ohio	32.4	33.7	31.4	2.4
18. Hartford, Conn.	31.4	35.2	31.6	1.8
19. Yonkers, N. Y.	27.1	37.5	33.3	1.9
20. Bridgeport, Conn.	26.6	36.6	35.5	1.3
21. Cambridge, Mass.	24.4	38.0	33.3	4.5
22. Duluth, Minn.	19.7	40.6	39.1	0.5
23. Lowell, Mass.	19.5	39.5	40.9	0.1
24. New Bedford, Mass.	19.4	33.5	44.1	3.0
25. Lawrence, Mass.	13.6	37.9	48.1	0.3
26. Fall River, Mass.	13.3	43.7	42.6	0.3
U. S. as a whole.....	54.1	20.5	14.7	10.7

Percentage of Children. In the percentage of children in the total population, Salt Lake City ranks high among western cities. The general characteristics of a western city are a marked preponderance of males, a small percentage of married males, and a small number of children. In these respects Salt Lake City is an exception, as it has but a small preponderance of males, a large percentage of the males are married, and in number of children it ranks with the markedly-foreign-born manufacturing cities of the east and the cities of the south. Only one other western city, Ogden, exceeds it in percentage of children. This may be seen from the following table.

TABLE NO. 3.

PERCENTAGE OF CHILDREN IN THE TOTAL POPULATION COMPARED FOR WESTERN CITIES.

City.	Percentage of Children	
	5 to 15 years of age, inclusive.	Under 15 years of age.
1. Ogden, Utah	20.0 %	32.1 %
2. Salt Lake City, Ut.	18.5	29.6
3. Colorado Springs, Col.	16.0	23.3
4. Tacoma, Wash.	15.2	23.6
5. Denver, Colo.	15.2	23.1
6. Butte, Mont.	15.1	23.9
7. Berkeley, Cal.	14.7	22.7
8. Spokane, Wash.	14.5	23.2
9. Oakland, Cal.	14.1	22.5
10. San Jose, Cal.	13.8	21.4
11. Pasadena, Cal.	13.6	20.3
12. San Diego, Cal.	13.4	20.2
13. Los Angeles, Cal.	13.0	20.1
14. Seattle, Wash.	12.5	19.7
15. Sacramento, Cal.	12.1	19.8
16. Portland, Ore.	12.0	18.8
17. San Francisco, Cal.	11.9	18.9
U. S. as a whole.....	17.4	27.3

Distributed by age groups the population is as shown in Figure 2. From this figure it will be seen that Salt Lake City is essentially a community of young people, there being an excess of children and a shortage of those 45 years of age

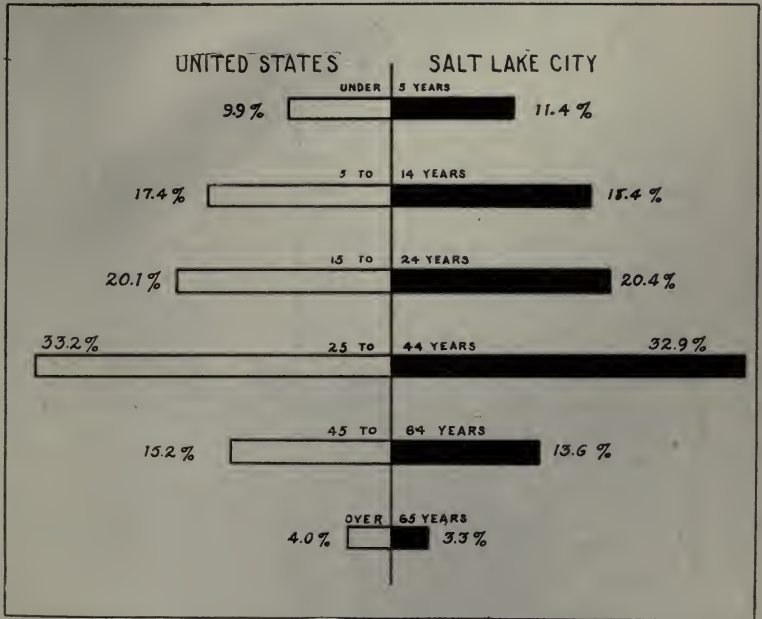


FIG. 2. AGE DISTRIBUTION OF THE POPULATION.

or over. The U. S. Census figures gave 4.6 persons to a family and 5.2 persons to a dwelling for the city in 1910. Such a condition should mean a live and vigorous city,—a city of young people, and with their families as yet young. Such a community is usually self-reliant and resourceful, and willing to provide the best it can afford for its children.

The following table compares Salt Lake City with other cities of its size and class in the matter of the proportion of children in the total population.

TABLE NO. 4.

SHOWING THE PERCENTAGE OF CHILDREN IN THE
TOTAL POPULATION.

City.	Percentage of children	
	5 to 15 years of age, in- clusive.	Under 15 years of age.
1. Fall River, Mass.	20.4 %	32.1 %
2. Yonkers, N. Y.	18.9	29.9
3. Salt Lake City, Ut.	18.5	29.6
4. Camden, N. Y.	18.1	28.4
5. Lawrence, Mass.	17.9	28.3
6. Cambridge, Mass.	17.5	27.8
7. New Bedford, Mass.	17.2	28.9
8. Duluth, Minn.	17.2	26.5
9. Grand Rapids, Mich.	17.0	27.0
10. Lowell, Mass.	17.0	26.8
11. Youngstown, Ohio	16.9	27.9
12. Kansas City, Kan.	16.8	27.9
13. Bridgeport, Conn.	16.8	27.2
14. Hartford, Conn.	16.8	26.6
15. Trenton, N. J.	16.8	26.6
16. Des Moines, Ia.	16.6	25.6
17. Reading, Pa.	15.9	27.2
18. Springfield, Mass.	15.9	25.3
19. Somerville, Mass.	15.6	26.0
20. Dayton, Ohio	15.4	24.5
21. Omaha, Neb.	15.2	23.7
22. Tacoma, Wash.	15.2	23.6
23. Lynn, Mass.	15.0	24.0
24. Albany, N. Y.	14.9	22.6
25. Troy, N. Y.	14.6	23.2
26. Spokane, Wash.	14.5	23.2
U. S. as a whole.....	17.4	27.3

The significance of this large number of children of school age may be better appreciated if it be stated that, for a city the size of Salt Lake City (estimated now at 110,000) every increase of 1 per cent in the percentage of the popu-

lation between 5 and 15 (the so-called school age) means at least 1,000 more children enrolled in the schools, 30 more teachers to be provided for the schools, and approximately two more school buildings to be erected within the city. Put

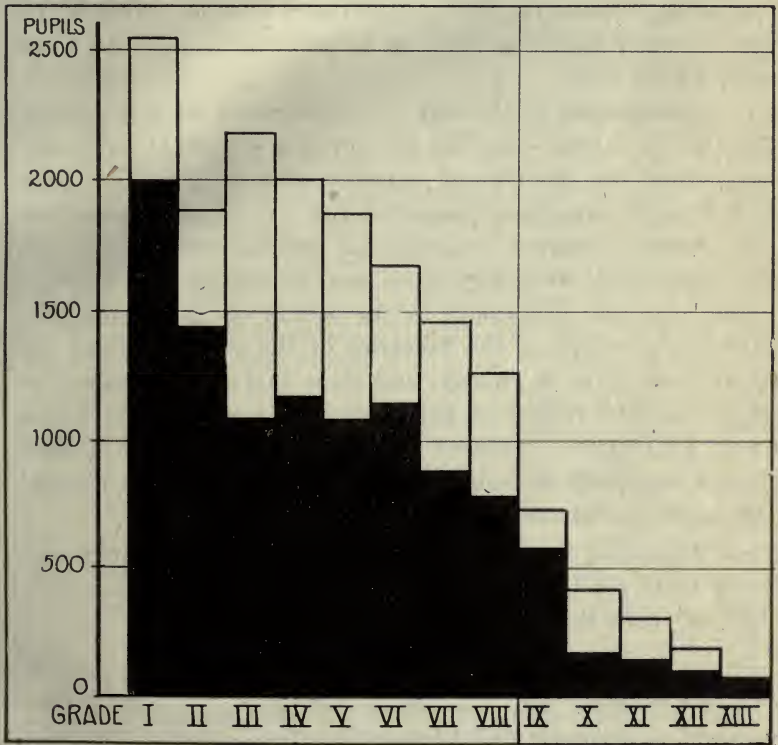


FIG. 3. PORTLAND, OREGON, AND SALT LAKE CITY COMPARED AS TO CHILDREN.

In making the school survey in Portland in 1913, as in Salt Lake City in 1915, the number of children actually in the schools early in May was taken in each place. Reducing the Portland figures so as to give the results if the city were the same size as Salt Lake City (110,000) we get the above figure. The black represents the children in Portland, and the white represents the excess in each grade for Salt Lake City for the same total population. Portland at that time had nine grades in its elementary school course. The increased number of schools which Salt Lake City must maintain per thousand of its population will be at once evident.

another way, Salt Lake City must provide 50 per cent more teachers and buildings per 1,000 of its total population than do such cities as Seattle, Portland, Sacramento, or San Francisco, and 30 per cent more than do Tacoma or Denver, to be able to maintain merely equivalent schools. This is the price the city must pay for its large families and its large excess of children.

Occupations in the city. It was stated on a preceding page that Salt Lake City had developed a somewhat independent position for itself along commercial and industrial lines. High freight rates have compelled the city to make many articles usually brought in from the outside, with the result that many small industries have been developed which afford employment and contribute to the wealth of the community. Sixty-five per cent of the factories of the State of Utah are in Salt Lake City or county, and these factories furnished an output in 1914 valued at \$61,450,000, and paid out in wages nearly \$10,000,000. Located as the city is, and with abundant raw materials in many lines close at hand, it is a natural manufacturing community.

According to the census figures for 1910, 40.7 per cent of the total population of the city were engaged in some occupation, with the distribution as follows:

Engaged in mechanical and manufacturing industries.....	12.5%
Engaged in trade	7.0
Engaged in domestic and personal service	5.4
Engaged in transportation	4.6
Engaged in clerical occupations	4.4
Engaged in professional service	3.6
Engaged in public service	1.7
Engaged in extraction of minerals	0.9
Engaged in agricultural pursuits	0.6

Compared with all other American cities, Salt Lake City gives the following results for each 1,000 persons employed, distributed by occupation and by sex.

TABLE NO. 5.

NUMBER ENGAGED IN EACH OCCUPATION, FOR EACH
1,000 EMPLOYED.

Occupation	MALES		FEMALES	
	In Salt Lake City	In all Cities	In Salt Lake City	In all Cities
1. Manufacturing and me- chanical industries	339	473	172	313
2. Trade	189	175	97	96
3. Domestic and personal service	74	69	365	348
4. Transportation	133	119	26	18
5. Clerical occupations	94	82	164	135
6. Professional services	71	43	158	88
7. Public service	52	23	1	0
8. Extraction of minerals	30	6	0	0
9. Agricultural and animal husbandry	18	10	17	2
Totals	1000	1000	1000	1000

An examination of the detailed distribution under any one occupation shows that almost all the industries, trades, and forms of service are followed. Under manufacturing and the mechanical industries the occupations concerned with the building trades predominate, though the machinery trades employ quite a large number of men; in transportation, the railway service predominates; in trade and the clerical occupations there is a general distribution from clerks and stenographers to commercial travellers and retail dealers; while in professional service designing and engineering work predominate. A rather unusual percentage of men are engaged in domestic and personal service. As will be pointed out later on, in connection with the discussion of the courses of study in the schools, such a distribution of occupations calls for a rather varied educational experience in the schools.

Wealth of the City. We pass finally to a study of the real wealth of the community, to see how able it is to provide the type of education needed for its large number of

children. The best basis for comparison here is the average actual (not assessed) wealth per capita of the total population. To obtain the actual wealth we must take the per capita assessed wealth, divide it by the basis of assessment, and multiply the result by 100. This is the same as putting all cities on a 100 per cent basis of assessment, and hence compares their actual wealth. Using the figures given in the U. S. Census Bureau's annual publication, **Statistics of Cities for 1913**,* we thus get the following comparative table for the twenty-five cities of the size and class of Salt Lake City with which we have proposed to compare it.

*This is the most recent issue of this valuable yearbook.

TABLE NO. 6.

ASSESSSED AND REAL WEALTH PER CAPITA OF THE
TOTAL POPULATION.

City.	Assessed wealth per capita	Basis of assessment	Real wealth per capita
1. Camden, N. J.	\$ 593.69	100	\$ 593.69
2. Trenton, N. J.	710.43	100	710.43
3. Reading, Pa.	553.41	75	737.88
4. Hartford, Conn.	593.69	80	742.11
5. Lowell, Mass.	771.65	100	771.65
6. Fall, River, Mass.	789.92	100	789.92
7. Lawrence, Mass.	807.67	100	807.67
8. Troy, N. Y.	825.33	98	842.18
9. Somerville, Mass.	846.08	100	846.08
10. Lynn, Mass.	848.39	100	848.39
11. Des Moines, Ia.	232.15	25	932.60
12. New Bedford, Mass.	944.12	100	944.12
13. Bridgeport, Conn.	944.91	100	944.91
14. Yonkers, N. Y.	965.00	100	965.00
15. Kansas City, Kan.	985.60	100	985.60
16. Grand Rapids, Mich.	772.49	75	1029.99
17. Cambridge, Mass.	1063.30	100	1063.30
18. Albany, N. Y.	1014.16	89	1139.51
19. Duluth, Minn.	547.64	46	1190.52
20. Dayton, Ohio	1228.76	100	1228.76
21. Tacoma, Wash.	742.33	60	1237.21
22. Omaha, Neb.	249.82	20	1249.10
23. Youngstown, Ohio	1526.11	100	1526.11
24. Springfield, Mass.	1536.11	100	1536.11
25. Spokane, Wash.	669.77	42	1666.12
26. Salt Lake City, Ut.	589.23	35	1683.52
Average for the group			\$1038.94
Median for the group			954.96

This shows Salt Lake City to be the richest city in the group. Compared with Camden, Fall River, Lawrence and Yonkers, cities which have somewhere near the same percentage of children (see Table No. 4) Salt Lake City is indeed a wealthy city. Compared with western cities Salt Lake City

occupies a somewhat middle position, being a little higher than the average for the group, and markedly exceeded only by Portland, San Francisco, and the three wealthy residential cities of southern California. This may be seen from the following table.

TABLE NO. 7.

ASSESSSED AND REAL WEALTH PER CAPITA FOR WESTERN CITIES*

City.	Assessed wealth per capita.	Basis of assessment.	Real wealth per capita.
1. Butte, Mont.	\$ 596.91.	75	\$ 795.88
2. San Jose, Cal.....	648.61	60	1081.02
3. Denver, Colo.	563.25	50	1126.50
4. Colorado Springs, Colo.	400.77	33	1202.31
5. Tacoma, Wash.....	742.33	60	1237.22
6. Berkeley, Cal.....	822.68	60	1371.13
7. Oakland, Cal.....	738.96	50	1477.92
8. Seattle, Wash.....	721.24	45	1602.77
9. Spokane, Wash ...	699.77	42	1666.12
10. Salt Lake City, Utah	589.23	35	1683.52
11. Sacramento, Cal..	1042.03	58	1796.60
12. Pasadena, Cal.....	1280.94	66	1921.41
13. Portland, Ore.....	1212.40	63	1924.44
14. Los Angeles, Cal.	880.20	46	1930.87
15. San Francisco, Cal.	1193.32	45	2561.82
16. San Diego, Cal.....	1051.05	39	2695.00
Average for the group			\$1630.85
Median for the group			1634.45

*Ogden unfortunately cannot be included in this table, for the reason that the United States Census Bureau does not publish financial statistics for cities which in 1910 had a population of less than 30,000.

These two tables show Salt Lake City as of large per capita wealth, even though the number of children in the total population is large. If the city had the usual small proportion of children found in western cities, it would almost equal

Pasadena, Portland, or Los Angeles in its per capita wealth. As it is, it must be classed as among one of the few very rich cities of the United States. When we remember, further, that the city has very few really rich people, we can appreciate what a wide distribution of property there must be among the population. It is essentially a city of the so-called middle class. This should make the maintenance of any public enterprise, such as schools, a relatively easy matter.

The city and its needs. We have then, for study, a rapidly growing western city of the best type. It is a city which, by reason of its comparative isolation, has developed an independence for itself which few cities are able to do or feel the need of doing. Its population is, as yet, very largely of the best American and foreign stocks, though a change in its character is beginning.

The city is a city of young people, of large families, and of large per capita wealth. The pinch of competition, which in most places has led to a somewhat general reduction in the size of families, has been scarcely felt here. There is still plenty of elbow room and opportunity. The city has the vigor and the confidence in itself which belongs to youth.

The location of Salt Lake City makes it certain that it has a large future before it. This, the needs of its occupations and its industries, the general needs in our national life for good education for all, its large number of children of good stock, and the increasing number of children coming from homes of an inferior type,—all alike make it important that this particular city maintain for its children as good an educational system as it can possibly afford. Its large wealth, and, as will be shown later, its low per capita expense for city maintenance, make it possible for the city to afford as good an educational system as is to be found anywhere in the land.

Order of procedure. Having now examined somewhat in detail the character and position of Salt Lake City among cities of its size and class, we shall next pass to an examination of the organization of its educational system, the scope and needs of the system provided, the school plant and its needs, the health and play needs, and the financial problem of the system.

CHAPTER II.

THE ORGANIZATION OF THE SCHOOL SYSTEM.

(Cubberley.)

General state control. To provide for the education of its children the State of Utah has, in its constitution, made the maintenance of a general system of public schools a state duty, and has charged the legislature to provide for the establishment and maintenance of schools in all parts of the state. The public school system is, in the constitution, declared to include all schools from the kindergarten to and through the state university. Certain permanent funds to aid in the support of schools are dedicated to the purposes, the general control of the system is vested in a state board of education and a state superintendent of public instruction, rates of taxation for state aid for education are fixed, and the separate organization and control of city school systems is provided for.

The educational provisions of the constitution of the state have been amplified in the school law, which now forms a substantial volume of one hundred and forty printed pages. The powers and duties of the state board of education and of the state superintendent of public instruction have been specified, in some detail; the counties of the state have been organized into county-unit organizations, under the educational oversight of county superintendents of schools; cities of the first and second class have been allowed to organize separately under city boards of education, and the powers and duties of such have been laid down at some length; the schools have been made free to all, and the attendance of all children between the ages of eight and sixteen years has been made compulsory for thirty weeks each year in cities, and twenty weeks elsewhere in the state.

Carrying out the state purpose. Education in Utah, as in practically all other American states, has been conceived as something of such great importance to the future welfare of the state that it has not been felt safe to entrust it to the cities to manage. Education has been regarded as a "major claim" of each new generation on the one that has gone before,—a form of debt which each generation owes to the new generation it brings into the world,—and as such the state has not been willing to trust entirely the carrying out of this important obligation to local governmental units. Accordingly the state has provided by general law for many details of local school administration, and has given boards of education power, within certain legal limits, to determine the sums needed for carrying out properly this state purpose. The qualifications of members for boards of education, how they shall be elected, when they shall take office, how they may be removed, their compensation, the duties of the officers of the board, the department officers they may appoint, the general corporate powers of the board, their general powers and duties, how they shall estimate the city school tax, under what conditions and how they may incur indebtedness and issue bonds, and how they may erect school buildings,—all these matters are laid down, in some detail, in the school laws of the state, instead of being left to the different cities to determine.

The board of education, elected by the people to represent it in the management of their schools, in reality represents the state much more than it does the city. The state purpose of seeing that its future citizenship is properly educated is the important thing; the city is merely an agent of the state in the matter. The powers possessed by the board of education are derived from the state, and not from the city; the state can add to or subtract from these, as it wills, or it could abolish the board of education entirely and substitute some other agency to do its work. If the board needs new or additional powers it must ask the legislature for them; if its funds are not sufficient for the work the legislature has given it to

do, it must present its case to the legislature, and ask for an increase in the school tax rate.

A board's proper functions. The board of education, acting as a body, consequently acts for the state in the matter of school control. Since the people of the city are also citizens of the state,—in the case of Salt Lake City they constitute one-fourth of the citizens of the entire state,—the board of education also represents the citizens of the city as well. It represents them, however, in their capacity as citizens of the state of Utah, rather than as citizens of Salt Lake City.

It represents them, though, not individually, but as a body, and only when in formal session. It is only by formal and recorded vote that boards of education can properly exercise any control. All individual direction of the schools, unless such individual power is formally delegated to the individual member by vote of the board, is usurped direction. For such individual direction the state has provided other officers, who devote their entire time to the work, and who are much more likely to direct the schools wisely and well. When a board of education directs the work of the schools properly, carefully selecting its executive officers, sustaining them in their official acts, and replacing them whenever they fail to act wisely or efficiently or honestly, it renders a conspicuous service to the people of the community and to the state it serves.

Whenever, on the contrary, the board assumes executive as well as legislative functions, begins to participate in executive work instead of acting as a board for school control, and interferes with or usurps work which it should entrust to its executive officers, it almost invariably begins to lose the confidence of those whose confidence it should retain. The principals and teachers, and ultimately the people as well, lose confidence in its wisdom, with the inevitable result that the efficiency of the schools themselves is impaired. A fundamental principle of proper city school administration is that it is primarily the business of the board of education to receive reports as to conditions and needs, to weigh recommenda-

tions, to determine the broader lines of policies, and to legislate, while it is primarily the business of the executive officers it employs to execute the legislation and policies which the board, after hearing reports and deliberating, has decided upon.

It will be seen from the above statement of principles that a board of education for a city school system occupies a very important position, and that upon its good judgment as to what to do and what to let alone depends much of the success of the administration of the schools. By improper organization, by doing too much, by attempting to handle too many things, by interfering too much with the work of its executive officers, or by indecision as to purpose, a board of education may interfere seriously with the proper working of the schools under its control, with the esprit de corps of those who render service in its schools, and with the proper carrying out of that large and important state purpose for which they were elected to office.

The Salt Lake City organization. To carry out the state purpose in Salt Lake City the city has been classified by law as a city of the first class, and for the government of the schools in cities of the first class a board of education, consisting of ten members, two elected from each municipal ward in the city, has been provided. The term of office is four years, one member being elected from each municipal ward in December of the odd-numbered years. The school corporation is separate and distinct from the municipal corporation with which it is here coterminous. So fully has this separation been accomplished that in the city auditor's reports, covering the different departments and phases of work of the Salt Lake City corporation, the school department does not appear. The school district is a state corporation, existing for the carrying out of a state purpose; the city is a local organization primarily for local municipal government. They are separate and distinct corporations, though their boundaries and electorate are one and the same.

The board of education has provided, under its rules and

regulations, for the appointment of five standing committees, each consisting of five members and the president of the board. These standing committees are (1) Rules, (2) School Law, (3) Teachers and School Work, (4) Building and Grounds, and (5) Finance. A careful reading of the minutes of the board for more than a year would seem to indicate that the first two committees are not especially important ones, but that the other three are committees which transact a large amount of business and assume many important functions.

✓ The board has further organized the administration of the school system under three separate and distinct departments. These are (1) the clerical and purchasing department, in charge of a School Clerk, (2) the building department, in charge of a Superintendent of Buildings, and (3) the educational department, in charge of a Superintendent of Schools. A Treasurer is also appointed, to care for and pay out the school moneys.

✓ **Committees and departments.** As far as could be ascertained by inquiry, by a reading of the official minutes of the proceedings of the board, and by an examination of the printed rules and regulations of the board of education, these three departments seem to be on a plane of theoretical equality, each handling the business within its own field somewhat independently of the other two. The School Clerk works largely through the Committee on Finance, the Superintendent of Buildings largely through the Committee on Buildings and Grounds, and the Superintendent of Schools largely through the Committee on Teachers and School Work. These committees then report to the board of education, which serves as a co-ordinating body for the three separate administrative departments and the three important board committees. In effect, three separate boards exist, each large enough to be a board of education in itself, and each handling an important division of the educational work of the city. To harmonize results the three boards meet together as a body, after they have come to independent decisions.

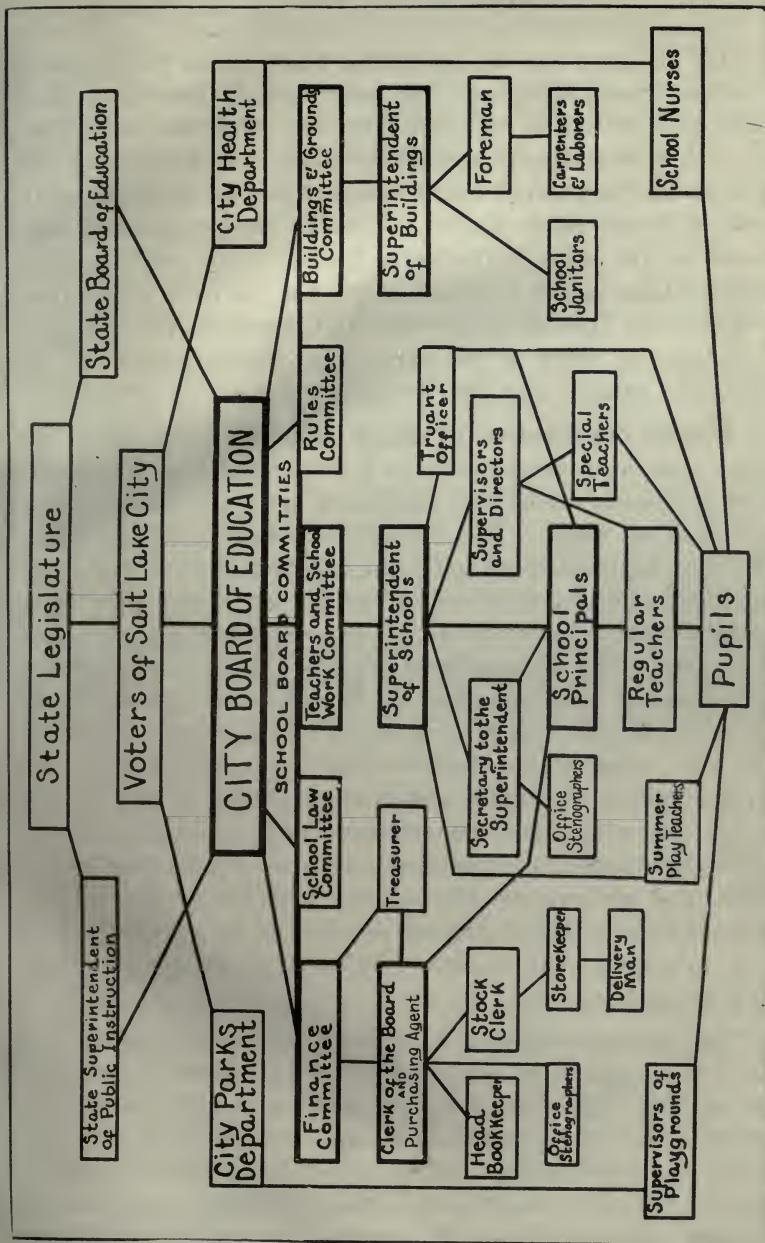


FIG. 4. PRESENT ADMINISTRATIVE ORGANIZATION OF THE SALT LAKE CITY SCHOOL SYSTEM.

The diagram on the preceding page shows the existing form of organization, and the existing relationships. The board of education is shown as large and important, as it now is. Below it and intermediary between it and the heads of its departments are the board committees, and then come the heads of departments and their staffs. The position of any person on the diagram indicates his authority and responsibility to those below him and above him, and the connecting lines indicate lines of relationship and responsibility. A lack of connecting lines in the same way indicates lack of coordinating authority or responsibility.

✓ **Present organization wrong in principle.** The inevitable result of such an arrangement is frequent and long committee meetings, much discussion, and board meetings often lasting until late at night. The constant tendency under such a system of administration is for the committees to become very important administrative bodies, and for the chairman of each to usurp some or many of the functions of the executive heads of departments. Especially is this likely to prove dangerous in the case of the Committee on Teachers and School Work, the chairman of which is very likely, almost unconsciously, to take over many of the functions that properly belong to the Superintendent of Schools and to become, as it were, a second head of the educational department; passing, in turn, on all the superintendent's recommendations as to teachers, principals, and supervisory officers, and substituting his opinion or the opinion of his committee for that of the superintendent as to the employment, retention, and service of members of the educational force.

The present organization is not only wrong in principle, but it is fraught with continual danger of misunderstandings and trouble. The committees are too prominent in the administration, and the school clerk and the superintendent of buildings enjoy too large independence in action. ✓ An examination of the printed annual reports of the board for a number of years past would seem to indicate that the school clerk is

the real head of the school system, rather than the superintendent of schools. His reports come first and are the most elaborate, and he rather than the superintendent of schools discusses the question of finances and says what he thinks as to possible economies.* The present large independence of

*By way of illustration the following quotation from the clerk's report to the board, printed in the 24th annual report (1913-14) p. 16, may be cited.

"For twenty years the cost per pupil has been steadily increasing, and if the special efforts put forth this year have stayed that advance, and in fact reduced the cost per pupil, there is no doubt that much more could be accomplished by continuing the efforts for a more efficient and economical administration of our school system."

Such a statement, well intended no doubt, is nevertheless misleading, and only serves to raise hopes that cannot be realized without impairing the efficiency of the system. An analysis of the tables submitted in the clerk's report shows that the reduction in cost mentioned was only made by employing cheaper teachers, increasing the number of pupils per teacher, and reducing the expenses for renewals and repairs. Such reductions could not be continued without seriously impairing the efficiency of the schools, yet the statement as printed leaves the opposite inference. As a matter of fact, the reduction in expenses by such means has gone too far now, and the printing of such a statement tends to make more difficult a change in the right direction. All such statements should meet with the approval of the superintendent of schools before being given to the public, and only serve to emphasize the necessity of having one and only one head to the administrative system.

the superintendent of buildings, especially in the matter of repairs and alterations and the employment of janitors, is also fundamentally wrong, and is certain to result in expenditures which ought not to be made, and in the failure to perform work which ought to be performed. That it has done so is well pointed out in Chapter X.

One gets the idea from reading a few years of the annual printed reports and the rules and regulations of the board that the educational department in the Salt Lake City school system occupies a rather inferior position in the administrative organization, and that it is allowed to exercise but little supervisory control over the other administrative departments. Only the compulsory attendance work is specifically placed under the direction of the superintendent of schools. The underlying theory seems to be that the educational department is a sep-

arate and isolated department instead of being the premier department of the whole system.

Right principles in school organization. A thoroughly fundamental principle in all proper school organization and administration is that there should be a real unity in the organization and a responsibility to one head in the administration, and that the head of the school system should be no other than the superintendent of schools. Through him, as the head of the school system, the board should work. The educational department is not a minor or a subordinate or even a co-ordinate department, but is the one for which all the other departments exist. All forms of administrative machinery, and all officers of control and department heads, exist for the prime purpose of assisting the educational department to get teachers and children together under the best possible educational conditions. Some departments have, in addition, as one of their important purposes that of saving money for the educational department, and of deflecting as large a percentage as possible into the work of actual instruction. Every overcharge detected by the clerk, every dollar saved in the purchase of supplies, every economy effected in the erection or repair of school buildings, is added money for increasing the effectiveness of the instruction in the schools. The only excuse for having a clerical, purchasing, or building department is that such may serve the educational department.

In all well organized school systems this relationship is clearly recognized, and these officials work under the direction and report through the superintendent of schools. The board then deals largely with the superintendent, and holds him responsible for results and efficient service. Whenever the superintendent is not able to secure these, or to retain the confidence of the board of education as a body, the board should consider a change in its executive head. It should not retain the executive and take his work away from him.

A proper administrative organization. A proper reorganization of the work in Salt Lake City would be as shown in the

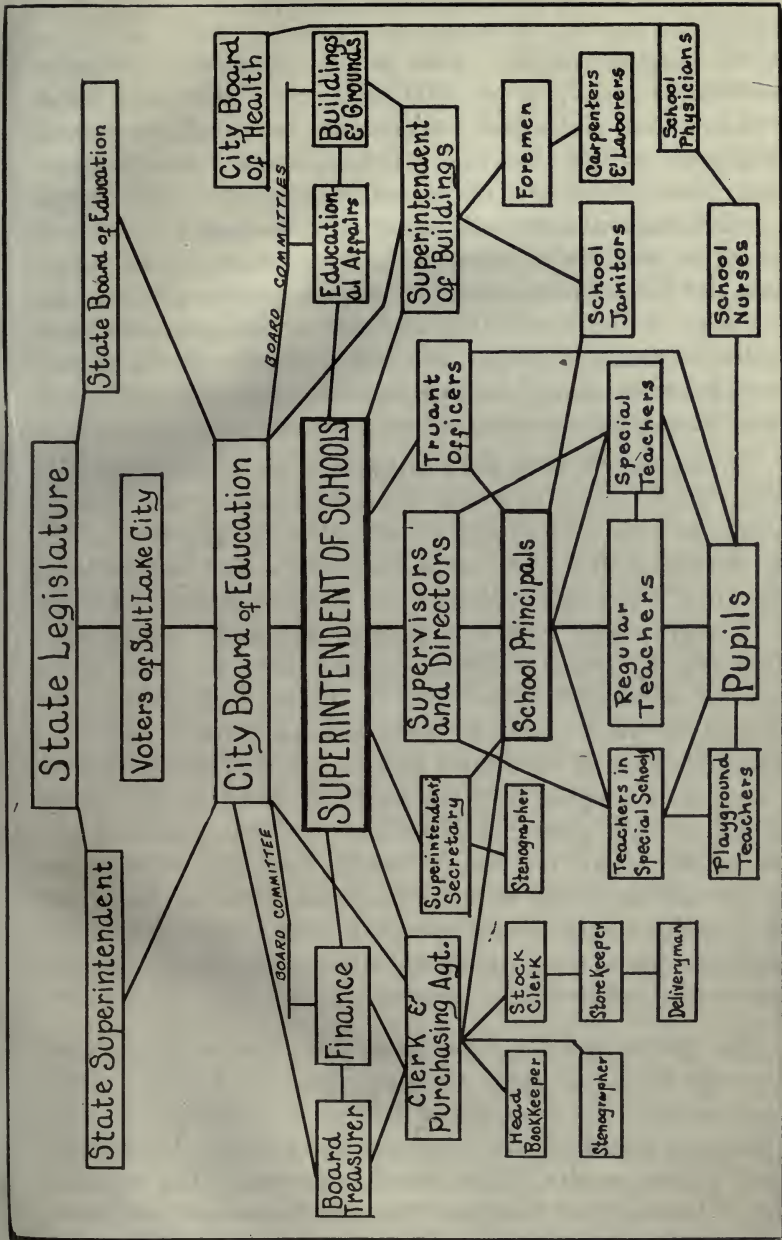


FIG. 5. AN ADMINISTRATIVE REORGANIZATION ALONG PROPER LINES.

second diagram given. This shows the position, relative importance, and lines of relationship and authority which should exist in city school organization and administration in a city such as Salt Lake City. The superintendent of schools, rather than the board of education, should be the central co-ordinating authority, and the work of the board committees should be materially reduced in consequence. The school clerk and the superintendent of buildings, while still working with their proper committees, and still having somewhat independent powers of action in their respective fields, should nevertheless be under the co-ordinating authority and should report through the superintendent of schools.

Directions given or work assigned to the school principals by the school clerk, or to the school janitors by the superintendent of buildings, should be subject to the approval of the superintendent of schools; school supplies should be purchased only after first conferring with the superintendent of schools as to quality and kind and relative amounts; repairs and alterations to school buildings should only be made after approval as to nature and cost by the superintendent; and financial estimates should be made and submitted through the responsible head of the school system. Such a reorganization in control, if coupled with the adoption of certain new rules tending to place proper responsibility with the executive officers employed by the board, would materially reduce the number and the length of the present committee meetings, and the necessity for the board spending such a large amount of time in serving as a co-ordinating body for the present separate departments and committee control.

The public and the superintendent. The superintendent of schools should be made the responsible head of the whole school system. As a matter of fact he is really held as such by both the board of education and the public. If expenses mount up too rapidly, if the school accounts are not properly kept, if the supplies furnished the schools are poor or inadequate or are too lavishly provided, if the school buildings are

not of the right type or cost too much, if they are not properly cared for and made available when needed, if the expense for building upkeep is too high, if harmony among the different officers and parts of the school system does not prevail, if the work of the schools is not up to standard, or if a dozen other possible things do or do not come to pass, the board and the public rightly tend to hold the superintendent of schools to be the responsible person. Even in many matters by law under board control, the public nevertheless looks to the superintendent as the responsible party.

This should mean that the superintendent of schools should be made the actual as well as the nominal head of the school system, and then should be held to strict accountability for its successful operation. This is the method followed in all successful corporation control. This should also mean that his recommendations on matters which he is supposed to know more about than members of the board possibly can should not be turned down, except after the most careful consideration. In all matters relating to the appointment, promotion, transfer, and dismissal of teachers, principals, and supervisory officers, the initiative should rest absolutely with him, and only in cases of great importance should the board reject his recommendations. In no case should any board member be privileged to substitute a name of his own choice.

No board member is competent to pass on such matters, and attempts to do so not only lead to fundamental educational mistakes but, what is even more serious, tend to demoralize a teaching force. If a teaching force is to possess esprit de corps and be devoted to its work, it must have confidence in its leaders and in their ability to protect them from injustice and mismanagement. Whenever a board of education is unwilling to continue to place this confidence in its superintendent the time has come for a change, either in the superintendent or in the board. Similarly, in all matters relating to courses of instruction and studies the superintendent should be in full control. On no other basis can he be responsible for the successful conduct of the schools.

By the mere adoption of such rules of procedure, which are based on sound administrative practice, the work and importance of the committee on teachers and school work would be greatly reduced, and every member of the school board would be freed from what is, perhaps, the greatest annoyance a school board member is subjected to. To all applicants for positions, to all disgruntled teachers and principals, and to all interested friends, the board members could at once tell them to see the superintendent of schools, as full control of all such matters had been placed in his hands. In placing full responsibility there the board would only be doing what the board of directors of any well-managed sugar factory, cement plant, department store, or street railway continually does. The key to efficient management lies in the concentration of both authority and responsibility in trained executive officers, and the refusal of the directors of the corporation to interfere with its experts in technical matters relating to the administration of the property.

A more fundamental reorganization desirable. The above changes in organization and responsibility can be made by the board on its own initiative, and without change in existing law. All that is necessary is a change in its rules. The organization and administration of the school system could be still further improved by a new state law for the administration of school systems in cities of the first class. As some changes in existing laws are necessary, if the schools of Salt Lake City are not to be seriously cramped in the future, it is possible that all the changes might be obtained from the legislature at the same time.

The desirable changes should include a reduction of the board of education from a board of ten, elected from wards, to one of five elected from the city at large. However well it may have worked in Salt Lake City, the ward system is nevertheless undesirable and has been abandoned by many cities. The almost universal experience has been that board mem-

bers have averaged higher from the city at large than when selected along ward lines, and petty local politics and local feelings influence the board less in its actions. The school system of a city is a unit, and board members should represent this larger unit and not some portion of it. So far, we are informed, the ward system has worked out well in Salt Lake City, but sooner or later, with the growth and change in character of the city, it is almost certain to bring undesirable members to the board. It should be abandoned now before bad results begin to be too evident.

The board at present, also, is too large. A board of five, one that could meet in a smaller room and around a single table, and with more board and less committee action, would handle the educational business more quietly, more expeditiously, and more efficiently than a board of ten members can, and with fewer conflicts with its executive officers and fewer reversals of its actions. A large board almost always leads to unnecessary discussion, and often has to reverse itself. A board of five, one elected each year as now and for a five-year term, would represent a better form of educational organization. With the smaller board the present great waste of time in committee action could be obviated, as a board of five has no need for standing committees. Business will be transacted better if all committees are temporary, and if the board acts on the recommendation of its executive officers first and finally as a body.

Summary of recommendations. The survey commission accordingly recommends that the rules and regulations of the board of education be revised along the lines of the recommendations of this chapter; that co-ordinating authority and responsibility for proper administration be concentrated in one executive head; that committee action be materially decreased by placing larger responsibility with the board's executive officers; and that, at the first legislative opportunity, a revision of the state school law as it relates to cities of the first class be attempted, and along the lines of the suggested law given in the Appendix to this report.

CHAPTER III.

ADMINISTRATION OF THE EDUCATIONAL DEPARTMENT.

(Cubberley.)

Having now located the city we are to study, and having described the educational organization which the legislature of the state and the board of education for the city have created for the purpose of carrying out the state mandate as to schools, we shall turn next to a study of the organization and administration of the educational department, and from this proceed to a study of the work of the schools themselves. The building department will be considered more fully in Part III of this report, while the financial portion of the problem will be taken up again in Part IV.

Work of the educational department. In a city which is growing as rapidly as is Salt Lake City, the problem of adequately caring for all the children becomes a pressing one. In the twenty-four years since the unification of the schools under one city board, the school census and the enrollment in the schools have trebled, while the number of children in average membership has quadrupled. During the same period the number of teachers employed has increased six times. Within the past decade there has been a general increase of about forty per cent in all these items. During the past five years the gain in enrollment has averaged 20 children a week for a fifty-two week year, and during the past two years it has averaged 23 children a week. This means, on the last two years of growth, that three new twelve class-room school buildings must be opened every year to accommodate the increase in children enrolled in the schools. The pressure to provide teachers, class rooms, supervision, and teaching supplies puts

a strain on the administrative organization and resources of a city that is growing at such a rate.

The prime purpose of the educational department is to see that the teachers and children are brought together under as good conditions for instruction as is possible. This involves buildings, lighting, heating, ventilation, apparatus and supplies, playgrounds, and teachers, of course, but it also involves an

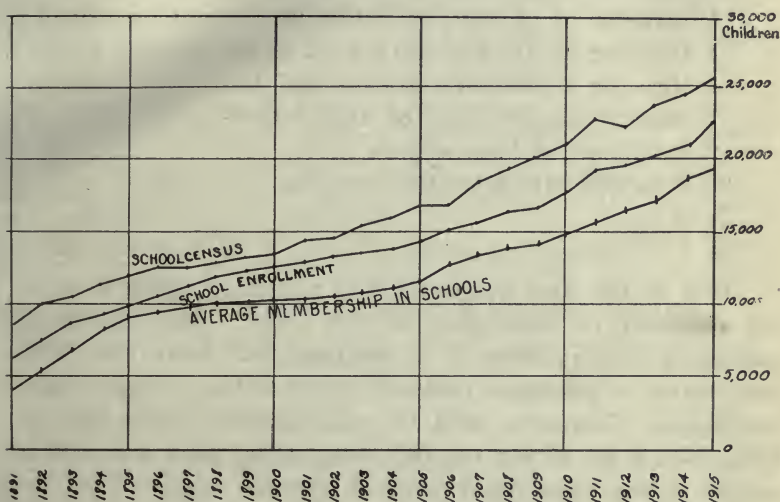


FIG. 6. A QUARTER CENTURY OF GROWTH IN THE SALT LAKE CITY SCHOOLS.

intelligently-conceived educational purpose, and a system of school administration and supervision calculated to secure the best educational results each supervisory officer, teacher, and child is capable of giving. An important test of a system of school supervision is how far it brings out the best which each one connected with the system has to give. In this chapter we shall examine into the sufficiency and the character of the system of supervision in force with reference to its ability to secure these larger ends.

The supervisory staff. At the head of the educational department is a superintendent of schools, and to assist him in his work of supervising the instruction the following staff has been employed:

- 1 Supervisor of grammar grades.
- 1 Supervisor of primary grades.
- 1 Supervisor of physical education.
- 1 Supervisor of manual training.
- 1 Director of physical education for elementary schools.
- 1 Director of art and hand work in the primary grades.
- 1 Director of domestic science and arts.
- 1 Supervising principal of high schools.
- 2 Principals of high schools.
- 28 Principals of elementary schools.

- 38 Total.

- One of the first questions that naturally arises is as to the adequacy or inadequacy of this force. One method of answering this question is to compare Salt Lake City with other cities, to see where it stands in the matter of supervisory assistance. Compared with the same western cities used in Table No. 3 we obtain the following table, from which it is seen that the supervisory staff at present employed is certainly moderate.

TABLE NO. 8.

NUMBER OF PUPILS IN AVERAGE DAILY ATTENDANCE
FOR EACH SUPERVISORY OFFICER.*

I. WESTERN CITIES.

City.	Pupils per super- visory officer.	City.	Pupils per super- visory officer.
Colorado Springs, Colo.	208	Spokane, Wash.....	369
Sacramento, Cal.....	252	San Francisco, Cal....	397
Pasadena, Cal.....	262	Seattle, Wash.....	400
San Diego, Cal.....	283	Denver, Colo.....	423
Butte, Mont.....	296	Berkeley, Cal.....	433
Ogden, Utah.....	312	Oakland, Cal.....	445
Tacoma, Wash.....	331	Salt Lake City, Utah..	460
Los Angeles, Cal.....	333	Portland, Ore.....	513
San Jose, Cal.....	365		
Average for the group.	354	Median for the group..	365

II. EASTERN AND MIDDLE-WESTERN CITIES.

City.	Pupils per super- visory officer.	City.	Pupils per super- visory officer.
Trenton, N. J.....	182	Albany, N. Y.....	372
Troy, N. Y.....	227	Duluth, Minn.....	381
New Bedford, Mass....	269	Omaha, Neb.....	400
Des Moines, Iowa.....	291	Yonkers, N. Y.....	445
Youngstown, Ohio.....	341	Dayton, Ohio.....	446
Grand Rapids, Mich...	359	Salt Lake City, Utah..	460
Kansas City, Kan.....	360	Springfield, Mass.....	464
Camden, N. J.....	371	Lowell, Mass.....	479
Average for the group.	343	Median for the group..	371

Data by which a comparison with all the twenty-five cities used in Table No. 1 could be made is not available, as some of the cities failed to report the number of supervisory officers separately, and some use a group system for principalships

*This and the following table have been compiled from data given in the last printed report of the U. S. Commissioner of Education, which is the most recent published data available, and covers the year 1912-13 for all cities except Salt Lake City, where the 1914-15 data has been used.

which makes comparison impossible. The figures given for such eastern and middle-western cities used in Table 1 as are comparable make a showing similar to that for western cities with reference to the position of Salt Lake City in the matter of supervision.

The conclusion from these figures would certainly be that Salt Lake City has too few, rather than too many supervisors. If we deduct the school principals, as being primarily building supervisors, we have left one supervising principal of high schools, who gives but part time to the work, two general supervisors of grade work, and five supervisors of special subjects. This is a number too small for a city with 22,635 children enrolled, and with the character of the teaching force now being drawn into the schools.

The present special supervision. The provision of a supervisor of grammar-grade work and a supervisor of primary work, instead of two general assistant superintendents of schools, is a good point in the Salt Lake City system. By specializing the work of these two supervisors the tendency to become office workers and inspectors, so common in city school systems, has been almost entirely obviated. A somewhat careful investigation of the work of these two supervisors, made both in the class room and by an examination of the work which they have sent out during the past year to teachers, gave the impression that both these persons were making an earnest effort to make of themselves helpful supervisors to the teachers in the schools. It was the feeling of the members of the survey staff that the city was getting good returns from the money spent on these two supervisors.

The work of the supervisors of physical education and manual training is commented upon at length elsewhere in this report. It was the feeling of all the members of the survey staff who examined at all into the work under their charge that the city could do much better by making changes in supervisors in these two subjects, and that in the present supervision the city is not getting real value for the money ex-

pended. It would be better economy to pay larger salaries if necessary, and secure persons able to direct the work of these two important departments along better educational lines.

The work seen in domestic science, and in art and hand work in the lower grades, gave evidence of good preparation and leadership on the part of these directors. It was evident that the directors of these subjects were making themselves helpful to the schools.

Further supervisory needs. The number of special supervisors at present employed is, however, too small. The number is actually less now than it was a few years ago, though the number of teachers and pupils have both materially increased, and the educational problem in the city has become more difficult. With the present practice of the city in taking cheaper and less well prepared young women for the teaching service, commented on at some length in the following chapter, and the further objectionable practice of pushing up the number of pupils per teacher, the need for good building principals and for plenty of good and helpful special supervision can hardly be overemphasized.

There is need in Salt Lake City for the employment of a good supervisor of drawing for the grade work. This work is too important to be neglected as it now is. A good supervisor of vocal and instrumental music, and a director of bands and orchestras ought also to be provided. While the music instruction in the schools was in general good, there were many places where it was not good, while the few feeble attempts at the establishment of school orchestras seen, almost entirely due to the individual efforts of some principal, were only a suggestion of what might be done under proper direction. An orchestra ought to be developed in each elementary school, and a number of elementary school bands also should be organized. A community of the size and character of Salt Lake City ought to be developed into a musical city, and a community is musical only when its people as a mass love music and can produce it in some form. Music and drawing are very impor-

tant forms of self expression, and self expression is a very important but often neglected element in all education.

A city the size of Salt Lake City, and of its peculiar type and location, also would find a good supervisor of school gardens, elementary science, and agricultural instruction a good investment. School gardening, agricultural instruction, manual training, and domestic science are all subjects of large practical value, and subjects which this school system ought to emphasize. As will be pointed out more in detail in Chapter VIII of this report, an excess of time is now devoted to instruction in the so-called fundamental subjects, and at the expense of these expression subjects.

With the development of the junior high schools in different parts of the city, part-time supervision of the work in languages, English, history, and science could, with advantage, be extended to the seventh and eighth grades, by some one designated by the superintendent from these departments in the high school, and at little extra expense.

The worth of supervision. The whole question as to the value of special supervision depends upon its character and upon the type of special supervisors employed. If the special supervision is good, and if the supervisors extend helpful assistance to the teachers and make them stronger in their work, special supervision always gives large educational returns. Nothing pays such large dividends in any line of work as plenty of good brains at the top. On the other hand, if the supervision is poor in quality and inspectorial in character, money spent on it is largely money thrown away. Nearly everything depends on the character of the supervisors employed. Cheap supervision is very likely to be poor supervision, but expensive supervision may not be good supervision. It pays a city to offer good salaries for such work, and to make its selections from a wide market. As a general proposition, though not always true, supervisors from the outside should be preferred to the promotion of individuals from within the force, because of the new ideas they can bring into the school system.

In the choice of all special supervisors, who represent as it were a part of the superintendent's cabinet, the entire choice should be placed with him, and he should be made to feel that he is free to go anywhere to get the right persons for the work. In the preceding chapter it was stated as a correct principle of action that board members should turn the selection and dismissal of all teachers over to the superintendent. Much more should this be done in the matter of special supervisors. A mistake made by board members in selecting a teacher is local and isolated, and can be remedied, but a mistake in selecting special supervisors is widespread in its influence and hard to remove. The choice and direction of special supervisors requires an expertness of judgment which few laymen ever possess, and if board members begin to urge personal candidates for such positions, in opposition to the recommendations of the superintendent, the supervisory system can soon be demoralized and its usefulness in large part destroyed.

The school principals. The members of the survey staff were much pleased with what they saw of the elementary school principals, and the work they were doing in the supervision of their schools. Usually the elementary school principalship is the weakest place in the entire school system, and one generally finds more dead wood in such positions than in any other place. In Salt Lake City this was not the case. On the contrary, with a few exceptions, the elementary school principals were a good body of supervisory officers, interested in their work and professionally awake. Some of them were among the most efficient school principals members of the survey staff had ever seen, and their helpfulness to their teachers and their influence on both teachers and children seemed strong and good. One characteristic noted was that, if a member of the survey staff arrived at a school building after school had begun, he usually had to ring the hall bell to find the principal. He was somewhere in the rooms, busy with his work, instead of sitting in his office. In many school sys-

tems one seldom finds a school principal, during school hours, off his office chair.

Reasons for this difference in Salt Lake City. After some investigation the survey staff came to the conclusion that much of this efficiency was due to the method of supervising the schools and the work of the principals adopted by the superintendent and the special supervisors. The principal in Salt Lake City has been made the center and the unit for all work of building supervision. All special supervisors are instructed to work as much as possible through him, and to respect and uphold his authority in the school. Outlines and circular letters to teachers are to pass through his hands, and supervisors are directed to avoid encroaching on his rights and prerogatives as the responsible head of his building. Each principal has been made to feel that he has a job on his hands worthy of his best efforts, and that the responsibility for the success of his school rests with him. Many of the principals, in talking with members of the survey staff, said that they felt under constant pressure from the superintendent to be efficient principals and to make a success of their work, or else run the risk of being removed from their positions.

Hence a prominent characteristic of the system of school administration employed is its utilization of the best each principal has in him in the administration of his school. This means an individuality among the different schools which is as delightful to see as it is unusual to find. Too many school superintendents feel that the way to run a school system is to issue orders and regulations, and by this means bring all up to that uniform standard which is handed down by the superintendent from above. The result is a uniformity in control and output which may be pleasing to the superintendent and board members who have mechanical minds, but it is the uniformity of death rather than of life. School principals under such a system of administration lose their initiative, fail to develop any individuality in the administration of their schools, and in time become keepers of records, inspectors of work, and

distributors of chalk and supplies. To see one school in such a city system is to see the type school; few principals under such administrative conditions long retain life enough to hold out and remain different from the mass.

In Salt Lake City just the reverse of this condition was the case. Nearly every school visited had something that was different, and most of the principals had some new trick in administrative control to show. Such a condition can only arise under the stimulus of controlled freedom. Such controlled freedom means life to principals, a new stimulus to teachers, and strength and vitality to the schools.

The premium on individual initiative. Though every school system ought to be trying some educational experiments, few school systems do. In Salt Lake City, on the contrary, permission to try any worthy experiment is easy to obtain. Any principal who has an idea which, to him, seems likely to result in an improvement in the instruction in his school, feels at liberty to lay it before the superintendent of schools and to ask permission to try it. This permission is usually granted, though the conditions of control of the experiment are sometimes laid down. The result is that a number of good educational experiments were being tried at the time of our visit. On questioning school principals, we found that many of the commendable features of their schools had arisen from some experiment they had been permitted to try in the past. In the principals' meetings, held once each month by the superintendent, the more important of these experiments are reported and their results discussed. We also found in existence a Principals' Advisory Committee of five, which meets from time to time to consider matters of educational importance, and which reports its findings and expresses its wishes to the superintendent of schools.

Such a liberal plan in school administration is to be highly commended. The good results of it on the school system were evident to all the members of the survey staff. If asked to name the one thing in which the Salt Lake City system of

school administration is superior to most other systems, we should say it is in this absence of a deadening uniformity imposed from above, and in the premium which is placed on initiative from below. It was one of the best features the survey staff found in the Salt Lake City school system.

It was the unanimous feeling of the members of the survey staff that the system of administrative control of supervisors and principals employed by the superintendent, and of principals and teachers by the other supervisory officers, was excellent both in theory and results. In brief, the system seemed based on the theory that the board placed the responsibility for the success of the school system on the superintendent of schools; he in turn placed the responsibility for the success of each part or school on the special supervisor or the building principal in control; these in turn placed the responsibility for the successful conduct of each room upon the teacher in charge; and she in turn placed the responsibility for the success of that room upon each pupil in it. The members of the survey staff saw many evidences, extending all the way from the children in the rooms to the special supervisors, of the wisdom and value of this very liberal method of supervisory control from above.

CHAPTER IV.

THE TEACHING STAFF.

(Cubberley)

Growth of the School System. The drawing below shows in graphic form the growth of the Salt Lake City school system in the matter of the number of pupils remaining in average membership throughout each school year, and the number of teachers who have been employed to teach these same pupils. The curves do not show the still larger number of pupils enrolled, but who did not remain in membership in the schools throughout the year.

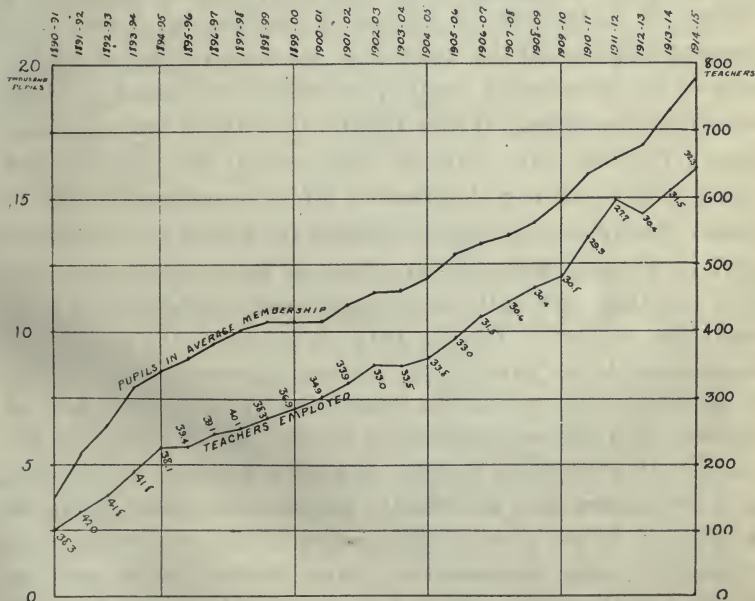


FIG 7. A QUARTER CENTURY OF GROWTH IN CHILDREN IN SCHOOL AND TEACHERS EMPLOYED.

A glance at the drawing, and at the figures giving the number of pupils in average membership in the schools for each teacher employed for the different years, reveals the history of the efforts of the school board to supply teachers for the schools. This average number of pupils per teacher has been obtained by the usual method of dividing the total average membership in the schools by the total number of regular and special teachers, principals, and supervisors employed. If only elementary-school class-room teachers were used the numbers would be much higher.

During the first eight years shown on the chart but little effort was made to reduce the number of pupils per teacher. By 1897-98, many teachers must have been trying to teach as many as fifty children. During the next eight years, that is from 1897-98 to 1905-06, due to the combined influence of a falling off in the rate of increase in pupils and a somewhat constant increase in the number of teachers employed for the schools, the number of pupils per teacher decreased to about what it is at present. From 1905-06 to 1911-12, but especially during the last two years of this period, the school board seems to have made a determined effort to reduce the size of classes, finally succeeding in bringing the school average down to 27.7. This still meant many classes of forty to forty-five children enrolled, and with an average daily attendance of from thirty-five to forty. During 1912-13, however, the number of teachers employed was actually reduced by twenty-two, and this in the face of an increase in school enrollment of 713, and an increase in average membership of 730. Since this time the number of pupils per teacher has been allowed to increase, until it reached 32.3 in 1914-15, and this notwithstanding an increase of 33 per cent in the number of high school teachers employed during the past two years, incident to the opening of the new East Side High School. Furthermore, it is the announced intention to increase the size of classes still further, during 1915-16, by employing but few additional teach-

ers. Elementary-school classes will soon be up to forty-five children at this rate.

In 1914-15, for which we have segregated figures, the average membership of 32.3 per teacher, based on the total number of all kinds of teachers employed, meant an average enrollment of forty and an average membership of thirty-five in the elementary schools, and an average membership of 22.3 in the high schools. These figures for the elementary schools are high, 28 to 30 pupils in average membership being nearer what the elementary schools should average. With the tendency to employ less experienced and cheaper teachers, as will be pointed out further on in this chapter, this tendency to increase classes cannot be continued without a serious impairment of the quality of the instruction in the schools.

Position of Salt Lake City as to teachers. To show the position of Salt Lake City in the matter of teachers employed, compared with other western cities, the following table has been compiled.

TABLE NO. 9.

NUMBER OF PUPILS IN AVERAGE DAILY ATTENDANCE
PER TEACHER EMPLOYED, IN ALL SCHOOLS.

City.	Teacher average	City.	Teacher average
Pasadena, Cal.....	19.2	Portland, Ore.....	28.7
Berkeley, Cal.....	24.6	Colorado Springs, Colo.	29.0
Sacramento, Cal.....	24.9	Spokane, Wash.....	29.5
Los Angeles, Cal.....	25.0	Salt Lake City, Utah..	30.3
Denver, Colo.....	25.8	Oakland, Cal.....	30.7
Butte, Mont.....	25.9	San Jose, Cal.....	31.0
San Diego, Cal.....	26.7	San Francisco, Cal....	33.6
Ogden, Utah.....	27.2	Tacoma, Wash.....	33.8
Seattle, Wash.....	27.2		
Average for the group.	27.9	Median for the group.	27.2
Excess of Salt Lake		Excess of Salt Lake	
City above average..	2.4	City above median..|	3.1|

To compare Salt Lake City with the other western cities on the same basis, the number of principals and supervisory officers employed has first been deducted in each case. The figures are based on the last published reports of the U. S. Commissioner of Education, except for Salt Lake City, which is calculated on the basis of the figures for 1914-15.

In other words, this table shows that the average size of classes in Salt Lake City is 3.1 pupils higher than the median point for sixteen other western cities. To bring the average size of class in Salt Lake City down merely to this median would require the employment of sixty-five additional teachers, without making any allowance for the normal increase next September. In view of these figures the announced intention to increase the size of classes next year, by employing but few new teachers, while it may be necessary with the present lack of buildings and funds for school maintenance, is nevertheless an undesirable thing to do from any educational point of view.

Other bad features of the teacher situation. Coupled with this pushing up of the size of classes, certain other very undesirable features are coming in to further complicate the educational problem in Salt Lake City.

In the first place, the number of ungraded rooms in the city is being reduced, though the larger the classes become and the less experienced the teaching force, the more need there is for ungraded rooms and special classes. As will be pointed out more in detail in Chapter IX, the city at present needs at least fifteen additional teachers for ungraded classes in the different elementary schools of the city, and ten additional special teachers for retarded and defective children. These are minimum needs merely to care properly for present conditions. The high degree of retardation in the schools, as will also be pointed out in Chapter IX, and especially in a number of schools having no ungraded room, would indicate the need for lighter rather than heavier loads for the grade teachers.

Another undesirable feature of the situation is the tendency, at present so manifest, to take cheaper and less experienced teachers for the schools. Figure 8, giving the distribution of salaries paid elementary-school teachers during 1914-15,

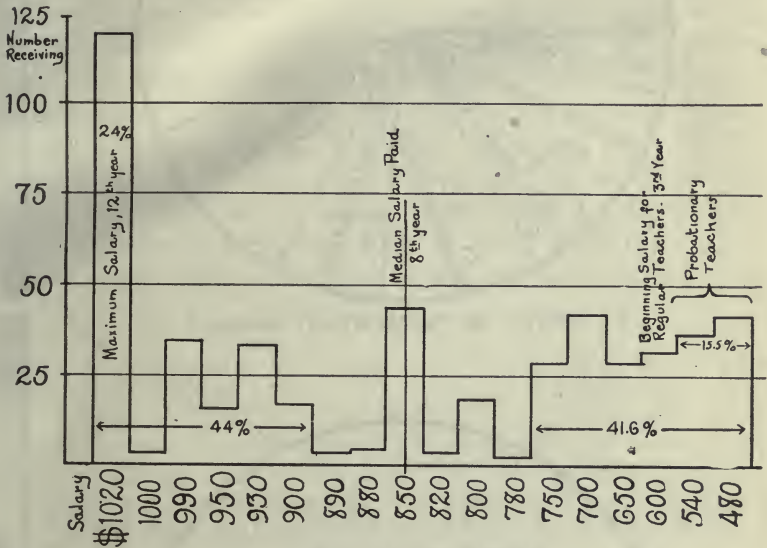
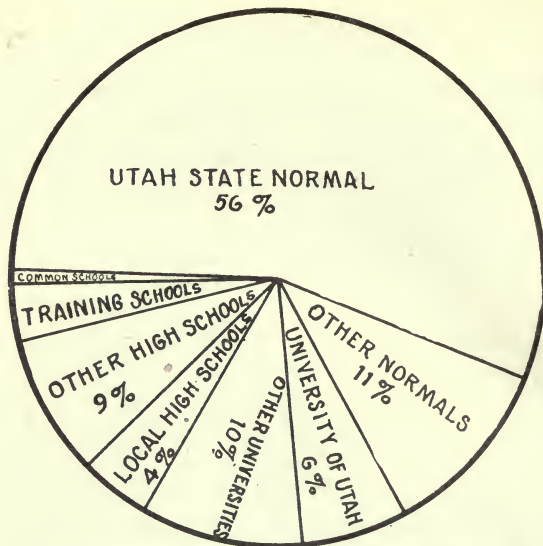
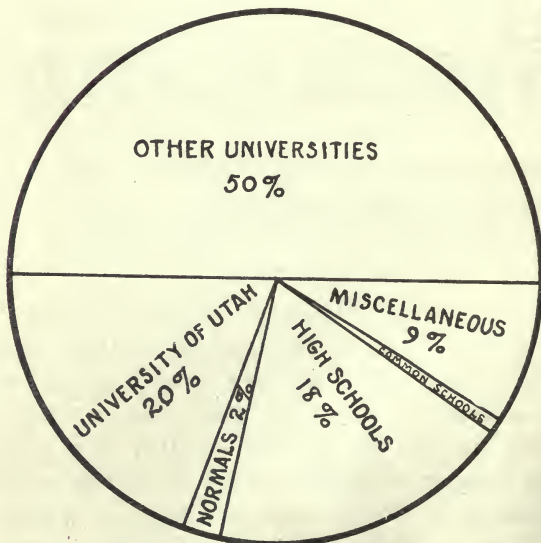


FIG. 8. DISTRIBUTION OF SALARIES PAID ELEMENTARY-SCHOOL TEACHERS, 1914-15.

shows this very clearly. While the minimum salary is nominally \$600, 15.5 per cent of the teachers in the schools have been put in, during the past two years, as probationary teachers at salaries on which no other than a "home girl" could possibly live. That this has resulted in a marked increase in the number of inexperienced local girls selected for teaching positions in the elementary schools is clearly shown by Figure 9, on the following page. Two-thirds of the elementary-school teachers in the city are seen to be "home girls."



TEACHERS IN ELEMENTARY SCHOOLS



HIGH SCHOOL TEACHERS

FIG. 9. WHERE THE TEACHERS OF SALT LAKE CITY HAVE RECEIVED THEIR EDUCATION.

With the isolation under which Salt Lake City to a certain extent suffers, this is entirely too high a percentage of home talent to have employed. It represents an inbreeding process which is certain to weaken the work of the schools Salt Lake City would have a very much better teaching force in its elementary schools if it drew more extensively on teachers who have received their training and experience in other cities and states. The employment of teachers from the outside has been the great strength of the school systems of such cities as Seattle, Portland, Oakland, Pasadena, Los Angeles and San Diego. For Salt Lake City to follow the example of these cities, though, would involve raising the minimum salaries for teachers up to about what the median now is. The salaries paid high school teachers are better, as

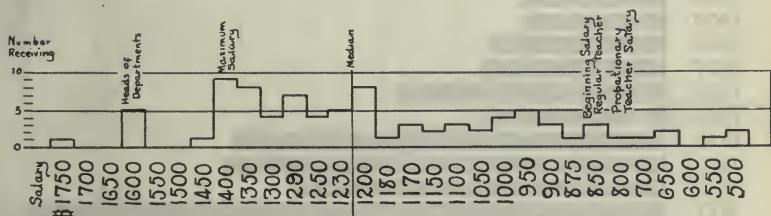


FIG. 10. DISTRIBUTION OF SALARIES PAID HIGH SCHOOL TEACHERS, 1914-15.

may be seen from Figure 10, which doubtless accounts for the greater percentage of outside teachers shown in the lower part of Figure 9.

As the salary schedule in Salt Lake City is graded largely on the basis of the number of years of teaching service, the great massing of salaries toward the lower end of the scale indicate the employment of young and inexperienced teachers. Figure 8 shows that 41.6 per cent of the elementary-school teachers this past year have been paid \$750 or less. Salt Lake City is employing for its schools too many girls of little

teaching experience. This is further brought out by Figure 11, which shows that 50 per cent of the teachers in the city have been in the schools five years or less.

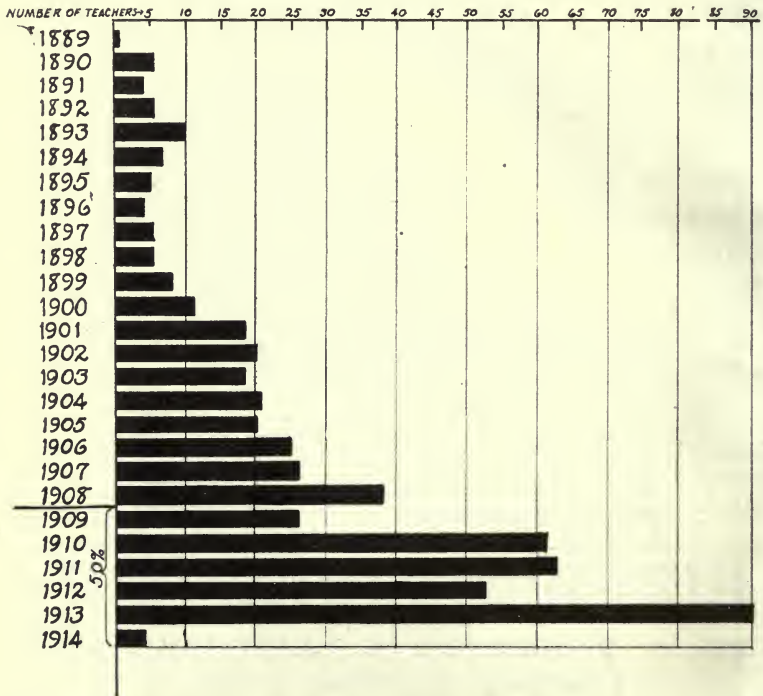


FIG. 11. TENURE OF TEACHERS IN SALT LAKE CITY, AS SHOWN BY THE YEAR OF FIRST APPOINTMENT TO THE TEACHING FORCE.

The Salary Schedules. That teachers' salaries in Salt Lake City are low there can be no question. Salt Lake City is not a cheap city in which to live, and a public school teacher should be paid a salary sufficient to enable her to live as a person of education and refinement should. This demands a salary large enough to enable the teacher to secure a good quiet room in a house where she has regular use of a bath, good food, reasonably good clothing, some money for books and better-class amusements, something left for summer schools and a summer vacation, and a little margin for

the unexpected. \$800 a year, considering the training required and the cost of living, is low enough for a minimum in a western city, and \$1,200 a year is low enough for a maximum for teachers in elementary schools. For high schools, a beginning salary of \$900 and a maximum of \$1,500, with \$1,800 to \$2,000 for heads of departments, are salaries which are not too high when it is remembered that graduation from a university is required to enter the work.

That such salaries are comparable to those paid in other western cities where living costs are somewhat similar, and where good school systems are maintained, may be seen from the following table, comparing teachers' salaries in Salt Lake City with salaries paid in the sixteen other western cities used in other tables in this report.

TABLE NO. 10.

COMPARATIVE SALARY SCHEDULE IN WESTERN CITIES.

CITY	TEACHERS		PRINCIPALS	
	Minimum Salary	Maximum Salary	Minimum Salary	Maximum Salary
I. Elementary Schools.				
1. Salt Lake City, Utah....	\$480	\$1020	\$1350	\$2350
2. Tacoma, Wash.	600	960	1140	1800
3. Colorado Springs, Colo.	600	960	1150	1800
4. Spokane, Wash.	600	1000	1050	1800
5. Denver, Colo.	720	1200	1400	2000
6. Portland, Ore.	725	1100	1050	2150
7. Butte, Mont.	750	1200	1200	1700
8. San Diego, Cal.	768	1200	1200	2004
9. Los Angeles, Cal.	768	1200	1300	2400
10. Oakland, Cal.	780	1200	1500	2400
11. Pasadena, Cal.	800	1100	1200	2100
12. San Francisco, Cal.	840	1024	2340	2460
13. San Jose, Cal.	840	1050	1800	1920
14. Seattle, Wash.	840	1110	1440	2160
15. Sacramento, Cal.	900	1200	1560	1560
16. Berkeley, Cal.	960	1200	1500	2280

TABLE 10, CONTINUED.

COMPARATIVE SALARY SCHEDULES IN WESTERN CITIES.

CITY.	Teachers		Heads of Depart- ments Maximum	Principals
	Minimum Salary	Maximum Salary		
II. High Schools.				
1. Salt Lake City, Utah....	\$800	\$1400	\$1600	\$3800
2. Tacoma, Wash.	810	1350	1600	2500
3. Colorado Springs, Colo.	900	1600	1600	1800
4. Denver, Colo.	1000	1600	2200	.....
5. Seattle, Wash.	1020	1560	1680	3600
6. Spokane, Wash.	1100	1400	1800	3300
7. Pasadena, Cal.	1100	1500	1700	3300
8. Portland, Ore.	1150	1350	1600	3000
9. Berkeley, Cal.	1200	1500	1800	3000
10. San Diego, Cal.....	1200	1600	1800	3000
11. Los Angeles, Cal.....	1200	1680	2160	3600
12. Sacramento, Cal.	1200	1680	1680	2300
13. San Jose, Cal.....	1200	1500	2200	3600
14. Butte, Mont.	1250	1600	1800	3000
15. Oakland, Cal.	1260	1500	2100	3300
16. San Francisco, Cal.....	1500	1730	2040	3600

In both elementary and secondary school salaries, as shown by the above table, Salt Lake City pays the lowest minimum and also nearly the lowest maximum of any western city. Only in the salaries paid principals should Salt Lake City be commended.

Comparative Salaries Paid. That the salaries paid teachers in Salt Lake City are also lower than are paid other types of city employees, and employees in other local lines of business, may be seen from the following table giving wage scales common in Salt Lake City. For purposes of proper comparison all have been reduced to a twelve-month basis.

TABLE NO. 11.

WAGE SCALE FOR DIFFERENT TYPES OF EMPLOYEES
IN SALT LAKE CITY.

PUBLIC SCHOOL EMPLOYEES.

In elementary schools	\$ 40.00 to \$ 85.00	per month	12
In high schools	41.66 to 116.66	per month	12
Department heads in high schools	100.00 to 133.33	per month	?
School janitors			0

CITY EMPLOYEES.

Policemen	\$ 80.00 to \$112.50	per month
Firemen	80.00 to 100.00	per month
Street sweepers.....	1.75	per day
Clerks in city offices.....	75.00 to 100.00	per month
Stenographers in same.....	60.00 to 75.00	per month
Policemen	\$	per month
Firemen, Street Sweepers		per month
Clerks in City and County Offices..		per month
Stenographers in City and County Offices		per month

BANK EMPLOYEES.

Head bookkeepers	\$ 90. to \$125.	per month
Assistant bookkeepers	75. to 100.	per month
Collectors	30. to 75.	per month
Tellers	100. to 150.	per month

RAILROAD EMPLOYEES.

Bookkeepers	\$ 90. to \$110.	per month
Traveling men	100. to 150.	per month
Stenographers and secretaries	50. to 100.	per month
Telegraph operators	85. to 100.	per month

STORE EMPLOYEES.

Bookkeepers	\$ 75. to \$110.	per month
Clerks, male	60. to 100.	per month
Clerks, female	80. to 60.	per month

Conclusions as to Teachers. It will be seen from the tables and charts given in this chapter that the number of teachers now employed is too small, and that the tendency in employment is in the wrong direction; that the schools are securing too many inexperienced teachers, from the immediate neighborhoods, and with purely local outlook and training; that the tendency in salaries is downward, below what is a living wage for any person of education and refinement, and

below a remuneration which will make teaching attractive to the better class of young people; and that the salaries paid are lower than in other western cities, or in other types of city service. What ought to appeal to the best minds as the highest and most attractive service is rendered just the opposite, from a monetary point of view.

To supply the present needs of the schools for regular class teachers and for special teachers, as will be pointed out further on in this report, would require the addition of approximately 100 more teachers to the elementary school service. To pay a salary schedule such as well-trained teachers demand would require, including the new teachers to be employed to meet present needs, an addition of probably 40 per cent to the present allowance for teachers' salaries. This is doubtless impossible under the present tax limits, but it is no less a necessity if the schools are to be put in condition to render the full service that they should. A continuation of present tendencies cannot fail to interfere seriously with the efficiency of the instruction in the schools.

In presenting these criticisms of the present policy as to teachers, necessitated by the present financial situation, the survey staff do not wish to leave the impression that they feel that the teaching force is not rendering good service. On the contrary, we felt that the city was getting more for its money than it had a right to expect. In every school we found a few excellent teachers, a number of good average teachers, and one or two teachers who seemed to lack experience and grasp. The last is not at all surprising, considering the type of young people being taken for the work. That the teachers were rendering as good service as they were, considering the inexperience and lack of contact with life elsewhere of many of the newer ones, was in large measure due to the good supervision given their work by the principals and special supervisors.

CHAPTER V.

SCHOOL CENSUS AND SCHOOL ATTENDANCE.

(Cubberley)

The Increase in Both. The drawing which appears on this page shows the increases in school census, school enrollment, and average membership in the schools of Salt Lake City for the past quarter of a century. In a general way the three follow somewhat parallel lines, though the increase in enrollment and average membership during the past fifteen years has not quite kept up with the increase in the school

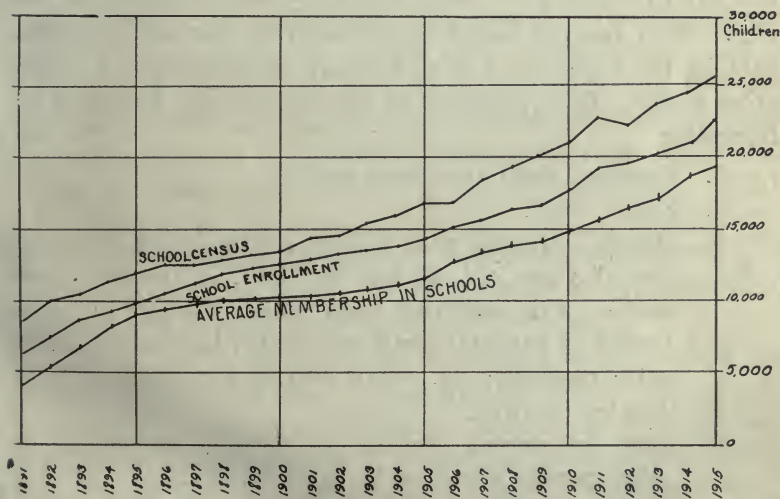


FIG. 12. INCREASE IN SCHOOL CENSUS, ENROLLMENT, AND AVERAGE MEMBERSHIP.

census. The increase in school census as reported by the enumerators has also been less regular than has the increase in enrollment and average membership, as shown by the more

jagged line. A natural question raised by such a curve is as to whether the different enumerations have been carefully made. It is hard to explain the decreases in 1906, and again in 1912, on any other basis than a failure to enumerate all the existing children. As all apportionments of state school money are based on the school census returns (children over 6 and under 18 years of age reported as living within the city) and as the amount apportioned is a considerable sum (\$13.00 per child in 1913-14) it doubtless would pay the board of education to revise the methods in use for taking the annual school census.

A School Census Bureau. A school census bureau should be created, in connection with the department of compulsory school attendance, and it should compile accurate records of the children living in every block or school district in the city. Such records might be collected by the school principals, by the department of compulsory attendance, or by some other means. Each pupil-record should show the following information.

1. Name of child (surname first).
2. Sex of child.
3. Month, day, and year of birth, from which the number of years old, at last birthday, is also to be set down. The authority upon which the age is taken (word of parents; birth certificate; baptismal certificate; passport; etc.) shall also be set down.
4. Country of birth.
5. Name of parent (father or mother), guardian, or other person standing in parental relation.
6. Abode, including school-attendance district, post-office address, and street and number.
7. Physical condition (good; deaf; dumb; blind; crippled).
8. Mental condition (good; otherwise).
9. School attending (public; private; parochial).
10. Position in school (grade).

11. Reason, if not attending school. .
12. If employed, where and how.
13. Vaccination certificate record.

A duplicate card system should be employed, one card to be retained in the office of the department of compulsory school attendance, and one at the school the child attends. This form of school census should be always in the making, so as to keep it accurate and reliable. School teachers and principals should report all changes and additions, and the school principals could be employed on Saturdays or in vacation to check up and keep accurate the information for their school districts.

All such data should be sorted and tabulated by schools, or attendance districts, and the attendance of each child at public, private, or parochial school, or non-attendance at any school, should be indicated on the records. The annual state school census, required by the laws of the state, could be taken each July from the card records on file in the office of the attendance department. By using some care to maintain such records in accurate form, the whereabouts of every child of school age could at all times be known. Such a form of continuing school census has been established by a few of our cities, and is the only form that possesses much real value as a record, or for the enforcement of the compulsory-attendance, child-labor, or working-permit laws.

Such a plan calls for the appointment of a man or woman who will give full time to keeping the records accurate, and some extra clerical assistance at certain times of the year. The school principals could be used for much of the work, as they constitute the most intelligent body of assistants obtainable. Such a census bureau would of course cost something to maintain,—perhaps \$5,000 a year,—but it probably would more than save its cost in increased earnings from the state grants, in addition to affording a much better basis for the enforcement of the state laws relating to the education and protection of children.

Value of such Records in Locating School Buildings. A tabulation of such records, from year to year by blocks and by districts, would also be of much value to the officers of the school department in determining the growth, the rate of growth, and the changes in character of the school population in the different districts of the city. From such data the needs of the school department in buildings, rooms, equipment, and teachers could not only be somewhat accurately determined, but determined sufficiently long enough in advance to enable the school department to provide proper school facilities. It is from some such form of record that a telephone company knows where to locate a branch exchange, and when to replace its lines with others capable of caring for increased business. With such records available, such errors of personal judgment as the board of education made last year in deciding to locate a new building on the already over-crowded Hamilton School site, and later, after the type of building had been decided upon and plans had been drawn, reversing itself and locating the building as originally recommended by the superintendent of schools, could easily be avoided. From reading the minutes of board meetings for July, August and September of last year, one would be led to infer that this needless mistake cost the board a large amount of time, and caused much bitter feeling. Under a good record system, such a case could easily have been avoided.

Enforcement of Compulsory Attendance. The school law of the State of Utah requires the attendance at some school of practically every child in Salt Lake City, between the ages of 8 and 16, for at least 30 weeks each year. The reports of the school truant officer, as printed in the annual reports of the board of education, would indicate that the attendance of children is looked after as well as one man can do such work in a city of 110,000 inhabitants, and covering fifty square miles of territory.

Figure 13, showing the ages of all children belonging to

the schools in May, 1915, shows that attendance holds up fairly well to the end of the 15th year. Figure 14, however,

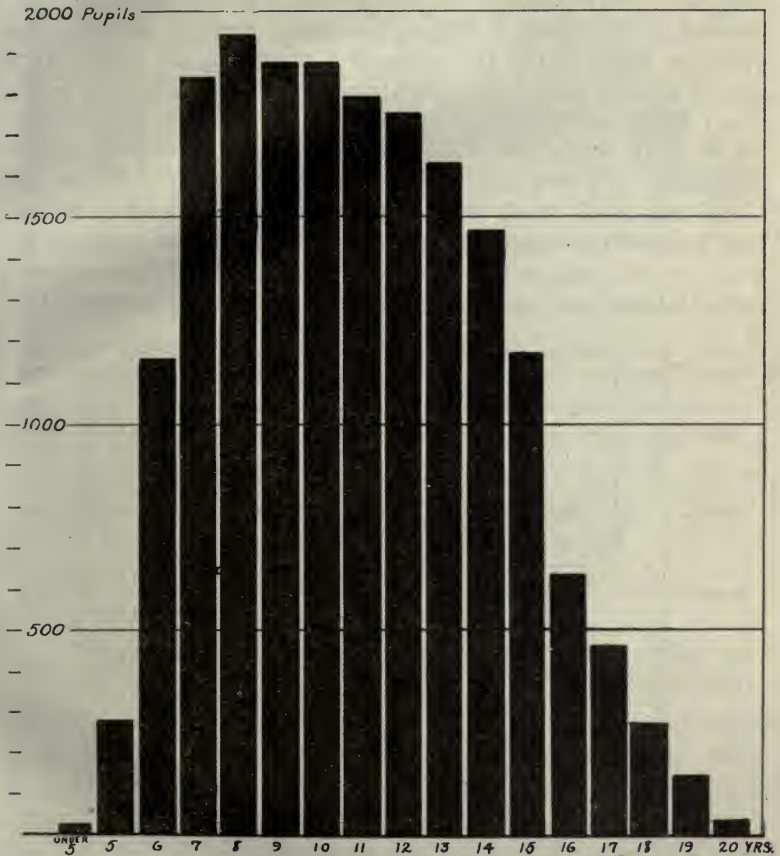


FIG. 13. DISTRIBUTION OF PUBLIC SCHOOL PUPILS IN SALT LAKE, BY AGES.

shows that attendance drops very rapidly in Salt Lake City after the completion of the 6th school grade, and this fact, together with the large number of over-age children in the

grades, as shown by Figure 28, makes it almost certain that a large number of the older children, held in school by the enforcement of the compulsory education laws, are pupils who are "mired down" in the grades and are hopelessly repeating work which is not at all suited to their needs. This must be particularly the case with many of the boys. It is almost certain that a vocational school for such children would be of great benefit not only to them, but to the grades from which they would be withdrawn as well. No school system consisting of grade instruction alone can ever meet the educational needs of those markedly over-age boys and girls who find themselves unable to make satisfactory progress in the work of the ordinary school course of study. The needs of such children are considered more at length in Chapter IX.

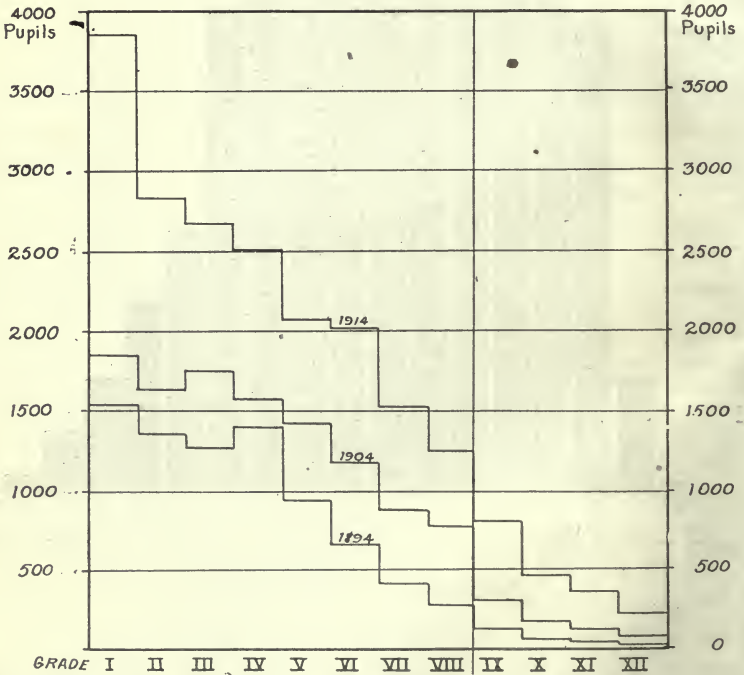


FIG. 14. CHANGES IN THE ENROLLMENT BY GRADES IN TWENTY YEARS.

Where the Schools are Increasing. Figure 14 shows the increase in pupils enrolled in the schools at the close of each ten-year period for the past three decades, and their distribution throughout the school system by grades. This is an interesting chart. In 1894, the great dropping out of children took place after the completion of the 4th school grade, the number remaining to the close of the 8th or going on through the high school being quite small. During the ten-year period up to 1914, the schools actually increased more in the four upper grades than in the four lower, a rather anomolous situation. During the last ten-year period, the great gain has been in the first six grades.

The marked falling off in attendance is now seen to take place at the close of both the 4th and the 6th school grades, with another heavy mortality at the end of the first year of the high school. The loss at the end of the 9th grade is almost as large as the loss at the end of the 8th. These curves naturally raise a question as to whether the courses of study and the types of education provided for the children below 16 years of age is the best the community can provide. This question will be considered more in detail in the succeeding chapters of this report.

Pupils Completing the High-school Course. The small number of pupils finishing a high school course, or even continuing into the second year of the high schools, is a noticeable feature of the distribution shown in figure 14. In a community such as Salt Lake City, a community of good racial stocks, low illiteracy, good educational traditions, a state university at its doors, and much wealth, this is a rather surprising condition to find. One would expect, in such a city, to find a large rather than a small percentage of pupils in attendance at the high schools. But, notwithstanding the rather marked increase in high school enrollment during the last decade, the percentage in the high school grades is still quite low. This condition naturally raises questions as to the adaptability to community needs of the instruction now

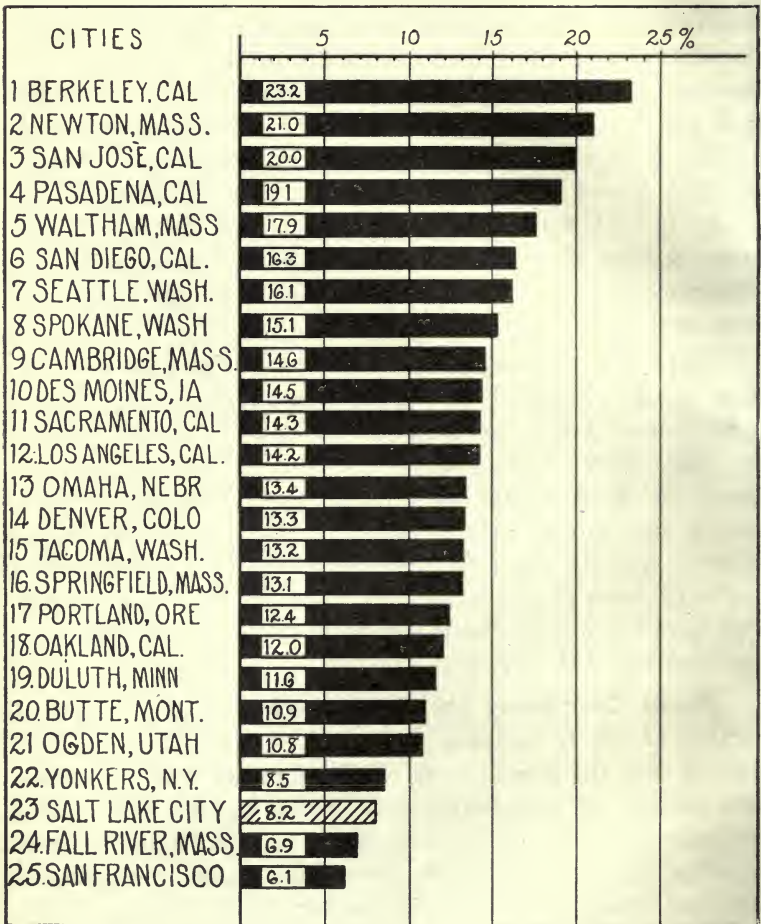


FIG 15. THE PERCENTAGE WHICH THE ATTENDANCE AT THE HIGH SCHOOLS REPRESENTS OF THE ATTENDANCE AT ALL SCHOOLS.

offered in the Salt Lake City high schools. This question we shall consider at length in the second part of this report.

To compare Salt Lake City in this respect with other cities, Figure 15 has been prepared. This shows, in a series of percentages, the relation which the number of pupils in attendance at the high schools in the different cities bears to the total number of pupils attending all schools in the city. Salt Lake City is here compared with twenty-four other American cities, including the sixteen western cities previously used. The data used for all cities is from the published reports of the United States Commissioner of Education, and covers the school year 1912-13, which is the last year for which reports are as yet available. Salt Lake City has also been calculated for the year 1914-15, from figures furnished by the superintendent as to this year's attendance. It would be expected that the opening of the new East Side High School would have materially affected the attendance, but the increase is only from 8.2 per cent to 9.2 per cent. This raises Salt Lake City only from the twenty-third place among twenty-five cities to twenty-second place.

This chart tends to confirm the impression, raised by a study of the curves of Figure 14, that the courses of study offered in the Salt Lake City high schools are not as well adapted to the needs of the children of the city as they should be. The last two years of the elementary-school course also probably lack in power to interest the pupils in carrying their studies further. These questions will be considered further in the second part of this report, where certain reorganizations, calculated to improve the upper-grade work and make the entrance to high school more attractive, are presented.

PART II

The Work of the
Schools

CHAPTER VI.
THE PRINTED COURSES OF STUDY.

(Van Sickle)

Order of Procedure. Turning now to the work of the schools themselves, we shall attempt to evaluate, with some care, the work which they attempt and carry out. First we shall examine the printed courses of study and outlines for work that are issued for the guidance of teachers in the schools, to see in how far these meet the best standards as to what should constitute school instruction. This will be done in the present chapter, taking first the kindergarten, and then the different subjects taught in the elementary school, and in the order in which they are presented in the printed courses of study. In the chapter which follows we shall attempt to evaluate the instruction and supervision as seen by the different members of the survey staff, and shall make recommendations for certain desirable extensions of the school work.

Opinions and Tests. Both of these chapters will, of necessity be based largely on the personal opinion of the members of the survey staff, based in turn, we hope, on a knowledge of what constitutes good theory and current practice in the best of our American school system. Following these two chapters, and in a way supporting their conclusions, will come two other chapters, which are in no way based on personal opinion, but instead on careful measurements as to the results of the instruction and administration of the schools, using standard tests and carefully collected statistical data.

This second part of the report must, by its very nature, be somewhat scientific and technical, as any other than a scientific and technical treatment of the problem would be

of but little value, but to those charged with the administration and instruction of the schools the results here offered should prove of very great use. We also venture to hope that this second part has been put in such form, and the results so illustrated by diagrams, that the laymen, as well, may be able to understand it and from it derive an accurate and intelligent idea as to the actual work which the schools of his city are doing.

I. THE KINDERGARTENS.

The Kindergarten Theory. As outlined by the supervisor of primary schools and kindergartens this seems to be of the liberal type, but the equipment for carrying out this theory is inadequate, in that it consists of the old-time small gift blocks and occupation materials. A theory in line with the best modern thought cannot be consistently worked out by means of an equipment designed for an extremely conservative and now almost abandoned practice.

A valuable feature of the printed directions to kindergarten teachers consists of suggestive exercises for the training of the senses of touch, sight, and hearing similar to those cited by Halleck in his "Education of the Central Nervous System." To quote from the outline in this connection:

"The development of the senses always precedes intellectual activity, but we often demand the activity before we have given any training to the senses, or at least any regulated, purposeful training.

"Because the period of life between the age of three and the age of eight is one of rapid sense development, and because during this period the child responds readily to the sense stimuli of his environment and but little to reason, the kindergarten should make sense training one of its chief lines of work.

"Sense training exercises are exceedingly valuable not only because they result in trained servants but because they demand more or less concentration and therefore beget the habit and increase the power."

Considering some of the other aims of the kindergarten work, the outline continues as follows:

"We must remember that a kindergarten is not an entity, it is a link in a chain, and as such we should see to it that it will fit into the next link. Teachers of the first grade have a right to expect children who have had a kindergarten training to come to them with greater sensory power, with some ability to receive and follow directions, some manual power, some idea of self-control in the interest of the social group, a desire to achieve an independent solution of their little problems, and possessed of an alertness of sense perception not looked for in children who have not had such training."

More kindergartens needed. The more prosperous portions of the city are well supplied with kindergartens. It would appear that in locating kindergartens there has been no comprehensive study of the needs of the various sections. Some of those in greatest need of them have none at all. Where there is great need there is naturally little realization of the need, and therefore no demand has made itself felt. This does not relieve the school department of the duty to look out for portions of the city in which the people do not know how to look out for their own interests. A kindergarten is greatly needed in each of the following schools: Bonneville, Irving, Onequa, Poplar Grove, Washington, and Webster.

II. THE COURSES OF STUDY FOR THE ELEMENTARY SCHOOLS.

It may be said at the outset that with two principal exceptions to be discussed later, manual training and physical training, the courses of study as outlined for the Salt Lake City schools are worthy of much commendation. Unlike many similar publications, the volume does not appear to be a mere compilation. A definite theory of education underlies the development of each subject, and unusual attention has been paid to the relation which one subject bears to another. By means of the close correlation thus worked out great economy of time is possible, both in teaching and in learning.

How the courses of study were made. It is noteworthy that in preparing the present courses of study the superintendent and the supervisors were aided by the advice of a committee of five teachers from each grade, and a similar committee of principals. The writing of the courses could without doubt have been more quickly done in the superintendent's office, without time-consuming consultations with members of the teaching force. Thus prepared, they might have been quite as good, or even better, and yet have failed to serve as useful a purpose. They would have seemed to have been imposed by authority rather than adopted as a result of co-operative effort, whereas courses formulated in part by the teaching force, as in this instance, will be understood by all and all, having had a certain responsibility in their preparation and adoption, will be in sympathy with their aims and standards.

The making of courses of study is best managed when the preparation is utilized as an opportunity, as has been done in this case, to increase the efficiency of the teaching force by securing the thoughtful participation of teachers in the work and responsibility involved. For these reasons the plan under which the Salt Lake City courses of study were formulated is to be commended. The committees to which reference has been made were appointed by the superintendent. Similar committees elected by the teachers themselves are now deliberating, not only on further desirable revisions of the courses, but also, at the invitation of the superintendent, upon any other feature of school procedure about which they care to make recommendations.

Wherever such co-operative relations exist between the supervising officers and the teaching force in a school system one may reasonably expect the favorable results that always come from team work. In their visits to the schools the members of the survey staff have been at some pains to find out whether there is in fact in the Salt Lake City schools the mutual confidence and co-operation between teachers and

supervisory officers which their plan would lead one to expect. It is our opinion that such a relation has been developed to a good degree, and that its effects are evident in the daily procedure in most of the school rooms visited.

What the courses prescribe. The courses of study prescribe minimum attainments which children must possess as a condition of promotion. Beyond this minimum great freedom is allowed. In developing any course of study for any grade beyond the minimum which is deemed attainable by the slowest pupil, the superintendent places large responsibility upon the principal, so that he may adapt the work to any need peculiar to the local community. The principal in turn gives large liberty to the teacher in meeting individual needs of pupils, and in following out lines of interest. Under such conditions the teacher cannot degenerate into an automaton. She requires the children to think for themselves, to use their heads. This emphasis upon thought rather than mere memory was noticeable in nearly all school rooms that were visited. There was evidently much to be desired on the score of broader preliminary education on the part of many teachers, yet this lack was evidently being met, to a considerable extent, by the student attitude and consequent growth in power characteristic of a body of teachers who are being stimulated to regard their work as the solution of a series of vital problems rather than as a routine task.

Diversity in time allotments. As might be expected in a system of schools in which considerable freedom is accorded teachers, there is much diversity in the time allotted to the various subjects in different school rooms of the same grade. This is clearly shown in Table No. 12. One cannot say so many minutes per day are devoted to spelling in the sixth grade of the Salt Lake City schools, so many to arithmetic, and so many to reading. The needs of the particular class determine the time. No teacher can excuse poor work by saying, "I have used faithfully each day during the semester the time prescribed for the subject. It is therefore not my fault that

TABLE NO. 12.

Showing the maximum, the median, and the minimum number of minutes per week given to each subject in all schools. Only the "B" classes are included, distribution for "A" classes being approximately the same.

SUBJECT	GRADE																					
	I		II		III		IV		V		VI		VII		VIII							
	Max.	Med. Min.	Max.	Med. Min.	Max.	Med. Min.	Max.	Med. Min.	Max.	Med. Min.	Max.	Med. Min.	Max.	Med. Min.	Max.	Med. Min.						
Morals and Manners	75	25	5	50	25	5	100	31	10	70	26	10	60	23	10	50	27	20	50	45	10	
Reading and Literature	550	275	140	625	300	50	975	200	155	725	352	90	300	210	75	300	200	120	280	200	90	
Phonics and Phonetics	400	78	25	300	75	20	125	52	10	125	50	20										
Language and Grammar	200	75	20	200	75	20	175	100	20	200	125	70	300	175	100	365	225	145	480	255	150	
Spelling				300	100	30	250	150	60	225	125	75	175	100	75	190	105	50	180	105	60	
Writing	150	50	20	150	50	20	100	75	20	100	74	45	150	75	50	150	70	40	100	70	40	
History, Civics and Sociology	50	*	5	75	*	25	80	25	10	160	50	25	200	53	10	250	50	25	375	230	150	
Nature Study	150	50	15	100	50	10	90	50	20	125	50	15	110	30	12½	90	32	20	100	30	20	
Geography							160	100	60	225	150	100	300	225	125	300	250	150	375	250	150	
Arithmetic	175	50	20	400	100	30	450	225	80	500	225	100	380	250	180	350	245	125	325	250	180	
Physiology and Hygiene	25	*	10	25	*	10	50	20	10	145	35	10	200	30	15	210	82	15	150	50	15	
Physical Education	300	75	25	200	50	25	300	75	50	275	75	50	240	75	40	235	53	40	235	65	40	
Music	225	75	30	200	100	30	145	100	60	125	100	75	150	100	75	125	95	60	125	95	75	
Art and Construction	275	120	45	300	120	45	240	125		180	120	50	135	100	30	125	90	20	120	60	20	
Domestic Art and Domestic Science													130	60	30	150	100	20	140	90	60	
Mechanic Arts										120	75	60	130	40	40	150	90	50	120	90	60	

*But few Classes.

†Includes Recess Period in Numerous Cases.

the children have not met the minimum requirement of the course of study." The time was the teacher's to apportion. It was her responsibility to gauge the relative strength of the class in the various subjects, and work out a time schedule to fit the particular problem presented by her own pupils; not only to work it out, but to change it from time to time to meet changing needs as they develop.

Early in each new term the teacher submits to the principal a tentative daily program for his approval. This program, either as first presented or as modified, after consultation, is placed on the blackboard of the school room, to be followed till some modification seems desirable when, with the minimum of red tape, the desired change is approved and made.

Table No. 12 was made up from blanks filled out by the teachers themselves, on the basis of time schedules actually posted in the school rooms at the time of the survey. The variation in the time devoted to given subjects by different teachers of the same grade, as shown under the headings "Maximum" and "Minimum" in the table, are so great as to suggest the probability that some subjects are being neglected by some teachers, while other subjects are overemphasized. While believing in the principle of freedom on the part of the teacher in regulating her own program, and in corresponding responsibility for results, the survey would suggest the desirability of a more careful examination and criticism by some principals of the time schedules for their classes before approval.

From a study of Table 12 this responsibility on the part of the principal would appear to have been performed in many instances in a somewhat perfunctory manner. In order that so much freedom may not be harmful instead of helpful, all who are charged with responsibility in such matters must live up to that responsibility. Where such extreme variations as appear in this table become common, it is not a matter for surprise that many superintendents feel driven to the unfortunate necessity of going to the opposite extreme and prescrib-

ing time limits as the lesser of two evils. The recommendation of the survey is that the freedom in this regard that now obtains in Salt Lake City be not curtailed, but that principals and teachers, by study and consultation, arrive at a consensus in the matter which will result in a more uniform apportionment of time than now obtains. However, it would not be out of harmony with the general plan of the course of study to make a minimum prescription as to the time to be devoted to each subject, grade by grade, if sufficient time were left unclassified to give the teacher reasonable scope for shifting emphasis from one subject to another as occasion might seem to her to require. The policy of teacher participation, under which the Salt Lake City courses of study have been formulated and from time to time revised, is commended as likely to secure sympathetic and intelligent application in the school room, and at the same time to promote professional growth of teachers in service.

Pupils who cannot accomplish the minimum. It is noted in the foreword that the course "represents the minimum attainments to be made by pupils before promotion to a higher class," and "to secure uniform and thorough work these standards should be carefully observed."

One adverse comment must here be made: Although, in the courses as outlined, only minimum attainments are insisted upon, attainments easily within the reach of normal minded children, it must be remembered that among children of school age everywhere there are many for whom mastery of the ordinary courses of study is impossible. The Salt Lake City schools present no exception to this world-wide condition. As is shown in Chapter IX, there are approximately 600 children enrolled in the schools who are of such a low grade of mentality that they cannot profit by strict adherence to even the minimum requirements of courses of study prepared for normal children. In its insistence upon "uniform and thorough" work, without exceptions either stated or implied, the demand

is altogether too sweeping. It is likely to be misleading, too, since in the ordinary school rooms throughout the city there are many children of this class who for various reasons are not transferred to the special (Twelfth) school, where of course it is understood that the regular curriculum need not be followed.

Furthermore, it is questionable whether the ordinary courses of study are suitable for a relatively large group of children found in all school systems who, while not feeble minded, are unable to deal effectively with printed symbols, and who are consequently handicapped in their progress through those courses of study which are best fitted for such children as can readily gain ideas from the printed page.

No exact statement can be made as to the number of children of this type. Estimates vary from 10 to 30 per cent of the entire enrollment. One cannot study the statistics of retardation in the Salt Lake City schools, as presented in Chapter IX, without coming to the conclusion that the conditions just set forth, and found to exist throughout the country as a whole, also exist here. At this stage of progress in our knowledge of the needs of children of this type, it would be too much to expect that courses of study should provide any complete scheme for the education of pupils who are retarded through inability to think in symbols; but every school system should recognize the presence in the schools of a considerable number of such children, and in general terms indicate the limits within which prescribed "minimum attainments" are to be insisted upon. Some possible and desirable substitutions for the present prescribed work will be offered later in this report. The problem demands careful study, and the fine attitude of principals and teachers toward attacking vital questions should be utilized to formulate a working plan for the next revision, which will be adapted to local conditions, and by means of which the children who are at present misfits in the regular courses may find a more objective approach to the school arts than current practices provide.

III. THE SCHOOL SUBJECTS IN DETAIL.

1. **Morals, Manners, and Civics.**

Prominence given to this subject. Prominence is given to a chapter on morals, manners, and civics by giving it first place in the printed outline. It would not be easy to suggest a better selection of topics for emphasis than are here presented. There can be no question that the phase of a school's influence on the lives of its pupils represented by this chapter is of the highest importance. We may even say that the part of the work of the schools covered by the topics in this chapter transcends in importance all the other work outlined without in the least overstating the case; and yet the question arises, would it not be better to teach morals, manners, and civics as the occasion calls for such instruction through the work outlined as Reading, Literature, History, Civics, and Sociology?

The question here raised is not upon the importance of this phase of instruction, but upon the most effective way of giving it. Teachers are likely to get the impression, from the apparent segregation of this part of the course from the portions of which it is naturally a part, that it is a subject by itself and adequately dealt with only when given a separate place on the daily program. It is readily admitted that this view has the support of many whose opinions are entitled to respect.

Both methods of teaching of morals, the direct method and the incidental method, are enjoined in the outline. If a separate period is to be set apart for this work, the one suggested in the course of study, the period devoted to the opening exercises of the morning, is more appropriate than any other period of the day.

2. **The Language, or English Group.**

Emphasis on English work. The following closely-related

subjects are included: Reading and literature, phonics, language and grammar, spelling and writing. Sixty-four pages of the course of study are devoted directly to these various phases of English work, and, in addition, suggestions for utilizing the abundant opportunities for English teaching afforded by other studies are of frequent occurrence. Everywhere in the course of study clear and forceful expression is emphasized. This is particularly true in history and geography. On page 153 we find the following statement:

“Geography offers excellent opportunities for training in oral and written language. Proper training in thought processes should at the same time develop power of oral and written expression. Give careful attention to the mode of expression in both oral and written work, but do not restrict freedom of expression by ill-timed criticism. When one pupil is reciting, require respectful attention from all others.”

On p. 114, “Much of the foregoing subject matter (history) may be considered in language”; and, on p. 121, “An excellent opportunity is presented in the study of history to create an appreciation of and a love for many beautiful and inspiring literary productions, poems, and songs.” Suitable selections are suggested. A careful examination of the chapters dealing with different phases of English work leads to the conclusion that the course has been worked out with care and intelligence, and in its content is in general accord with the theory and practice in teaching English which prevails in the best school systems of the country.

Reading and Literature. The strong points in the treatment of this phase of the work seem to be:

1. The effectiveness of the method used in teaching beginners to read. During the first two or three years of a child's school life proficiency in reading is the main requisite for promotion from grade to grade, and a pupil's progress throughout the school course is influenced largely by his power to read and interpret the books to which he has access. From the first attention is centered upon the meaning of what is read.

2. The ban is placed upon nagging about minor inaccuracies. "Placing undue stress upon errors, grammatical construction and inflections, per se, will do little to secure cogent thinking and fluent and flexible expression." (p. 47.)

3. "The stir of the inner man, not the criticisms of outer manifestations, makes for improvement, development, growth." (p. 43.)

4. Emphasis upon the importance of strong selections, possessing unity of effect.

5. The insistence upon the teacher's seeing the end of each reading lesson, upon purpose, plan, and a well-thought-out presentation.

6. Dramatization as an adjunct to good reading.

7. The care taken to insure home reading.

Several suitable books have been suggested in connection with the prescribed reading, in classes above the third grade, and pupils are shown how they can obtain these books. An incidental aim is to teach pupils the use of a library and to bring them frequently into its environment. The results are held to be, to an extent at least, a measure of the teacher's power to inspire her pupils with a genuine love of reading.

Good oral reading. A departure from the usual procedure in oral reading, and one likely to forward this aim, was noted with approval in two class rooms. Ordinarily the child who is reading has no audience in any true sense. All members of the class have the same book and follow more or less attentively the reader's performance. He has no very strong motive for clear enunciation or the cultivation of a tone that will carry to distant parts of the room. No one needs to depend upon his performance in order to understand the paragraph or the selection which he reads. In these two instances the reading was from an interesting library book,—not the regular school reader. Only one copy was available, but the children who in succession read from this book had a real audience, and they held their audience, too. There was the keenest interest in the story, and the attention was absolute.

If a reader failed momentarily to make himself understood, mass sentiment made itself felt. The effort of the reader was directed toward making the class understand the story. The story was one that the class wished to understand, consequently the exercise claimed and secured the undivided attention of all.

The practice of oral reading under conditions which hold the reader responsible for making the thought of the author understood by a real audience ought to be far more common in schools than it now is.

Where improvements might be made. Two reservations must here be made with regard to directions otherwise excellent.

1. In the outline for first grade, teachers are warned not to allow children to read orally till they can read smoothly.

This implies that children just beginning to read are required to commit to memory, for the moment, every sentence that they read orally. They then look up from the book and "deliver" each sentence to the class.

It is evident that only very brief sentences can be so committed and delivered, and that children who adhere to this practice are in danger of being held to the reading of primer literature long after they have sufficient power to read books of real merit, but containing sentences too long to be rendered glibly and without any stumbling. In the beginning, if the child himself can get the thought from the printed page, he is doing the essential thing. As early as possible, however, he should be taught to read by phrases rather than word by word, in order to facilitate his interpretation of an author's thought.

It is not so much a question of how fluently pupils go through a certain class of reading matter, as a question of the sort of reading habits that are being formed.

2. The course is entirely lacking in directions for silent reading. One great purpose in teaching reading, and one

which should receive some attention even from the first, is its value for the reader's own benefit. In the course of the survey much oral reading was heard, and, on the whole, it was good reading; but definite practice in silent reading for the thought of the selection was never seen in progress. Power in this direction is implied in the provision for home reading, but there should be definite school practice in order to make sure of adequate results. The school rooms of the city are well supplied with reading material. This is especially noticeable in the primary grades, where even in the first grade children read from ten to twelve or more primers and first readers. In the intermediate grades some of the work in history is done in the reading period. This is true also of hygiene. In both cases the text-books used, having been written with more regard to literary form than some books of their class, lend themselves very well to this time-saving plan.

Phonics. The outline in Phonics provides for the necessary amount of work in ear training and gives a good working list of phonograms, suffixes, and prefixes.

The introduction of diacritical markings is very wisely postponed until the latter half of the third year in school. The outline makes no definite provision for instruction in the use of the dictionary, but the phonetic study prepares pupils to interpret dictionary markings and to distinguish the root forms from which words are evolved.

The course is progressive and practical.

Language and grammar. The strength of the work in the primary grades seems to be found in:

1. Making grammar work dramatic and in confining the exercises to troublesome verbs, as, "action and object exercises involving the verbs, pronouns, and adjectives used in class B of first grade; also set; sit; sat; lie; lain; lay; laid." (p. 72.)

2. Stimulating the imagination of the pupils by the use of pictures. "Pictures are always available, and, if good, never fail to stimulate the interest of children. * * Pictures fur-

nish an excellent basis for imaginative stories, which may be given orally or in written form." (p. 67.) In circular No. 14, the primary supervisor gives a valuable discussion of stories from pictures. She begins the discussion with this much needed caution:

"The picture story has too often meant to both teacher and pupil a description of the picture, when it should mean the story which the picture tells."

3. Giving much time to oral expression before beginning written work.

"The stimulation of the desire to use good language, and much practice in correct oral expression in the school, are imperative to counteract the tendency to use incorrect forms on the play-ground." (p. 68.) "No written work to be required in this class (Second A), but much drill in the retelling of short stories limited to one or two characters, and a single action, previously told by the teacher." (p. 72.)

4. Making every lesson a language lesson. "All the language work of this class (First A) should be oral work, and every recitation should be in a greater or less degree, a language lesson." (p. 69.)

5. Committing to memory many fine models of literature.

"Selections of poetry should be committed to memory to be recited, to be sung, to be made the subject of conversation. This exercise may be conducted on a generous scale." (p. 67.)

6. The frequent use of the dramatic method in oral composition.

"Dramatization of simple stories to give freedom in oral expression and make the thought of the story real." (p. 68.) "The stories and poems of this grade (First A) are to be told and recited by the teacher, and should not be read to the children." (p. 69.)

Spirit of the upper-grade work. The spirit of the course in Language and Grammar outlined for the grammar grades

is illustrated by the following paragraphs under "Suggestions for Grammar Grades."

"The first requirement of the school is to cause the child to be at home in his school world; to express his thoughts here as freely and frankly as he does elsewhere; to be as spontaneous in his expression in school as he is out of it. This will scarcely come to pass if his mind is centered too much on the form, if he is too conscious of the possibility of error.

"The function of all language and grammar work is to cause the learner to come into full possession of himself; to be sensitive and responsive to the influence of thought; to be able to express himself fluently, elegantly, thoughtfully; to know the fitting word or phrase and to know why it is the most fitting term to use. To know the parts of speech, the rules and definitions of technical English, and the analysis of each and every sentence, only is really worth while when this knowledge can be transformed into working capital which can be invested properly and profitably in all the occasions of the life of thought."

Some of the admirable qualities in language work for grammar grades are:

1. Composition laws and grammar rules are considered of value only so far as they aid the pupil to speak and write with clearness, force and ease.

2. The insistence upon the study of model selections in teaching composition and appreciating the ideal in literature.

3. The idea that language study is a part of every lesson.

"Language teaching is not to be confined to the language lesson alone. Every lesson is to a degree a language lesson. It is of little avail to lay stress on rules of language during the regular lesson, and then for all the rest of the day permit children to be careless in their talk and written work." (p. 84.)

4. The equal emphasis upon oral and written expression.

5. The emphasis upon content as well as form.

"Subjects for conversation and for composition are always to be adapted to the age, knowledge, and interests of the children. Something to say and a desire to say it are both essential prerequisites to good language." (p. 86.)

6. Constant attention to enlarging the students' vocabularies.

"In all language work the child must not only be taught to master his vocabulary, but he must be taught to acquire a vocabulary worthy of mastery. If the child is to acquire an adequate and worthy vocabulary, the teacher must purposefully guide him in the acquisition and use of that vocabulary." (p. 85.)

3. Spelling

Directions for the work in spelling. The suggestions and directions for teaching spelling given in the course of study are excellent. A spelling book is used, beginning with the third grade. Work in phonics which, as a distinct course, terminates with the third grade, is not to be neglected. A review of the phonograms previously taught is called for in the fourth grade course in spelling. In the fourth and every succeeding grade to the eighth the correlation idea is emphasized in the following direction:

"Many words are to be learned as they are needed in the study of different subjects, or as the child's written expression demands. Spelling drill should be a lively exercise."

This excellent suggestion also appears:

"Prevention is better than cure in spelling, and the skilled teacher will aim to avoid all errors by making necessary suggestions before the lesson is studied, not after. There will be some errors even with this careful assignment, but the number will be small and may receive individual attention."

And again: Anticipate errors in spelling and try to safeguard the pupils against making them. It is easier to do than to undo and do. Also: Oral spelling is advocated "for guaranteeing the correct sound interpretation, but—"The written form is the final form and the one most used in normal life after school; consequently it should be the real test of a pupil's capability."

The use of the dictionary is enjoined and some of the possible causes of poor spelling are pointed out.

Time given to the spelling. Although the time devoted to spelling is not prescribed in the course of study, it is evidently regarded by the teachers as a highly important subject. In many of the grammar grades fully half an hour per day, or one-tenth of the entire school time, is devoted to study and recitation in this subject, and even a longer expenditure of time is not uncommon. Keen interest is stimulated by a lively competition between schools, and by uniform competitive tests formulated in the office of the superintendent. As measured by the survey by means of the Ayres standard tests, as will be described in some detail in Chapter VIII, the results of this rather extreme attention to spelling show in a very high score; but it is a question whether the children of Salt Lake City are not sacrificing something in other lines by devoting so large a proportion of the total time available to spelling.

The first investigator of note, Dr. J. M. Rice, concluded that more than fifteen minutes a day devoted to spelling was time absolutely wasted. According to this view five per cent of the total time would be ample, yet, estimated on the basis of the median of the table, Salt Lake City children spend eight and three-tenths per cent of the total time upon this subject. During the year 1909 the elementary schools of Boston, New York, Chicago, Rochester, Cincinnati, Indianapolis, St. Louis, Milwaukee, Kansas City, San Francisco and Cleveland devoted an average of only five and seven-tenths per cent of their time to spelling (estimated from Table No. 13), a proportion not greatly in excess of Dr. Rice's suggested maximum. According to average standards the children in the Salt Lake City schools are good spellers. We would not say they spell too well, but we believe as good results could be secured with less expenditure of time.

Some admirable characteristics of the course of study in spelling are:

1. The insistence in all spelling work upon anticipating errors.

TABLE NO. 13.

SHOWING THE PERCENTAGE OF SCHOOL TIME DEVOTED TO EACH SUBJECT IN SALT LAKE CITY, AS COMPARED WITH OTHER CITIES.

	CITY											
	Boston	New York	Chicago	Rochester	Cincinnati	Indianapolis	St. Louis	Milwaukee	Kansas City	San Francisco	Cleveland	Salt Lake City
Morals and Manners	26.3	32.5	40.3	17.8	14.1	17.8	17.9	22.8	14.5	30.9	26.3	2.3
Reading and Literature												21.5
Phonics and Phonetics												4.5
**Language and Grammar	21.1	2.	2.	10.4	14.6	20.2	11.1	14.3	12.2	11.6	15.8	13.0
Spelling	1.	2.	2.	5.3	9.8	5.8	6.4	8.1	10.7	5.2	7.2	8.3
Writing	1.	5.8	4.9	5.1	5.4	7.9	11.1	6.9	9.7	3.8	5.7	5.4
History, Civics and Sociology												5.2
Nature Study												5.2
Geography												3.2
Arithmetic	16.4	13.4	11.0	18.6	18.8	12.0	14.9	14.7	15.1	16.6	16.4	15.1
Physiology and Hygiene	7.1	13.1	5.2	6.6	7.4	8.7	5.3	4.6	4.0	5.2	5.3	16.6
Physical Education												2.9
Music	4.5	4.9	6.4	4.8	4.9	6.9	8.2	6.9	6.6	5.4	5.5	5.2
Art and Construction												7.7
Domestic Arts and Science												7.8
Mechanic Arts	6.2	4.7	9.9	7.8	2.2	2.2	2.4	6.2	3.	1.8	4.7	7.5
												6.0

Data for this table was taken from a "Preliminary Report on Simplified Course of Study—Cleveland Public Schools," 1909. Note:—The fact that the total amount of time for Salt Lake City amounts to more than 100% is due to recess time being often included as part of Physical Education time, and further to the fact that where some courses alternate during certain months both are included here as if they were going on at the same time. Though this changes the total it does not change the percent of time shown here as being consumed by any given study.

†The median time for each grade, as shown in Table No. 12, was used as the basis for computation. The day was assumed to be 4½ hours long for grades 4 to 8, and 3½ hours for grades 1 to 3.

**For all except Salt Lake City this item included supplementary reading.

2. Emphasis upon the relation of pronunciation to spelling.
3. The constant injunction to relate spelling to composition activities. "The real test of good spelling is found in the written composition."
4. Emphasis upon training children to use the dictionary.
5. Insistence upon selecting words from geography, history, etc.
6. Much drill upon lists of words commonly misspelled.

4. Writing.

The method used. In the first half of the first grade the course of study calls for free work with chalk on the blackboard, to train the children to the control of their larger arm muscles. In the second half unruled paper is used in addition to the blackboard. Large writing with full arm movement is enjoined,—no guide lines until the second-B grade is reached. The course allows comparatively little writing with pencil, but much upon the blackboard. After this more writing may be required of pupils, but care is to be exercised lest fatigue engender carelessness of effort. Correct movement, proper position, and reasonable speed are to be insisted upon. The letter forms are those now generally used in schools, a medium slant.

The survey staff is of the opinion that the writing of the children in the Salt Lake City schools compares favorably with that found in other cities, and the tests described in Chapter VIII show that it is considerably above the average.

5. History, Civics, and Sociology.

The general plan. The course of study in history provides for the teaching of United States history in the fifth, sixth, and eighth grades. In the eighth grade, B class, a

general review of United States history is called for, following a well-prepared outline. Besides the regular text-book with which each pupil is supplied, several reference books of wider scope are accessible to the pupils of each eighth-grade room, and several desk books of excellent quality are provided for the teachers.

In the seventh grade United States history is incidental to the work in geography. North America is the topic, and it is enjoined that historical information pertaining to the division being studied shall receive special consideration. United States history through biography has a place in every grade below the fifth, through such study of one or more of our great historical personalities as is suited to the age of the children. It is included in these grades chiefly on account of its ethical value. The ethical aim, in fact, dominates the course in history as a whole. The following statement found in the course of study will illustrate this:

“No other subject so touches both the head and heart of mankind. The ethical impulse should be the basis of all instruction in all grades. It is the goodness of mankind that has evolved the good of civilization, and the child should be taught to appreciate the nobility of those whose acts constitute the history of the race and have determined the progress of ideas.” (p. 108.)

Attention to local history. Much attention is given in each grade to local history and institutions. In the fifth grade, A class, the history of Utah receives especial emphasis. An excellent outline is furnished. In the fifth grade, B class, and in the sixth grade, emphasis is placed upon the functions of the various departments of the city government. Too much praise cannot be given to the treatment suggested for such topics as the police department, the fire department, the health department, the garbage system, irrigation, public parks, the city's water system and the general plan of city government.

An especially noteworthy feature of the work in Civics is the way in which each city department head has been led to

co-operate with the schools by furnishing an outline or description of the functions of his department, and the way it fits into the general scheme of city government. At the invitation of the grammar-grade supervisor the department heads meet the teachers, from time to time, and explain in detail the scope of the work which they have previously outlined in somewhat brief form. The survey staff is of the opinion that like enterprise on the part of supervisory officers, resulting in hearty co-operation on the part of city department heads in dealing with community civics, is far from common, and they commend it without reservation.

Excellent features of the course. Among the excellent features of the course under discussion we note:

(1) The emphasis placed upon making history (a) vivid, (b) a source for creating ideals, (c) correlation in the method of presentation with the composition approach to a subject (pages 68 and 69, with 109).

(2) The emphasis upon purposeful work. The purpose in the early work is apparently not to teach facts, but to instill ideals by making historic personalities and national and local scenes live again in the imaginations of the children.

(3) That directions are given to consider much of the subject matter as suited to the language work.

(4) The definiteness with which the course in history is presented to the teachers.

(5) Investigations by classes are recommended.

(6) The course for upper grammar grades should stimulate a sense of gratitude for, and loyalty to the city government.

(7) The use of literary selections to supplement history talks is suggested, and a suitable list is given.

6. Nature Study.

The printed outline. Although nature study is outlined as a separate subject, the fact that geography, history, and nature

work in the elementary school should be considered as a unit is not lost sight of. We find this paragraph:

"Nature study and history, industrially and socially considered, can not be separated from geography in the primary grades. Many of the basic geographical concepts depend upon certain physical laws which must be understood to gain the concept, and a mental picture of some of the great migrations of the race, of the adjustments and readjustments of a people to a changing and developing environment on the great march of progress, are necessary to give meaning and value to a study of the earth as the home of man." (p. 128.)

The desired correlation is left for the teacher to work out. The outline might to advantage do more in this direction. The correlation of nature study with language is hinted at in the language course (p. 78), but not emphasized. In the case of other subjects the correlation idea is usually kept in the foreground.

The human aspect of the course is made prominent.

"Children are not interested in the contour or relief of a body of land. They care nothing for land forms or water divisions, but they are intensely interested in children of other lands. How these children look, what they do, how they live, are subjects of unflinching interest and wonder, and it is through these subjects that we must reach land and water divisions and strictly geographical concepts." (p. 128-9.)

The work in each grade is well within the grasp of the average city child with limited opportunity for observation. It is very evidently a minor course in the primary-school curriculum. The natural working from the home out into the nation is a commendable feature of the course for primary grades.

The work outlined for the grammar grades is largely geographical, though some definite work in physics is included. It is suggested that in the last two grammar grades at least one regular period per week be devoted to this subject.

Diversity in kind and amount of work done. There is

considerable diversity in the interpretation of the course in different schools, and by teachers of the same grade. This, however, is seen to be desirable when the purpose of the course is taken into account. The training in observation and reasoning from cause to effect is considered, as it should be, of more importance than the acquisition of set facts. The teacher can best develop these powers in children by giving most prominence to those topics which most appeal to her own interest, and which therefore she can cause to be of interest to her class. Nature study is the one subject in the course in which wide latitude may be accorded to the individual teacher without defeating the purposes which the course is intended to serve. This would seem to be the theory also as to different schools.

For instance, in one school, the Webster, bird study seemed at the time of the survey to be receiving much more attention than was in evidence at any other school visited by the survey. In each of the 18 rooms of the school a different bird had been chosen from a list of fifty, common to the locality. After reasonable time for study of the bird of her choice, each teacher made an outline which she used with her own class, and which she then explained to the other seventeen teachers of the school, the principal having meanwhile caused copies to be made for their use. Each teacher devoted the nature study periods of six weeks to the bird of her choice, and later two periods to each of the other seventeen birds, having as an aid in this task the outlines prepared by her colleagues. Some encroachment on the time usually devoted to drawing was permitted.

The bird chosen for intensive study by a class was studied first from life, then more closely from a stuffed specimen. In the course of this study it was drawn by the children in plain crayon, then its habitat was drawn, then the bird in its habitat; then the process was repeated by the children in the same order, using appropriate colors. Finally the bird was modeled in clay and cast in plaster. All drawing was on large gray

paper, mounted on the blackboard. Surprisingly good results were shown, and astonishingly free and rapid work. The children will never forget the characteristics of birds thus studied. A fitting climax was afforded for this piece of cooperative work by the grammar grade supervisor, who saw to it that mimeograph sets of the outlines prepared by the teachers of the Webster school were furnished to all other schools of the city. This particular instance of sharing the benefits of the enterprise of one school with the city as a whole is only a single sample of a highly commendable custom in vogue in the Salt Lake City schools.

School and home gardening. The course of study lays stress upon the school garden and the home garden as adjuncts in nature study. In this particular, as well as in its aim to cultivate habits of observation and incidentally to impart a body of useful information, the course suggested for Salt Lake City is in keeping with the courses suggested for other cities. The members of the survey did not see evidences that practice was generally up to the outlines provided. The school board has recently made provision for exceptionally good work in this subject in some of the outlying sections, by purchasing ample tracts of land in connection with a few of its newer buildings, but in connection with the older schools little or nothing is done.

The Whittier school furnishes the best example of the use which may be made of the land for educational purposes. Of its nine-acre tract, two and one-half acres are devoted to the school garden. Plans for group gardens and individual gardens are worked out in the school as a part of the regular course in nature study. Garden work is done outside of school hours, and during the vacation period. The part of the product belonging to individuals is taken to the homes to supply family needs. The portion belonging to the school, after being displayed by sample at the State Fair and in bulk at the school, is sold to school patrons at regular mar-

ket prices. Last year the money was used to buy imported flower bulbs. These were planted in October by all teachers and pupils, in conformity with a color scheme in the evolution of which all had had a part. The aim was to secure individual interest in a community problem. At one time early last spring 1200 to 1500 flowers were in bloom.

The school site purchased by the Board of Education included part of an old fruit orchard. The trees were pruned by school boys with tools from the manual training shop, the work being done under the direction of the principal of the school and the superintendent of parks. As a result of this pruning the trees were loaded with fruit the next season. The fruit was green when school opened in September, but was allowed to remain on the trees untouched for four weeks, until it was thoroughly ripe. It was then picked by committees of pupils and taken to the domestic science room, where a part of it was canned by the girls as a lesson in the regular course in cooking. The portion that was not used in making jam, jelly, plum butter, etc., was distributed among the pupils in the various class rooms. The canned fruit was displayed at the State Fair.

This eminently practical application of nature study, made under the direction of the principal of the Whittier school, is not surpassed by any similar enterprise in a public school system elsewhere with which the members of the survey are acquainted. It represents a tendency which is beginning to make itself felt in the "Back to the Land" movement in many of our cities, and it is worthy of all the encouragement which school officials can give it. This case of individual work ought to become common in the city. The educational value of such work is very large.

7. Arithmetic.

Nature of the printed course. The courses of study in arithmetic throughout the country are now so nearly alike in

requirements that the chief difference between any two courses is in the form of statement and the kinds of exercises prescribed. Grade limits are practically the same. In Salt Lake City, children in the first grade count within the limit of 100, add within the limit of ten and they learn how many 2's in 4, 3's in 6, etc. There is no haste. Number facts are to be discovered, and not told or explained. The discoveries are to be made through the exercise of motor activity. Attention is called to the fact that mental growth is even more a question of time than physical growth. Therefore teachers are advised to see that conditions are such that the child if mentally ready will reach the number fact or relation desired. If he cannot reach that fact or relation without help he is not ready for that step, and the teacher is to wait patiently for growth in mental power. This is sound doctrine and it represents the practice now general in progressive school systems.

Number facts and relations are to be developed objectively, with no written work in first grade, and only a moderate amount in the second grade. The multiplication tables are begun in the third grade, but their completion is not called for till the fourth grade is reached. In the fifth grade the emphasis is upon fractions, though some simple oral fractional work has occurred earlier. In the sixth grade decimal fractions are to be carefully and thoroughly taught. Percentage furnishes the chief portion of the seventh grade work, and in the eighth grade special applications of percentage are considered and the earlier work of the course is reviewed. This is essentially the work today in all good courses of study. Some changes in upper grade work for the seventh and particularly the eighth will be discussed further on, in connection with the Junior High School.

The teaching observed. The methods of teaching this subject observed in the school rooms visited were substantially in accord with the sound pedagogic directions of the course of study. The time devoted to the subject shows the same wide variation that has been pointed out in connection with spelling.

The average time given to arithmetic in the eleven cities given in Table No. 13 is 15.2 per cent of the total time. The median time devoted to the subject in Salt Lake City is 16.6 per cent of the total time. Both the time given to the subject and the results shown by the standard tests, described at length in Chapter IX, make it clear that arithmetic is not neglected in Salt Lake City. A recent circular here reproduced will serve to show the intelligent care with which the brief directions of the course of study are supplemented, from time to time and as occasion arises:

January 27, 1914.

To Principals and Teachers:

Arithmetic.

The Course is to be considered as mandatory in all essential particulars, and the subject-matter given in the text book is all to be taught. It is, however, necessary to consider some principles and processes as relatively more important than others. In these, pupils will be expected to reach a high degree of efficiency consistent with age and normal possibilities.

In the following graphic representation an attempt is made to show at a glance which of certain essentials should be emphasized or reviewed. It will be observed that the fundamental processes are to be thoroughly taught in the fourth grade, however, that they are to be reviewed and strengthened in each succeeding grade. The subject of fractions is to be thoroughly considered in the fifth grade, but must be reviewed and strengthened in each grade above the fifth grade, etc. Thus each grade above the grade in which any important principle has been considered will be expected to increase the efficiency of pupils in that subject in so far as reviews and limited teaching can make for efficiency.

In the reviews care must be exercised to add new power and knowledge as well as to make present possessions clear and ready. Too frequently reviews cover the old ground in the old way with little or no profit.

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	
a	a	a	a	a	Fundamental Processes.
	b	b	b	b	Fractions
					Denominate Numbers
		c	c	c	and Measurements
			d	d	Percentage and Interest
				e	Business Application

G. N. CHILD,
Supervisor of Grammar Grades.

8 Geography.

The course good. This course of study provides for the study of geography from the third to the seventh grades inclusive. When the Salt Lake City course of study in Geography is compared with the courses for our better city school systems, no significant differences appear. The general movement in all the courses is now from the home and its environment to the earth as a whole, and from this to North America and a detailed study of the United States.

The Salt Lake City course emphasizes the study of home or local geography in an especially effective way. Few places afford better opportunities for teaching land and water forms by direct personal observation than does the Salt Lake Valley. The use of the sand table is advised and practiced in the third grade, so that as soon as the impression is gained through observation its expression may follow. Pictures and objects are collected by teachers and pupils and freely used.

The outlines and the suggestions for teaching contained in them are admirable. They are definite, without being too exhaustive, and the plan of work as outlined is especially adapted to the region about Salt Lake City. A brief survey of the modes of life of primitive man leads up to a study of farming and cattle raising under modern conditions in the neighborhood of the Great Salt Lake. The outline includes an experimental study of the geographical features of the city and surroundings, and of the formation of soil; a brief survey of dry farming in Utah; the sugar-beet industry; sheep and cattle raising, and the leading manufactures.

It is a question whether the study of the sugar-beet industry should be carried so far in this grade, since eight-year-old children are scarcely capable of contrasting the political effects of the sugar-cane industry with the political effects of the sugar-beet industry. Studies of social and political causes and effects may well be postponed until pupils are sufficiently matured to form intelligent conclusions. Initial study of the

world's commerce and of the reasons for the exchange of goods between states and countries is, however, quite within the grasp of third grade pupils, and the teachers who present the subject as outlined are laying a broad foundation for future study of commercial exchange. On the whole, these outlines for third grade geography are models of their kind.

The instruction observed. The home city and the home state having been studied intensively, the child is prepared to comprehend what his teacher and his books have to say about other political divisions and cities. This is the method advocated in the course. It is the method of comparison. Map drawing is practiced wholly from the point of view of gaining power to interpret maps. It is justly regarded as of indispensable importance. Rapidly drawn relief and outline maps, with just the amount of detail called for in the topic under consideration, are therefore emphasized in all grades.

A modern course in geography makes large demands upon the scholarship and resources of teachers. In a recent report of the Massachusetts Board of Education we find a recognition of immensely increased scope of the geography of today as compared with that of half a century ago:

"It is hard to realize the immense distance that separates the scanty sailor geography of half a century ago from the complicated network of relations of physical, social, and political facts, gathered in 50 years of untiring research, which now, under the name of geography, form a part of the daily food of all children in the elementary schools."

In view of this situation it is essential that schools be liberally supplied with suitable books, so that the children can obtain for themselves the greater part of the information for which the course of study calls. The school board of Salt Lake City has met this requirement with liberality. The children are well supplied with supplementary geographical readers, as well as with modern basal text-books in the subject.

9. Music.

The course of study in music appears to be very carefully arranged as to grading, with especial and detailed directions to the teachers in the lower grades. These indicate an appreciation of the ideals of primary-grade methods in music as advocated by the leaders in the teaching of the subject.

Instruction observed. It was evident to members of the survey, as they observed the manner in which exercises in music were conducted, that much well directed effort has been devoted to this study through a series of years. When the junior high school plan becomes fully established, so that all instruction in the seventh and eighth grades may be on the departmental plan, the music work of these grades will undoubtedly show better results than are now generally obtainable, for then it will be possible to have the instruction given by teachers who have shown special aptitude for the work. At present, as might be expected, there is considerable variation in the enthusiasm for music manifested in different schools, according as they are less or more fortunate in having upper-grade teachers who have talent in this direction.

In the Lafayette School an extremely effective plan for furnishing motive for good music work is carried out in the morning exercises. The children of each of the twenty-two classes sing in turn for the entire school. As the school has no auditorium, the children who are to sing assemble in the corridor of each floor on successive mornings. All doors are open and the children in the rooms sit at attention. Thus they learn to be appreciative listeners. Several of the teachers contribute to the success of the plan by singing in their turn for the entertainment of the pupils.

10. Art and Construction.

Need for more supervision. At the time of the survey the art work in the grammar grades was suffering from lack of

supervision, and apparently but little was being done. Those of the grade teachers who had some special talent for the work were able unaided to keep up their interest and secure results, but the majority of the teachers were in need of the constant inspiration, help, and suggestion which a competent supervisor could give. The course of study appears, in the main, to be in line with the best thought on the subject, but to a teacher who has not had excellent art training it would seem too indefinite to serve as a sufficient guide. There are few grade teachers who can do creditable work in this department without the advantage of frequent supervision, no matter how minutely the course is laid out for them.

It is hard to understand how the small financial saving brought about by relegating the supervisor of art work to a part-time assignment in one of the high schools can be considered by any one conversant with the principles of good school management, as a justifiable piece of economy. As matters now stand, the art and construction work is planned and supervised in the primary grades, while between these grades and the high school there is a wide gap where the work appears to be deteriorating by reason of lack of expert guidance. Other cities as large as Salt Lake City employ a supervisor and one or more assistants. The unfortunate effects of neglect in this department should be remedied without delay. There should be a supervisor in charge of the department of art instruction, and the director of art and construction in primary grades should be an assistant in the department. Responsibility should not be divided. If such severe economy as has been practiced in this instance had been really necessary, a less harmful plan to bring it about would have been to retain the supervisor in the field and divide the primary work between the art supervisor and the primary supervisor, the latter taking the work in construction. This, however, is not advocated. Salt Lake City should employ a supervisor in this department and at least one assistant, if it is desired to keep the art work of the schools abreast of the times. As much

supervision of art as this is found in cities no larger than Salt Lake City, and in some of these special teachers are employed in addition to teach drawing in the seventh and eighth grades.

The art and handwork outlines. The designs used as plates in the special course of study in art and handwork for primary grades have elements that are too scattered, with a very poor relation of the several parts and proportions. The design shapes are clumsy and uninteresting, and have little or no relation to the objects which they are supposed to decorate. Free paper cutting is almost entirely ignored. This activity is most valuable to pupils in acquiring ability to represent form and general proportions. It should be used frequently with young children as a means of free expression. The drawings printed in the course of study are very weak. The lettering is poor, and the arrangement uninteresting. Every plate reproduced in any course of art instruction should be a model in itself of good drawing, proper arrangement, adequate spacing, and well proportioned lettering. However, the photographs accompanying later circulars show articles in considerable variety, and these are well proportioned. It is fair to assume therefore that the next edition of the course in primary art and handwork will be comparatively free from the faults just noted.

Drawing in the lower grades. The illustrative drawing in the primary grades should have a closer relation to primary grade reading and dramatics, and should occupy more of the time allowed for drawing. Too much of the primary construction work is imitative or else is done entirely from dictation. In the kindergarten initiative is encouraged and the imagination given scope. Seeing only the printed course of study in art and handwork one would infer that all this comes to an abrupt end in the first grade. The art supervisor in these grades should be in closer touch with the primary supervisor, so as to utilize stories and games for illustrative purposes. The outlines in construction for grades one to four, furnished in typewritten form by the supervisor, presumably for inclusion

in a revision of the present printed course, meet this requirement. They are sensible, well arranged, and adapted to supplement and illustrate school activities.

Modeling. Nearly all branches of modeling seem to be emphasized in each grade. We suggest that it would be better to emphasize low relief in certain grades, high relief in certain grades, modeling in the round in certain grades, and pottery in certain grades.

Modeling in clay is hardly adapted for execution in the ordinary class room with its sloping desks. Casting in plaster of Paris should always be done in a separate room adapted to the purpose. The manual training shops in most schools are without classes some portion of each week. They might well be utilized for clay and plaster work. It would save much labor and conserve the time of teachers and pupils if the material for this work were kept and used in one place, instead of having to be distributed in small lots to the different rooms of a building. Some of the manual training rooms are large enough to afford space for modeling, even while other work is in progress.

Other constructional activities. The work of book binding in the fifth grade is not made to serve a real end. Only the boys of a class now take this work, and since the portfolios that are made would serve but half the class, they are not used. These projects should serve the admirable purpose of giving concrete application to the otherwise abstract principle of design, by providing objects of real use which lend themselves to decoration.

There appears to be no connection between sewing and art. The principle of correlation, so well worked out in the academic part of the course of study, should find its most effective application in art and handwork both for girls and boys. The subject of design is not developed in a progressive manner from grade to grade, as it might easily be if manual training, sewing, and art were included in the scheme of correlation.

11. Manual Training.

A poor course of study. The shop work is limited to wood-working processes of a single type—cabinet making—and the related drawing is extremely limited in scope. The course lacks justification from the standpoint of application in local industries, as well as on the score of educational value. The content of the course is extremely limited, considering the time given to the subject, and some of the work, for example lettering, comes far too early in the course. Working drawings are not, as a rule, taught with any degree of profit to grades below the eighth, yet a greater emphasis is placed on working drawings in the earlier part of this course than in the later part; the fifth grade having 29 1-3 hours, the sixth 21 1-3 hours and the seventh 17 1-3 hours given to such work.

Time spent on working drawings below the eighth grade is time practically wasted. The child does not get his working facts from the drawing, but depends upon the teacher. To understand the conventional procedure usual in making clear working drawings, greater maturity is required than the fifth, sixth, or seventh-grade pupil has attained. The place for drawings for children of these ages is in connection with design, which this course wholly lacks. The uniformity in the work throughout the city, observed by the members of the survey, indicates that there is no attempt at adjustment to individuals or groups.

Work needs enlarging. In the selection of projects one interest only seems to have been in mind, that of supplying needs for the home, and the same objects are made by all boys till the eighth grade is reached, when some little choice is allowed. It can hardly be assumed that all homes have the same needs. Additional interests should be drawn upon, such as sports, industrial studies, and trade activities. Printing, the study of home carpentry, the making of play-ground apparatus and simple laboratory equipment, readily suggest themselves. As the course stands, little initiative is possible for

teacher or pupil. The work as planned is stereotyped, and seems to have only a disciplinary aim. One material, wood, is involved throughout the entire course, and the kinds of this are limited. The most common uses of wood seem to be ignored. The shop processes connected with "squaring off" are continually emphasized, for four years. The printed steps are not correct as to teaching practice or shop practice. It seems unfortunate that this particular process should be given such prominence.

Suggestions for improvement. The fifth and sixth grades would get more out of construction work if they should make a study of machines used in the mining industry on a working-model basis, introducing thin sheet metal, wire cloth, soft metals, and cement, in addition to wood. The making of foundry flasks and tools, and the casting of objects in soft metal would be appropriate projects. The study of transportation, involving the making of models of railroad tracks, switches, hoists, etc., would furnish occasions for the exercise of ingenuity. Bridge construction is also appropriate work. It is clearly suggested by the trestle over Salt Lake.

In grades seven and eight more advanced work in metal as well as in wood is appropriate. It should be in part applied art, as hammered copper or brass; and, in part, along the line of applications of mechanics.

The supervisor of manual training and the supervisor of art should co-operate in making out the course of study in these two phases of school work. These courses should be closely related. The art department should co-operate in working out designs in manual training. It needs this motive to keep the principle of design from becoming abstract, and in his manual work the pupil needs to have his attention directed toward attractiveness of form and appropriate decoration. Manual training as now conducted in Salt Lake City causes boys to resort to furniture catalogues for designs instead of working out their own ideas of form. They have no confidence in their ability to work out appropriate designs. Their

training tends to make them mere copyists. It is highly important that the emphasis placed upon design in the course in art should have an outlet in the manual training activities.

There is little to commend in the scheme of manual training now in vogue in the Salt Lake City schools. It should be radically reorganized.

12. Domestic Arts and Science.

A commendable feature of the work seen in this subject was the effort to adapt the instruction to the home needs of the children attending the different schools. The same course of study was not followed in all of the schools, nor were the grades in which the instruction was given the same. The teachers of the subject seemed to be making an earnest effort to adapt the work to the needs of the children. This is a desirable feature, and should be continued. It was the feeling of the survey staff that much more could be done in this line than has so far been done.

There are too few properly equipped centers for this work in the schools of the city, and enough is not made of it, and in one of the high schools no opportunity is provided for girls who wish to continue this important study.

13. Physical Training.

This is considered at some length as a part of the health work of the schools, and the reader is referred to Chapter XII for a detailed consideration of the work in this subject of instruction.

CHAPTER VII.

THE INSTRUCTION AND SUPERVISION AS SEEN:
DESIRABLE EXTENSIONS.

(Van Sickle)

I. THE INSTRUCTION AND SUPERVISION AS SEEN.

The Quality of Instruction. Enough has already been said to indicate that the survey was favorably impressed by the teaching observed in the class rooms of the city. We found the work in general on a fairly high plane. The necessity of utilizing each year the services of so many young teachers just out of the normal school makes for a lower average level of instruction than is best for the system, but this tendency, so far as the common branches are concerned, is offset in large measure by the employment of expert supervisors in grammar and primary grades who supplement the weaknesses of the young teachers and, in time, bring them out as worthy members of the teaching force. The normal school sends them into the service with the right attitude toward the work, and this is one absolutely indispensable factor in their training. Thus they are prepared to accept, in the best possible spirit, the training in service which continues through the early years of their employment. Without expert guidance from grade supervisors Salt Lake City's method of recruiting its teaching force would be fatal to progress; but the weaknesses inherent in the plan of recruiting the force exclusively from the home product and at low salaries, is offset in such measure by the systematic after-training which the system affords that better results are secured than might reasonably be expected. Much of the work done by the more experienced teachers is superior in quality. Some mediocre work was seen, and some that would be called poor, but the greater part of the teaching must in fairness be classed as good.

One important aid which the teachers have is the free text book system maintained by the city, and the freedom which the city enjoys in the selection of the books to be used. Fortunately, the State of Utah has had the good sense to exempt the city from following the uniform series of text books adopted for its district schools, and the city has made excellent use of the exemption. The books supplied are both varied in character and excellent in quality.

Classwork Observed. It was not possible in the time available to observe a class exercise in every school room of the city, but enough work was seen to afford a safe basis for opinion. Fully 300 class exercises were observed by the members of the survey,—some in full, and all for a sufficient length of time to catch the method and spirit of the work.

The attainments of the children in reading, spelling, writing, arithmetic, and composition, as measured by the standard tests employed are seen, by reference to the tables and charts in Chapter VIII, to compare favorably with those of children of like grades in other cities where the same standards have been applied. In visiting classes, many of those in which the tests had been given received particular attention, because it seemed desirable to know whether the results of the tests were such as might have been anticipated by a competent observer. It is interesting to note that those members of the survey who applied the observation test to these classes, till recently the only test available, were not surprised to learn, after the tabulations had been completed, that the nineteen schools in which the standard tests were used had made a good showing.

An Observed Characteristic. One marked characteristic of the Salt Lake City school system that impressed the members of the survey in their visits to class rooms was the cheerful, optimistic tone of the teachers. No burden seemed too great, no work so hard as to cause complaint. The fine professional attitude of the teaching force deserves the highest commendation. As might be expected this attitude is re-

flected in the attitude of the children toward the school. Repression was nowhere in evidence, nor was any needed. The children were free and natural in their movements, yet there was no disorder. Not a single instance of cross word or stubborn manner was noticed by any member of the survey during the entire three weeks of their stay in the city. Doubtless cases of discipline do arise. However, the records show that offenses calling for severity are of rare occurrence.

Principals and Their Work. A principal is both an administrator and a supervisor. In his role as administrator he acts as the responsible head of his school in all matters of organization and management. He represents the school department in his community, and in proportion as he has energy and discretion and an aptitude for leadership he causes his school and its work to be known and appreciated and loyally supported by the people of his community. In the Salt Lake City school system the principal's position is one of dignity and authority. He is the head of his school in supervision, as well as in administration. All directions to teachers given by the superintendent or by supervisors acting for him are given either through the principal or with his full understanding. His range of observation is more limited than theirs, since his work is confined to a single school. He needs to avail himself of the wider view of the supervisors who see the entire field, in order to make the work of his school harmonize in essentials with the general policy of the administration.

There is a wide range for variation within this field, and each principal is expected to make definite contributions toward the improvement of the service. He knows that if he wishes to try some plan which he thinks will work better than the customary one he will have full liberty to make trial of it, providing after explanation it does not appear to the superintendent to be contrary to the general policy of the schools. Not only does the principal have liberty to try new things; he is definitely encouraged to seek paths leading away

from the beaten track of routine for in this direction lies growth.

The principals' salary-schedule puts a premium upon this very thing by basing increase above a certain minimum upon university work. In consequence many of the principals have taken a college degree, some at the agricultural college and some at the state university. They seem to the survey staff to be well poised, self-respecting, and capable. It was the general feeling among the members that they had seldom if ever seen greater professional zeal on the part of principals in devising ways to improve their schools, both in matters of detail and in those larger phases of a school's life which affect life of the community and influence its ideals.

The supervision of work in the common branches. Under the present system of recruiting the teaching force, the good results realized in the common branches in the Salt Lake City schools could not be realized if the supervision were not systematic and intelligent, for whatever strength the work manifests must in large part be due to the wise guidance which makes seasoned veterans out of raw recruits.

The efficiency of grade supervision may be shown in several ways,—first, of course in results; second in helpful professional relations which the supervisors establish in their contact with the teachers in the school rooms of the city; and, third, by the suggestions and directions they give to the teachers by means of detailed outlines, and orally in the teachers' meetings.

As shown by standard tests and verified by observation of regular class work, the results are good. In judging whether helpful relations had been established, members of the survey accompanied the grade supervisors in certain of their visits for the purpose of actually seeing how they did the part of their work which brings them into contact with teachers and children in the school rooms. Two half days were spent in this way with the supervisor of grammar grades, and one with the supervisor of primary grades. Both super-

visors appear to be well equipped in personality, education, and professional skill, and it is the opinion of the survey that they have the right point of view of their function in the system. This is that they are in the service for the purpose not simply of inspecting the work of others, though, of course, this is a part of their duty, but for the larger purpose of helping the teachers to teach well. To this end they make plain the meaning of the necessarily limited statements in the course of study, and are always ready to illustrate the proper method of procedure by actual teaching. This is often the surest way of getting any procedure understood. Any one who has had experience in sending out written instructions cannot fail to realize the utter impossibility of so wording a statement, involving many particulars, that all to whom it is addressed will interpret it in the same way. Especially is it true that comparatively inexperienced teachers, of whom there are so many in the Salt Lake City schools, need the illustration which the supervisor stands ready to give.

Promotion of pupils. The system in use for promotion to the high schools, depending in part, as it does, upon the records made by children in formal examination, makes testing an exceedingly important part of the supervisors' duty. In any promotion system involving set examinations the danger is that the examination will loom large in the minds of children and teachers, and that chief attention will be centered upon the more formal portions of the work. Even though examination results count only one-third, the members of the survey are not in favor of this phase of Salt Lake City's promotion scheme. They believe in examinations, both oral and written, as teaching exercises, but not as tests of fitness for promotion. The inevitable tendency of such examinations is to narrow instruction.

Nevertheless, since examination for promotion is a feature of the system, it is important to note whether the examinations which are set tend toward formality and a narrow interpretation of the course of study, or whether, as

far as may be, they have the opposite tendency. The samples in language and arithmetic which follow show the character of the examinations which the grade supervisors set. It will readily be admitted that they are excellent samples of their kind. They would be extremely useful as teaching exercises. If examinations are to be employed as elements in the promotion of pupils from grade to grade, those of the type used in the Salt Lake City schools are as free from objection as any that could be devised.

Types of examination tests used. To show the type of examinations given by the supervisors, and the mental qualities they are designed to test, we reproduce a few typical examination papers from the collection supplied us while at work in Salt Lake City.

I. LANGUAGE. REPRODUCTION. A CLASS, THIRD GRADE.

Thursday, P. M., January 22nd, after test paper and all necessary material have been furnished the pupils, read or tell, slowly, very deliberately,—in order that the children may be able to get the mental pictures,—ONCE only, the story which follows.

Suggest three or four titles and allow each child to select his own.

One very hot day a little boy was lying on his stomach under a big tree, reading a story.

"Little boy," said his mother, "will you please go into the garden and bring me a head of lettuce?"

"O, I—can't!" said the little boy, "I am too hot!"

The little boy's father happened to be close by, weeding the flower bed, and when he heard this he lifted the little boy gently by the waistband, and dipped him into the great tub of cold water that stood ready for watering the plants.

"There, my son, now you are cool enough to go and get the lettuce for your mother, and the next time she asks you to do something for her you may not feel so hot."



Note how readily this would lend itself to reproduction with the picture idea in the child's mind.

II. GEOGRAPHY.

B CLASS, THIRD GRADE.

1. Where do the dairy farmers of Salt Lake Valley have their hay farms?
2. Why must a dairy farm be near a community center or near a railroad station?
3. Why must milk be kept very, very clean?
4. When the milker begins his work what does he do? Why?
5. Just as soon as he finishes milking a cow what does he do? Why?
6. Why does each cow have a report card? Is her name on the card?
7. How do they get the milk from the dairy farms to the cities?
8. Why is all milk bottled now?
9. Name the Utah counties that rank high in dairy products.
10. What dairy product is Utah turning out in larger and larger quantities each year?

III. GRAMMAR.

FINAL EXAMINATION—EIGHTH B CLASS.

GROUP I.

1. Illustrate, (a) a phrase as subject of the sentence, (b) a clause as object of a preposition, (c) a co-ordinate clause, (d) a phrase modifying a noun used as subjective complement.
2. Choose the proper word and fill in the blanks of the following sentences, also give reasons for your choice:
 - (a) Not one of the boys (was, were).....there.
 - (b) The book (lay, laid).....on the table yesterday.
 - (c) Deal (gentle, gently).....with them.
 - (d) For you and (me, I) there are many opportunities.
 - (e) (Has, have).....either of you girls an extra pencil?
3. Diagram the following sentences:

At the back of Mount Tipanogas, not fifty miles away, is a glacier exhibiting all the characteristics of ice streams.
4. Use each of the following words first as a noun, then as an adjective, then as a verb:—blind, sound, spring.
5. Classify (a) words, (b) sentences, (c) phrases, according to use.

GROUP II.

6. Write the plural form of the following words: Tooth, Mary, Miss Clark, German, baby, journey, chief, wolf, father-in-law, hero.

7. Give the principal parts of the following verbs: Go, sit, lie, dig, set, see, do, eat, come, lay.

8. Account for the case form of the underlined pronouns in the following sentences:

- (a) WE girls are going on an excursion.
- (b) Did you see Mary and ME at the theater?
- (c) Neither speaker had prepared HIS speech.
- (d) I am in a higher class than SHE.
- (e) The money belongs to US four boys.

9. Write a sentence containing two subordinate clauses, one performing the office of an adjective, and the other the office of an adverb.

10. Explain and illustrate the difference in meaning between the following words:

At and in, between and among, beside and besides, by and with, in and into.

Note that children compose in answering these questions. They are not analyzing the sentences of others.

IV. ARITHMETIC. EIGHTH A AND B CLASSES.

GROUP I.

1. Solve: $54 \frac{3}{4} + 9 \frac{17}{28} + 7 \frac{13}{14} + 8 \frac{2}{7} + 13 \frac{2}{3}$.
2. Divide $49 \frac{5}{7}$ by $21 \frac{3}{5}$.
3. Multiply .045 by 40.4 and divide the product by 6.45.
4. Simplify: $\frac{3}{4}$ of $20 \frac{2}{7}$

5-6 of $1 \frac{2}{3}$

5. Multiply 1,786,905 $\frac{2}{3}$ by $78 \frac{3}{4}$.

GROUP II.

1. How many square feet in the walls, floor, and ceiling of a room 16 feet six inches long, by 12 feet 4 inches wide, by 9 feet 6 inches high?

2. A farmer bought 80 sheep for \$500. He sold 45 per cent of them at \$8.00 apiece, and the remainder at \$7.50 apiece. Find his per cent of gain.

3. At $3\frac{1}{2}$ per cent commission, what were the earnings in one week of an agent who sold property as follows: \$6,875, \$5,400, \$11,400, and \$8,725?

4. A steam boat makes a trip of 148.75 miles in 9.4 hours. Find the speed per hour. (Give the answer to the nearest hundredths).

5. \$75.50 was paid for oats at 45 cents a bushel. Find the total weight, reckoning 32 pounds to a bushel.

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Note the separate grouping of problems by means of which a comparison may be made between a pupil's ability in fundamentals and in reasoning.

The quality of the grade supervision. Sets of circulars or bulletins issued by the grade supervisors, as interpretations of the course of study, have been placed at the disposal of the members of the survey.

The outlines in third-grade geography, issued in bulletin form by the primary supervisor, have already been commented on as models of their kind. A grammar-grade bulletin on arithmetic has been quoted in connection with the discussion of that subject. In a bulletin on hygiene, issued by the grammar-grade supervisor, an excellent way is pointed out to secure the observance by the pupils of hygienic rules: "Habit formation should constitute a chief part of the educational training in hygiene. The pupils will be rated on the quality of their class work **and their daily physical habits.**" And in another bulletin the following sound characterization of the use of grammar is given for the benefit of principals and teachers of seventh and eighth grades:

The teaching of grammar must be justified by the educational results that are immediate rather than those remote. These results should be (a) clearer thinking, (b) increased ability to judge the quality of language, (c) increased power to interpret language.

It is better to select a few topics in grammar and to teach them well than endeavor to teach too many topics. Whenever the facts and principles being studied have no concrete meaning to the child they are not serving the educational purpose intended. Verbal mem-

ory has little place in the teaching of this subject. Classifications and definitions should follow concrete knowledge of many individual words or expressions and not precede this knowledge. In other words, they should grow out of the child's fund of information and his powers of comparison.

Good points about the bulletins are :

(1) Flexibility—the supervisor realizes that conditions determine the remedies to be applied.

(2) Definiteness of directions.

(3) The ultimate end is never lost sight of. The various means suggested are always practical. They reflect supervisors who have studied the results of the teachers' work and who possess readiness and resourcefulness in suggesting remedies for difficulties.

(4) The insistence upon thoroughness, upon student power, not alone a mastery of facts, as an ultimate test of teaching is constantly emphasized.

(5) The human element in the directions should tend to make the teachers sympathetic and stimulating.

(6) The relation of subject to subject is well brought out indicating supervisors who see all of the subjects as parts of a plan to develop a single consistent purpose.

II. DESIRABLE EXTENSIONS.

The Junior High School. The plan now well under way in Salt Lake City, by which grades seven, eight, and nine are organized departmentally as the Junior high school, is in line with progressive practice elsewhere. Already sixty-eight cities have such organizations, and many more are contemplating this feature. These organizations differ as to the grades included, whether two or three; as to housing, whether in a separate building, or with lower grades, or high school proper; and again as to the subjects included in the course of study. Some common characteristics appear. After the sixth grade, pupils are allowed some choice among stud-

ies; they anticipate some of the work of the high school proper, and they are taught on the departmental plan.

The plan as yet imperfectly developed. In Salt Lake City the organization calls ultimately for three grades, the seventh, the eighth and, as pupils of the two grades below accomplish work which calls for high school credits, the ninth. A good beginning has been made, and the plan merits full development. It seems to the survey, however, that instead of scattering the units of the organization throughout the city it would be far better, both financially and educationally, to bring the pupils of Junior high school grades together in larger numbers. Since the schools throughout the city are now so crowded that rooms not intended for school use are being utilized as class rooms, it is evident that new buildings must be erected to relieve the congestion. The needed relief should be provided by erecting four or five new buildings expressly for the Junior high school work, leaving existing buildings for the use of grades one to six. This would make better grading possible and would provide larger classes, thus reducing the per capita cost of instruction. It would also remove two grades, the seventh and eighth, from all existing buildings, in itself a gain of no small importance.

The work cannot be properly developed in so many small scattered centers. Not enough differentiation can be arranged to meet the varying needs of the children. At present pre-vocational needs of the children of Salt Lake City are not sufficiently provided for. A choice of German, Latin, or French is open to pupils, and in one center the arithmetic of the eighth grade has a commercial trend; but there is little provision for those non-literary pupils who, though not defective in intellect, are not sufficiently apt in dealing with symbols to get their education chiefly from books. Not only for these but also for another group of boys and girls, normal in every respect but who will inevitably leave school at an early age, courses should be offered which give definite industrial training. The work in such courses should differ from

that in the ordinary manual training classes for boys, and classes in cooking and sewing for girls, in the greater variety of materials dealt with, in the increased time devoted to practical work, and in the approach to the academic work through the industrial projects of the shop and home. Ten hours per week is not too much time to devote to this work. The courses should provide real vocational experience, with materials and processes as extensive as the leading occupations followed in the city and state. Through such experience the boys and girls can form some notion of what they are fitted to do for a livelihood.

Types of courses needed. The Junior high school scheme, when fully developed, should provide at least four courses at each center. One strongly academic has now been well worked out. Another tending toward the commercial has been begun. Another in practical arts for boys is needed, and still another in practical arts for girls. Both of these should include agriculture as an optional subject. It should be possible for a boy or girl who has taken any one of the courses to enter the Senior high school, if circumstances are such as to make a longer period of schooling possible.

As has already been said, this variety of opportunity can not be offered in scattered centers. Four or five buildings with ample shop and laboratory facilities are needed. Each should be conveniently located to receive pupils from several six-grade schools. On the basis of the present enrollment, four schools, each with a capacity for 950 pupils, would accommodate the seventh, eighth and ninth grades of the entire city. For the present, one of these would as now be the new high school building.

In the year 1914-15 there were 1616 pupils enrolled in the seventh grade, 1243 in the eighth and 856 in the ninth. The falling off in attendance in the eighth grade was 23 per cent; in the ninth it was 47 per cent. It may be confidently expected that after the Junior high school plan has been fully developed, with differentiated courses of study and in build-

ings of suitable plan and equipment, this heavy mortality at the end of the eighth grade will be greatly reduced, and a fifth school would be needed. It ought to be the purpose of every city to carry as many pupils as possible through a six-year elementary and some one of the three-year Junior high school courses. Normally these would be completed by the close of the fifteenth year, or at the end of the compulsory school period. That Salt Lake City fails to accomplish such a purpose now may be seen by an inspection of Figures 13 and 14, which show the ages and grades of the pupils at present in the schools.

Vocational training. Approximately 1600 children leave school each year in various grades after the sixth, 800 boys and 800 girls. It is important to know what preparation they have had for the practical duties that await them. The exact loss by grades, computed from the Age Grade Distribution sheet, is:

Grade VI	to VII	215	
Grade VII	to VIII	253	
Grade VIII	to IX	552	
Grade IX	to X	312	
Grade X	to XI	145	
Grade XI	to XII	117	Total 1594

Approximately two-thirds of those leaving are from grades below the ninth, and eighty-four per cent of them are from grades below the Senior high school. Vocational preparation is seen therefore to be chiefly a problem for the Junior high school and the grades immediately below it.

Vocational training in any city must have reference to the opportunities for employment which the city affords, for it is safe to assume that the majority of the boys and girls now in the schools will find their place in the life of the local community. We cannot know what occupation any child will follow, but from census reports we do know what occupations are open to choice, not only in Salt Lake City, but also in the country as a whole, and what proportion of the population is now engaged in each occupation.

Vocations in Salt Lake City. The vocational distribution of the entire wage-earning population of Salt Lake City, male and female, according to the census reports for 1910, was as shown in the following table:

TABLE NO. 14.

OCCUPATIONAL STATISTICS FOR SALT LAKE CITY.

(U. S. Census, 1910, Vol. IV.)

Total Population 92,777.		Salt Lake City, 1910.	
		Male	Female
I. Total population 10 years of age or over.....		37,905	35,627
37,730 or 40.7%. 1. Engaged in all occupations.....		30,279	7,451
566 or 0.6%. (a) Agrig. forestry and An Husb.....		553	13
Most important	{ Farmers—farm laborers.....	195	5
	{ Gardeners, nurserymen, florists...	161	7
	{ Stock raisers, tenders.....	157	0
904 or 0.9%. (b) Extraction of minerals.....		903	1
11,564 or 12.5%. (c) Manf. and Mech. industries.....		10,260	1,304
	Apprentices	239	31
	Blacksmiths—forgemen	273	
	Brick—Stone masons	367	
	Builders—Bldg. Contractors.....	586	2
	Carpenters	1,425	
	Compositors—Typesetters	240	12
	Dressmakers—Seamstresses	1	546
Most important	Electricians—El. Engineers	448	
Over 200 in each	Stationary Engineers	304	
	Laborers in building trades.....	1,492	20
	Machinists—Tool makers	516	
	Manufacturers, Supt.,—Officials...	420	8
	Milliners—M. dealers	10	192
	Painters, varnishers, etc.....	494	
	Plasterers	151	
	Plumbers—Gas—Steam fitters....	313	
	Food Industries	106	155
	Iron—Steel industries	290	
	Tailors—Tailoresses	183	19

SCHOOL SURVEY REPORT

4,235 or 4.6%. (d)	Transportation	4,038	197
	Draymen, teamsters, expressmen.	851	
	Chauffeurs	65	
	Steam Ry. Conductors.	208	
Over 200 in each	Street Ry. Conductors.	145	
	Brakesmen	161	
	Locomotive Engineers	323	
	Locomotive Firemen	191	
	Motormen	131	
	Laborers	667	6
Summary:			
		Male	Female
	Water transportation	11	0
	Road—Street transportation.	1,039	0
	Railroad work	2,183	6
	Exp., Post. Tel.—Telephone.	346	183
	Other transportation pursuits.	459	8
		<hr/>	<hr/>
		4,038	197
6,454 or 7%. (e)	Trade	5,726	728
	Bankers, Brokers—money lenders	290	5
	Clerks in stores	599	274
	Commercial travelers	394	9
Over 150 in each	Deliverymen	475	
	Insurance agents—Officials	175	2
	Real estate dealers.	370	8
	Retail dealers	1,630	64
	Salesmen—Saleswomen	1,207	339
	Wholesale dealers—Importers	111	1
1,583 or 1.7%. (f)	Public Service	1,569	10
	Firemen	69	
	Guards, watchmen, bookkeepers.	120	
	Laborers	208	
	Marshals, sheriffs, detectives.	41	1
All	Officials—Inspectors (C.-Co.)	85	6
	Officials—Inspectors (St. U. S.)	112	1
	Policemen	73	
	Soldiers, sailors,—marines	846	
	Other pursuits	15	
3,342 or 3.6%. (g)	Professional Service	2,146	1,196
	Authors, editors, reporters.	98	12
	Civil—Mining engineers	444	
	Designers, draughtsmen, inventors	118	15

DESIRABLE EXTENSIONS.

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Over 100 in each	Lawyers—Justices	273	2
	Musicians—Teachers of music	174	195
	Physicians—Surgeons	188	26
	Teachers	113	614
	Nurses	9	112
5,016 or 5.4%. (h)	Domestic and Personal Service	2,253	2,763
	Barbers, hairdressers—manicures	266	75
	Bartenders	275	
	Boarding—Lodging hs. keepers	63	331
	Housekeepers—Stewards	15	135
	Janitors	211	59
	Launderers—L'dresses (not in ls.)	7	201
Over 100 in each	Laundry operatives	105	325
	Midwives—Untrained nurses	22	249
	Porters	141	
	Restaurant—Cafe keepers	106	16
	Saloon keepers	99	1
	Servants	417	1,227
	Waiters	268	81
4,066 or 4.4%. (i)	Clerical Occupations	2,827	1,239
	Agents, canvassers, collectors	366	14
	Bookkeepers—Cashiers	804	315
	Clerks (not in stores)	1,150	156
	Messenger—Office boys	294	11
	Stenographers—Typewriters	213	743

MANUFACTURING CONDITIONS.

Salt Lake City.	1909.	1904.	1899.
No. of Manfg. Establishments	245	192	154
Av. No. of Wage Earners	4,287	2,776	2,154
Value of products	\$13,351,000	\$7,544,000	\$4,279,000
Values added by manufacturing	6,736,000	4,029,000	2,302,000

Utah.	Employing	Wage Earners
No. of manuf. Estabs. in	749	11,785
Total popl. of Utah	373,351	
Total popl. of Salt Lake City	92,777	

Salt Lake City has 33% of establishments of State of Utah.

Salt Lake City employs 36% of wage earners of State of Utah.

Per cent of total popl. engaged as wage earners in manufacturing establishments, 4.6%.

From decade to decade there will doubtless be slight changes in the vocational distribution shown in the table, but the proportions are not likely to change materially in the next twenty years, hence boys now in the schools, if they remain in Salt Lake City, will be engaged in the occupations listed above about in the same proportion that obtained in 1910. If they go elsewhere they will find vocational demands widely different. The present distribution of wage earners in Salt Lake City, in the nine leading occupations, is given in Table No. 5, page 17.

Vocational education needed. It would manifestly be impossible to prepare each of the 800 boys who leave school each year specifically for the particular occupation which he will follow out of the vast variety open to choice, even if the choice of each were known in advance. A general vocational training intended to lay a broad foundation of vocational understanding may, however, be given to all. A still more secure foundation may be laid for each of the half dozen broad fields of human labor represented in the city, the work in each field being taken only by those who intend to find their specialty there.

The boy should be permitted to try himself out in as many vocational fields as possible. The range of experimental activities should be as wide as the resources of the city will permit. There should be work with wood of all varieties, and in connection with the woodwork experiences in the use of finishes of every sort. There should be work with metal, leather, clay, and textiles. There should be electric work, printing, gardening, buying, selling, banking. The list might be greatly extended.

Sewing and garment making for girls already receives attention, but not enough time is given to the work to make it of high vocational value. Some specialization should be open to girls who will not pursue their education beyond the Junior high school. This is true also of domestic science. In the good beginning thus far made in teaching these subjects the schools are rendering a far-reaching social service. Training

for clerical service is well provided for in the present courses of study. Vocational training for girls should look beyond the commercial and clerical work which will necessarily be but temporary, and toward the wise management of a home in all its varied relations.

The Junior high school organization is well adapted to foster the wide variety of prevocational or try-out activities through which only can a boy or girl be sure of making a wise choice of vocation.

The Senior high schools. The Senior high schools, two in number, offer seven courses, Classical, Scientific, English, Normal Preparatory, Mechanics' Arts, Domestic Science, and Commercial. In view of the importance of agriculture in the Salt Lake Valley a good course in agriculture should be added. With this addition the high school opportunities furnished would be sufficiently varied to meet present needs. Provision for variation from a single fixed course, alike for all, has been in vogue in high schools throughout the country for many years, whereas in the upper grades of elementary schools a more conservative policy, amounting to rigid adherence to a single course, has till quite recently been the universal policy. The Salt Lake City high schools have been of the progressive class, and they are now able, without at all disturbing their organization, to receive pupils from the new Junior high school courses of the modern varied type and carry them forward along the lines of work started in the seventh grade. For this reason the high school situation has not seemed to call for much attention from the survey.

The small percentage of pupils enrolled in the high schools, and the heavy mortality during the first year, as shown by Figures 14 and 15, seem to indicate that the high schools are not making the educational opportunities they provide as apparent to the young people of the community as they should, and perhaps are not adjusting their work as closely as they might to the individual needs of the pupils who enter the schools.

Ungraded classes. The Junior high school does not re-

ceive pupils until they have completed the work of six grades. The statistics of retardation in the Salt Lake City schools disclose the fact, common in the experience of all school systems, that there are many children in the lower grades who, though not feeble minded, are slow to grasp the fundamentals which, in the main, constitute the work of the first six grades. They cannot work to advantage in regular classes because they need more individual attention than they can get there. Failing of promotion term after term they become discouraged and indifferent. It is expensive to keep them in the regular classes because they must be taken over the same ground repeatedly, owing to their inability to keep the pace of the class. Not only is it expensive, but it is also wasteful of human life and capacity. Children of this type can master the rudiments of education if allowed to move forward slowly but regularly. They need to be organized in special classes of moderate size, and to move forward at their own pace, without repeating. Such groups are sometimes called auxiliary classes, sometimes ungraded classes.

A few such classes have been organized in Salt Lake City. On a false theory of economy some of them have recently been discontinued. Each large school should have at least one such class. Unlike some of those now conducted, such classes should be managed with no expectation of meeting grade requirements of the course of study. The teacher should regulate the course in accordance with individual needs, and there should be much objective work. Practical arts, of a less advanced type than those in the Junior high school, should provide motive for reading, writing, composition, and arithmetic. Instead of reducing the number of ungraded classes the city should increase their number, and should adjust the character of the work done in them, not on the basis of the regular course of study, but on the basis of adaptation to the peculiar aptitudes of the pupils. This subject is considered more in detail in Chapter IX.

CHAPTER VIII.

THE EFFICIENCY OF THE INSTRUCTION MEASURED.

(Sears.)

Purpose of this section of the report. To be able to state in quantitative terms just what the efficiency of instruction in a given school or subject is, is a recent innovation in school practice which is becoming of increasing importance as scales for this purpose are perfected. It is not enough to get results in teaching, but we must be able to define those results. And it should be emphasized that, until this can be done, we really know very little about the results obtained.

It is the purpose here to report the results of a series of tests which were designed to measure the present state of efficiency of instruction in the Salt Lake City schools in those subjects which are intended to provide the children with the common tools of knowledge, and which everyone recognizes as the basis of all education.

Extent of the tests made. To this end tests were given in the subjects of reading, writing, spelling, composition, and arithmetic, to from 9 to 22 per cent of the children in the elementary schools of the city. For this purpose 19 of the 30 schools were selected, taking care to touch every type of community from the standpoint of population, social and economic status, and general school conditions as to size of school, quality of building and instruction, etc. From each of these schools the "B" or upper classes were chosen for the tests.

Whatever results appear are therefore fully typical of the schools as a whole, probably little if any different from what they would have been had every child in the system been included in the test. Dealing with the upper classes of each

grade, and at the close of the school year, the results represent practically the final achievements of the different grades.

Nature of tests given. The tests used are all standardized tests, and while no adequate explanation of any one of them can be given here, it should be noted that each one has been specially designed for its purpose, and not only represents the best scientific achievement in that line, but has proved its value in practical use in many school systems in teaching and supervision.

Results obtained from these tests in other cities are therefore serviceable, and fully trustworthy for comparative purposes here.

What such tests should reveal. The forces and conditions determining the results of teaching these, as well as all other subjects, are extremely varied. The responsibility of the school lies in discovering, defining, and controlling those different factors, to the end that the greatest economy in instruction shall obtain. Time allotment, teaching equipment, method, hygienic and aesthetic conditions of the room, etc., are all factors of importance in determining the efficiency of the instruction which can be attained, but it is clearly recognized that no single factor is so great as that of individual differences in mental ability. The school can easily control the time, equipment, and method factors, but it cannot determine original mental endowment. This only emphasizes the fact that it is the function of the school to organize and operate in terms of child nature, justifying its plan of supervision, promotion, grading, methods of instruction, etc., always in terms of the degree to which they aid in the adjustment of the school to the individual needs of children.

Such tests as are employed here are well adapted to the problem of finding out how fully the schools are meeting this important responsibility. A bad classification of children is a greater handicap than can be offset by the greatest excellence in methods, supervision, or equipment.

How the tests were conducted. With the exception of

writing and composition the tests were conducted by members of the survey staff, all of whom were engaged at this work for from three to five full days. The tests were given under as nearly normal schoolroom conditions as was possible. The papers were scored by teachers and principals under the careful instruction of a member of the staff, no teacher scoring her own papers where more than mere counting or checking was involved. The results of the scoring and recording were gone over with sufficient care to guarantee that no unusual errors crept into the final results. A few papers, and papers for a very few classes, had to be discarded because instructions were not carefully followed. It is believed that the results as shown below are fully trustworthy as evidence of the efficiency of instruction in these subjects as they are being handled at the present time.

I. THE TEST IN SPELLINGS.

Status of spelling in the city's curriculum. The subject of spelling is begun in the second grade, and continued through the eighth. The average amount of time given to the subject is approximately 100 minutes per week for all grades save the third, which devotes 150 minutes per week to this subject. (See Table No. 12.) The general suggestions and plans outlined in the printed course of study for spelling are excellent. The work is carefully correlated with other work in English, and the spelling text is supplemented by lists of words made up by the supervisors and teachers. It should be said at the outset that the amount of time devoted to this subject is at least 25 per cent too high, 50 per cent in case of grade three, and that a fair interpretation of the results of this test must bear this fact in mind.

The test and how it was conducted. The test, which was given to the "B" class in each of the grades, 3 to 8 inclusive, in nineteen schools, was that devised by Dr. Leonard P. Ayers, which he used in the Springfield survey,* and which he has

later embodied in a complete spelling scale.**. The test is composed of the following sixty words:

GRADE 3.	GRADE 4.	GRADE 5.
1. fill	1. forty	1. several
2. point	2. rate	2. leaving
3. state	3. children	3. publish
4. ready	4. prison	4. o'clock
5. almost	5. title	5. running
6. high	6. getting	6. known
7. event	7. need	7. secure
8. done	8. throw	8. wait
9. pass	9. feel	9. manner
10. Tuesday	10. speak	10. flight
GRADE 6.	GRADE 7.	GRADE 8.
1. decide	1. district	1. petrified
2. general	2. consideration	2. tariff
3. manner	3. athletics	3. emergency
4. too	4. distinguish	4. corporation
5. automobile	5. evidence	5. convenience
6. victim	6. conference	6. receipt
7. hospital	7. amendment	7. cordially
8. neither	8. liquor	8. discussion
9. toward	9. experience	9. appreciate.
10. business	10. receive	10. decision

*The Public Schools of Springfield, Illinois. An educational survey, Division of Education, Russell Sage Foundation, bulletin E 137. 1913.

**A Measuring Scale for Ability in Spelling. Leonard P. Ayers, Division of Education, Russell Sage Foundation, 1915.

Each word was selected from the 1000 words found, after a lengthy investigation, to be the 1000 most commonly used words in writing, and placed in groups by grades, on the basis of an extended test of each word in the schools of 84 cities. Each word appears in the grade in which it was spelled correctly on an average by 70 per cent of the children. We may therefore accept 70 per cent as the standard which each grade in Salt Lake City should attain, if the instruction in this subject is as good as the average in a large number of cities in the United States.

The list of words was pronounced to the children by the regular classroom teacher, in the presence of a member of the survey staff, ordinary class procedure obtaining in matters of writing, pronunciation, explanation of words of more than one meaning, etc. The papers were collected, immediately scored by the teacher, and turned over to the member of the survey in charge.

TABLE 15. SPELLING.

DISTRIBUTION OF AVERAGE SCORES BY SCHOOLS, BY GRADES, AND FOR THE CITY AS A WHOLE.

(Ayres Test.)

School.	Total Ave.	Grade.					
		VIII	VII	VI	V	IV	III
Total for City.....	86.0	82.2	87.1	86.8	87.6	78.8	89.9
Emerson School	81.1	80.2	95.7	82.5	81.4	62.4	84.1
Forest School	83.9	79.5	78.8	82.1	94.5	77.0	94.5
Grant School	86.1	....	89.1	88.8	92.5	79.5	90.7
Hamilton School	89.5	....	95.2	85.8	92.6	80.9	94.4
Jackson School	77.2	78.2	82.3	90.4	94.6	64.5	92.5
Jefferson School	89.0	86.5	88.7	90.0	92.0	85.3	92.0
Lafayette School	84.5	84.6	82.4	90.3	82.8	75.9	90.6
Lincoln School	89.0	....	93.3	92.5	91.1	87.8	86.5
Lowell School	92.4	86.1	94.4	98.3	96.4	98.7	91.2
Onequa School	84.4	73.1	82.3	83.9	85.9	85.9	95.9
Oquirrh School	89.1	....	87.8	96.9	93.0	85.1	85.7
Poplar Grove School..	87.8	89.5	90.0	86.9	76.8	87.4	93.9
Riverside School	84.8	76.8	89.7	84.1	77.1	81.0	98.7
Sumner School	83.3	76.1	80.6	73.8	90.0	76.6	95.5
Training School	68.9	....	71.0	65.2	83.1	58.8	66.4
Wasatch School	93.0	97.9	91.3	98.4	96.9	78.7	97.2
Washington School ...	82.9	....	91.3	89.7	79.3	73.9	75.8
Webster School	84.4	76.8	86.0	86.9	86.5	79.9	87.3
Whittier School	91.8	89.0	95.4	97.1	89.7	85.8	94.4

The results of the test. The results of this test appear in the following tables and diagrams, which present the facts by schools, by grades, for the city as a whole, and in comparison with results obtained in three other cities where this test has been used recently.

In Table No. 15 the average score for each grade in each school, graded on the scale of 100 per cent, is presented in detail, and at the top, combined for the city as a whole by grades. The important features of this table are shown graphically in Figure 16, in which the upper margin of the shaded surface indicates the highest average score made by any grade in each of the schools, the lower margin the lowest average, the central line the complete school average, and the straight line the average for the city.

Certain facts stand out here which may be studied in detail in the above table. First of all, the difference in the

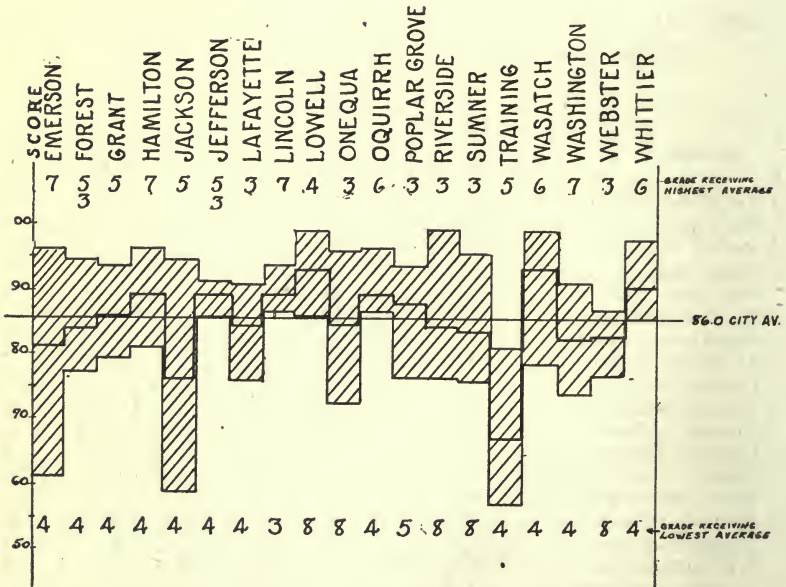


FIG. 16. RESULTS OF THE SPELLING TEST, BY SCHOOLS.

efficiency of different grades in the same school. From the figures above and below the margins, it may be seen that the fourth grade in the Emerson school made only slightly above 60 per cent, whereas grade seven made above 95 per cent. The Jackson school is a similar extreme case, which contrasts with the record of the Jefferson school. Either the average child in the fourth grade of the Emerson, Jackson, and Training schools cannot be promoted in spelling this year, or, if so, then the basis for promotion in grade 4 must be much lower than that used in promoting children in the grades of these same schools which are represented by the upper margin of the diagram.

The second suggestion offered by the diagram is the difference in school averages, varying as they do, from slightly under 70 per cent to 93 per cent. One must ask if that difference represents the difference in the basis of promotion in spelling in the different schools, since these children are to come up for promotion in a few weeks. Similarly a comparison of schools based on the best average score made by any grade, or on the lowest average score made by any grade, or a comparison of any given school with the city average, shows this same wide diversity of standards which exists between different schools, and, in several cases, between different grades in the same school.

TABLE NO. 16.

SHOWING THE PERCENTAGE OF CHILDREN OF EACH GRADE WHO ATTAINED EACH OF THE POSSIBLE SCORES IN SPELLING.

(Ayers Test.)

Grade	Score.										
	100	90	80	70	60	50	40	30	20	10	0
VIII	31.6	20.6	15.3	10.4	15.8	2.4	3.1	0.8	....	....	....
VII	39.8	24.5	19.3	7.1	4.5	2.7	1.2	0.5	0.2	0.2	....
VI	39.6	24.8	17.6	7.2	5.3	2.7	1.6	0.9	....	0.3	....
V	43.1	26.2	12.9	7.2	5.6	2.7	1.7	0.6	....	....	....
IV	23.8	21.0	18.7	14.2	11.4	4.3	3.5	2.3	0.8	....	....
III	53.2	20.2	12.4	6.7	3.7	1.3	1.2	0.7	0.3	0.3	....
Total for City.....	40.0	23.1	16.1	8.8	6.2	2.7	1.8	1.0	0.2	0.1	....

Another fact which comes out in this diagram is that grade four most often ranks lowest, and that grade three most often ranks highest. It will be recalled that grade three devotes 50 per cent more time to spelling than do the other grades.

Results of the test by individuals. Such diversities as these suggest the importance of studying the children individually rather than by schools or grade groups. This is done in Table No. 16, which shows the percentage of children from each grade, and for the city as a whole, who attained each of the possible scores.

These facts are shown graphically in Figure 17, in which the children of each grade may be studied individually, and in comparison with those of other grades, and with those for the city as a whole.

Looking first at the distribution for the entire city, including the records of nearly 4000 children—over one-fifth of all the children in the elementary schools—it will be seen that 40 per cent, or 4 of every 10 children tested, spelled all the ten words correctly; that over 20 per cent, or 2 of every 10, spelled nine words correctly, and that all the other scores, except zero, are represented in the diagram by a rapidly decreasing per cent of the children. The distributions for grades five, six, and seven are much similar to this, while those for grades eight, four, and three are different. More than half the children in grade three, and less than a fourth of the children in grade four, attained perfect scores. Similar comparisons may be made by reference to the median score, which is indicated for each section of the diagram. The median or middle score for all the 3988 children tested is 91 per cent, which means that one-half of the group, or 1994 children, attained a score above 91, while the same number fell below 91. As was shown by Figure 16, grade four ranks lowest with a median of 82, and grade three highest with a median of 96.

Uneven ability shown. It is clear from this showing that the test was too easy for two-fifths of the children in the Salt

Lake City schools. How many more words of equal difficulty these children might have spelled can only be conjectured. It is enough to say that two-fifths of the children of these grades

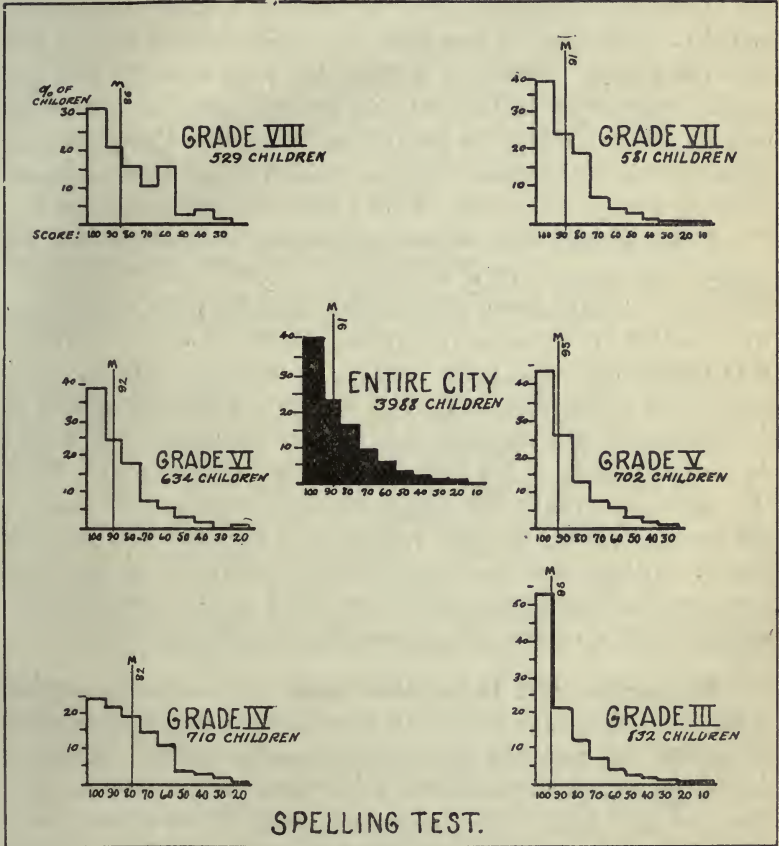


FIG. 17. SHOWING FOR THE CITY AS A WHOLE, AND BY GRADES, THE PERCENTAGE OF CHILDREN ATTAINING EACH OF THE POSSIBLE SCORES.

have long since been ready for promotion, according to the standard of this test.

There is another feature of this diagram, however, that must not be overlooked, and that is the fact that in each grade there are a few children who fail to spell more than half of the ten words correctly. For the city as a whole this group amounts to nearly six per cent, or approximately 250 of the children tested. While it is true that Salt Lake City is not unlike other cities in this respect, yet this question should be met squarely. While the details for individual classes cannot be shown here, the same condition which obtains with respect to whole grades in the city obtains also in single class rooms.

Pedagogically this makes a teaching situation which no teacher can hope to meet adequately. With such extremes of abilities in a class, some children may dawdle their time away, while others are being overworked. It should be remembered that dawdling is not mere resting, or waiting. On the contrary, it is a constructive part of the child's training, which is developing for him slovenly, half-hearted habits of work which do not make use of his full capacity for achievement. With the child who ranks far below his class average the case is different. It is the unusual teacher who does not finally count him a hopeless case, and permit him to drift, or, to save her own teaching reputation, drive him along by the most unpedagogical methods until the process finally eliminates him.

Comparison with three other cities. A comparison of the showing in Salt Lake City with that made in three other cities in which this test has been used recently seemed desirable, and is presented in Table No. 17. From this it will be seen that the Salt Lake City schools rank well above those of the other cities in all grades except the eighth, and that, for the city as a whole, they stand 6 per cent above all the others.

Discounting this showing liberally because it represents the final product of the grades, the midyear classes not being included, and it can still be said that Salt Lake City ranks high, probably highest for the city as a whole, and for at least

TABLE NO. 17.
 SPELLING TEST—SALT LAKE CITY COMPARED WITH
 OTHER CITIES.
 (Ayers Test.)

City.	Grade.							Ave.
	II	III	IV	V	VI	VII	VIII	
Springfield, Ill. .	70.0	65.0	70.0	72.0	68.0	73.0	75.0	70.0
*Butte, Mont. . .	86.2	81.8	78.7	84.5	75.0	76.2	89.4	80.3
**Oakland, Cal..	60.4	66.7	75.9	84.7	80.2	79.7	76.3	76.5
Salt Lake City..	....	89.9	78.8	87.6	86.8	87.1	82.2	86.0

*Includes only B classes.

**The test in Oakland was given at the beginning of the year, and includes results from both A and B classes.

Note: Salt Lake City should rank slightly higher than Oakland since the test included only the B section of the grade.

three of the grades. But again, reference must be made to the fact that in Springfield the amount of time given to spelling ranges from 0 to 40 minutes per day, e. g., from 0 to 200 minutes per week; that in Oakland the range is from 10 to 200 minutes per week, with an average of slightly less than 100 minutes; while the range in Salt Lake City is from 30 to 300 minutes per week, with an average of 115 minutes. While the question of time cannot be settled absolutely for all classes and schools alike, the best investigations of this subject do not seem to warrant the recommendation of more than 75 minutes per week as a maximum amount of time for the subject of spelling. While Salt Lake City has made a decidedly high showing, the large time cost which it places upon the schools must be taken into account.

Nor must this excellent showing in general obscure the situation pointed out above. It is true that this brings to light one of the most difficult problems in school organization. It is true too that much the same situation exists in other cities. In a highly complex system the individual child is too apt to be lost in the midst of machinery. The cure is individual promotion, at reasonably frequent intervals, on the basis of single

subjects, instead of grade or groups of subjects. There are many difficulties attending the administration of such a remedy, but with adequate supervision it can be accomplished.

2. THE TEST IN COMPOSITION.

Some form of language work is taught in all grades. Story telling and dramatization in the early years anticipate the work in written composition, which begins in grade three in the form of letter writing and story reproduction. The outline for this work in the printed course is most suggestive, leaving wide freedom to the teacher, but freedom in the midst of rich suggestions as to what ends to seek and what motives to provide. Especially is it noticeable and commendable that formal grammar is presented only as a means of explaining and clarifying oral or written expression.

The amount of time devoted to the subject varies widely in every grade, but on the average increases gradually from 75 minutes per week for grades one and two, to 255 minutes per week for grade eight. Twenty-five per cent more time is given to spelling in grade two than is given to language work, and in grade three fifty per cent more time, while an equal amount is given the two subjects in grade four. This is obviously so unreasonable a distribution of time between these two subjects that it should only be necessary to discover that such a discrepancy exists in order to have it changed.

Nature and method of the composition test. The test, which is explained in the following paragraphs from a circular placed in the hands of the teachers, was given in grades four to eight inclusive, in the 19 schools selected for the testing work.

COMPOSITION TEST.

1. Each teacher is requested to ask her children to write a composition for her on the following theme:

“Suppose that you have twenty dollars, which you have been

given to spend. You have five friends, and you decide to spend it in such a manner as will give the most pleasure to each. Tell what you would do or buy for each friend. The amount spent for each friend need not be the same, but the total for the five must be twenty dollars."

2. The composition should be written with pen and ink on the regular writing paper.

3. After the children are ready for writing, read the subject to them, give them a minute or two to ask any questions, and as soon as you are sure that the children understand what they are to do, start them at writing.

4. When the children have finished collect the papers, fasten those for each class together with a clip, and send to the office of the school principal.

No teacher marked her own papers, hence the personal equation probably entered very slightly into the scoring, which was done by the use of the Hillegas scale for measuring the quality of English composition.*

*Hillegas, Milo B.—A Scale for the Measurement of Quality in English Composition by Young People. Published by Teachers College, Columbia University, 1912.

In all there were 3043 compositions written, representing a sample of slightly more than 16 per cent of the children in the elementary schools of the city.

The results of the test. The results of this test are shown briefly in the following tables and diagram.

In Table No. 18 a complete distribution of scores attained by each of the grades is shown, together with the median score attained by each grade. From this table it may be seen that the degree of efficiency rises gradually from grade four to grade eight. That is, from this test it appears that the average child in the Salt Lake City schools, during the course of 4 years' training in English composition, may be expected to gain in efficiency the equivalent of $2\frac{1}{2}$ points on this scale, or at the rate of .6 point per year. According to the Butte Survey** the progress of a child in that city is at the rate of .45

**Report of the Survey of the School System of Butte, Montana. Published by the Board of Education, 1914.

TABLE NO. 18.

SHOWING DISTRIBUTION OF COMPOSITION SCORES OR
RATINGS, BY GRADES.
(Hillegas Scale.)

Grade.	Ratings and Number in Each Grade Making Each Rating*.										No. of Sample	Median
	0	1	2	3	4	5	6	7	8	9		
VIII .....	....	3	20	44	81	87	92	82	29	45	483	5.4
VII	1	17	51	84	165	95	88	70	13	13	597	4.4
VI	1	38	89	120	123	106	67	31	8	4	587	3.8
V	21	100	115	140	133	69	53	21	1	....	653	3.1
IV	3	136	159	157	159	51	43	15	....	....	723	2.9

*The actual values are not 0, 1, 2, 3, 4, etc., but 0, 183, 260, 369, 474, 585, 675, 772, 838, and 937. Full explanation of how these values were derived, and of the nature and purpose of the scale are explained by its author in Teachers' College Record for September, 1912.

point on the scale per year. Most of the points in this table are brought out more effectively in Figure 18, which shows for each grade the percentage of the children who attained each of the possible scores.

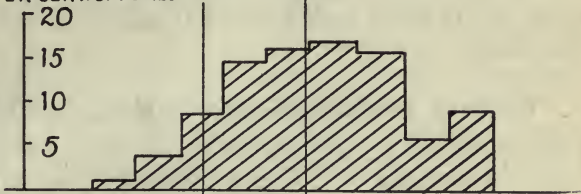
The achievement for the median child in grade four, and that for the median child of grade eight, are indicated by the long vertical lines drawn through the entire diagram. Between these, at fairly regular intervals, with one exception, appear the short vertical lines representing the medians of the three intervening grades. This seems to suggest that the composition work is equally well done in all these five grades. Closer examination of the exception referred to shows that the rate of progress for grade four has been substantially higher than that for the other grades. It will be recalled that grade four ranked lowest in spelling. If that was because this grade was working harder on composition, then it is the writer's opinion that the schools can well afford to permit the spelling scores of all grades to drop from 5 to 10 per cent more, especially since more than 25 per cent more time is given

SCORES: 0 1 2 3 4 5 6 7 8 9

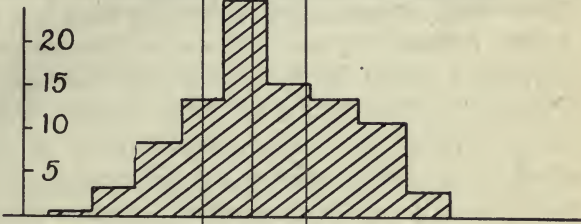
MEDIAN SCORES: IV VIII

PER CENT. OF PUPILS

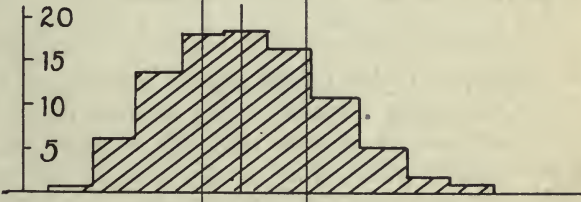
GRADE VIII



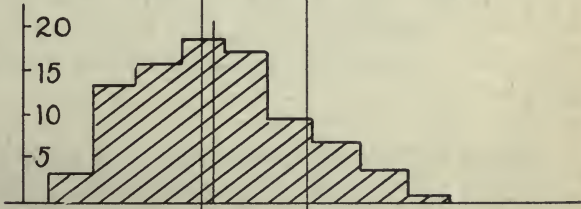
GRADE VII



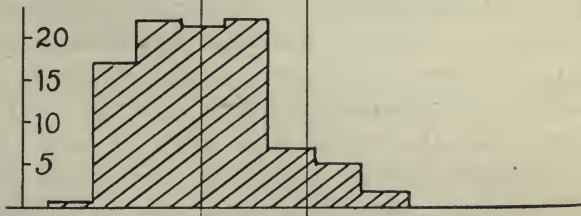
GRADE VI



GRADE V



GRADE IV



SCORE: 0 1 2 3 4 5 6 7 8 9

FIG. 18. RESULTS OF THE COMPOSITION TEST.

to spelling than is desirable. Particularly in the language work of the early grades could this time be used to far better advantage.

Children well classified for language work. By this diagram attention is also called to the wide variety of abilities found in each grade. This was found to be characteristic also of individual classes, and presents the same teaching difficulties as were pointed out above in connection with spelling. How to assign a lesson, or how to discuss sentence or paragraph formation, or the details of letter writing, with a class containing children as widely apart in ability as are those represented by the outer ends of the different sections of this diagram, would be difficult to state. In fact it cannot be done without losing time for some members of the class.

The diagram shows that there are nearly 8 per cent, almost 60 children of the fourth grade, whose composition scored higher than that written by the average child in grade eight. It is not merely unfair to these 60 children, but unfair to the city's future citizenship, to say nothing of the money cost involved, that these 60 children, who probably represent the real future leadership of the city, should not be promoted to where full, not half opportunity, will be given them in this subject.

Samples of average composition. In order that the reader may judge for himself of the quality of work the schools are doing in composition, the children's papers from the different schools have been looked over and those papers from each grade which received the score nearest the median (approximately the average) for the grade have been sorted out. From these the following compositions have been selected as typical illustrations, not of the best or the poorest, but of the average compositions from each grade tested. They are presented here exactly as written, spelled, and punctuated in the original, except that proper names have been omitted.

NO. 1. GRADE 4B, SCORE 2.60 (WRITTEN BY A GIRL AGE 11 YEARS, 9 MONTHS).

On Christmas my uncle came on a visit. He gave me twenty dollars to spent. I planed what I could do to make some one happy. While I was thinking I thought of some poor people.

Which had five children. So that I could see what they needed most. I went and played with them. After I saw what they needed I went home. And with some of my friends I went up town. And bought five pairs of shoes for eleven dollars, five dresses for six dollars, two loaves of bread for twenty cents, and five pairs of stockings one dollar and ten cents five gloves for one dollar and seventy cents. So not I was the only one happy but they were also happy and glad.

NO. 2. GRADE 5B, SCORE 3.69 (WRITTEN BY A GIRL AGE 11 YEARS, 7 MONTHS).

The other day as I was playing in the yard, I spied something in the grass which looked like a penny. But when I came near it was much larger and heavier.

The next day I called five of my friends in, M—, D—, B—, A—, and H—. I told them to get ready, and we would go to Lagoon.

At last we were ready and now we are on our way. The train stops and we get of ready to give the rest of our ticket to the door tender. I have spent two dollars already, but now I am going take them on the chutes and next the cenick railway. We must not forget the boats and the little train and merry-go-round.

After that comes the lunch, for we did not bring any.

After that we must all play some kind of a game, and win a little poodle dog. Next the doll game which all of us will play for. The fishing game is the game that you play for jewelry. I bought a vase which cost six dollars, and that was the prize for the one who got the most peanuts after they were hiden. We have (\$5.40) five dollars and forty cents left for which will by (\$.40) worth of nuts and the rest will be for carfare home.

NO. 3. GRADE 6 B, SCORE 3.69 (WRITTEN BY A BOY, AGE 12 YEARS AND 9 MONTHS).

I have friends who live in the country. Their names are P— C—, C— C—, F— C—, R— C—, and M— C—. They had never visited the city One summer I was out there. I allways piled with questions about the city. One day I asked them how they would like to go back with me and see the city. They were so delighted

that they could not keep still. In P—'s delightment he ran into the cow which politely lifted in the air and set him on top of the hay stack. The next day we started for the city about noon and we reached it. The minute we were off the train they began pointing to sky scraper and crying excitedly. Oh isn't it a tall one. F— said he sposed it reached to heaven. While C— was looking at one of the tall buildings he ran into a man. We went into a resteront a had a good dinner which costs us two dollars apiece. After the dinner we went to the show which was one dollar. M— wanted to know what made the trolley cars go. We went for a ride. we rode about five miles. It cost me one dollar for the ride. When we got ready to go home we got on the cars and found out that I couldn't find my pocket book. We walked all the way home. We got home I found the pocket book in my hat R— had put it there. I gave the four dollars for their home. They said they hadent a better time.

NO. 4. GRADE 7B, SCORE 4.74 (WRITTEN BY A BOY, AGE 14 YEARS, 3 MONTHS)

One sunny morning in May my five cousins who where on their way to see the fair at Frisco stopped on their way and came to see me. My father gave me twenty dollars to intertain them. I was busy thinking of the best way to do it. I finally decided to go to the Bingham Copper Mines. This was satisfactory to all and taking along a lunch we started off.

When we got there it was noon and everybody was hungry so we opened up the lunch and ate until there was not a crumb left. Next we hired a guide to show us through the mines and what a sight we seen. There were walls of dirt seemingly covered with the yellow mettle. Our guid showed us where the elevators were on which they sent the copper to the top. Next he showed us the donkeys which hauled the little dump cart to the elevators. After taking us trough all the mines he showed us where the minors lived.

Here our journey ended after each buying a souvenir we departed for home each one satisfied with the way of spending twenty dollars.

NO. 5. GRADE 8B, SCORE 5.85 (WRITTEN BY A BOY. AGE ?)
DEAR J—.

Two days ago uncle gave me twenty dollars, to get christmas presents with. I was on my way down town, to get them, when I saw two ragged little boys. I stopped and said, to them, "Well Johnny what are you going to get for Christmas."

"I aint going to get nothing this Christmas, for mamma hasn't

got any money. Where do you live, "Across the street in that wooden house," answered the boy.

You take this five dollars over to your mamma and then hurry back and I will take you up town. So I took them up town, and got them some warm clothes and then took them to a show. So I spent fifteen dollars on three of them. There was Mother and Father left so I got father a shaving set which cost three dollars and a half and I got Mother some Handkerchiefs for a dollar and a half which took all my money. Merry Christmas.

Your old friend,

H—.

On the formal side there are plenty of errors in these papers, in spelling, in punctuation, in sentence formation, etc., and one or two seem rather formal and dry. But in most of them there is evidence of some play of the imagination, and fairly free expression. Most of the vocabularies seem adequate, and in such details these samples seem to indicate that the composition work is fairly well taught. It must be remembered that these are but average compositions, and not compositions selected because of their special merit.

Salt Lake City's Composition work. There is but little data which can be offered for comparison, but such as is available is presented in Table No. 19. From this it is seen

TABLE NO. 19.
COMPARING SALT LAKE CITY'S MEDIAN COMPOSITION SCORES WITH THOSE ATTAINED IN OTHER STATES.

Grade	Score		Median	Maryland, & N. Y. City**	Delaware Co. O.***	Delaware City.
	Salt Lake City	Butte, Mont.*				
VIII	5.4	4.11			3.94	5.27
VII	4.4	3.75		5.75 to 7.0		
VI	3.8	3.40				
V.	3.1	2.87		5.15		
IV	2.9	2.34				

*The Butte Survey, p. 74.

**F. J. Kelly. Teachers' Marks, Their Variability and Standardization, Col. Univ. 1914.

***Report of the Ohio State School Survey, 1914.

that in every grade Salt Lake City ranks well above Butte, above the eighth grade rural schools of Delaware Co., Ohio, and above the eighth grade children of Delaware City, Ohio, but below the classes in Maryland and N. Y. City.

Conclusions and recommendations. It should be said then in conclusion:

1st. That while the schools rank fairly well as compared in Table No. 19, yet the fact that some classes in N. Y. City have made higher scores indicates that there is yet room for improvement. There were individual classes in Salt Lake City which ranked as high as the N. Y. City classes, which shows that higher standards than are shown by the table have already been attained by some schools in the city.

2nd. That the fourth grade which ranked low in spelling is doing superior work in composition, and that otherwise the progress has been about equal in the other grades, which indicates that there is in general a common standard for promotion in English work throughout the city.

3rd. That there is ample evidence that classes are not well graded, when so large a number of fourth grade children are doing work equal to that of the average eighth grade pupils, and when nearly an equal number of eighth grade pupils rank below the average fourth grade pupil.

4th. From the compositions written there is ample evidence that the excellent aims for English work, as set forth in the printed course of study, are being achieved, and that many of the common errors of teaching the formal and technical aspects of English work are being successfully avoided.

5th. It is recommended that a portion of the time now devoted to formal spelling drill be given over, in the early grades, to the broader work in English, and that by the use of ungraded rooms, smaller classes, and more elastic methods of promotion, the very bright and the very dull pupils be given more adequate attention than is either possible or economical under the present classification.

3. THE WRITING TEST.

Writing in the school curriculum. Writing is taught in all grades, beginning with free arm work at the blackboard, gradually taking up the pencil, and in the third grade the pen. During the first two years an average of 50 minutes per week, and through the other grades an average of 75 minutes per week is given to the subject, which is slightly less than has recently been found to be the average for 66 American cities.* The aim for teaching writing appears to be that of legibility rather than mere beauty, and the instructions in the printed course of study lay appropriate emphasis upon the hygienic aspect of the teaching of the subject.

How the writing was measured. The test was given to the same classes and schools as were tested for spelling, including about 20 per cent of the children in the elementary schools of the city. For this test each child was provided with a blank sheet of unruled writing paper, at the top of which was printed the following brief instructions and paragraph, as shown here:

WRITE THE FOLLOWING AS WELL AS YOU CAN AT YOUR
USUAL SPEED. DO NOT WRITE SLOWLY, AND DO NOT
HURRY BUT WRITE JUST AS YOU WOULD
WRITE A LESSON.

After this the squirrels used to come in every day, and when she put corn in her hand and held it very still, they would eat out of it. Finally they would get into her hand, until one day she gently closed it over them so that Frisky and Titbit were fairly caught. Oh, how their hearts beat! But the good fairy only spoke gently to them, and soon opened her hand and let them go again.

These were given to the children by their teachers just as a class exercise, and when finished the papers for each class were turned over to the principal, who forwarded them to the principal of another school across the city, whose teachers scored the papers by use of the Thorndike scale for measuring handwriting.*

Results by schools and by grades. The results of this

*Freeman, Frank N., in the Fourteenth Year Book of the National Society for the Study of Education, Part I. Chicago Univ. Press.

test are shown in detail by schools and by grades in the following tables and diagrams. The scoring is done, according to the scale, on the basis of 4 to 18, instead of from 0 to 100. The reason for this is immaterial, but should be understood in order to interpret the following tables. Remembering that 4 means practically 0, and that 18 means approximately 100, the reader will readily understand Table No. 20, which presents the average scores by schools and by grades, and then combines these for the city as a whole. A careful study of this table shows that, judged by grade averages, no one school ranks especially low or especially high, though the Sumner record is consistently above the average for the city. In other words, the differences between schools are nowhere striking, and the gradual rise of the average score from 9.3 in grade three, to 13.1 in grade eight shows evidence of uniformity in

TABLE NO. 20.

DISTRIBUTION OF AVERAGE SCORES IN PENMANSHIP
BY SCHOOLS AND BY GRADES.

GRADE	III	IV	V	VI	VII	VIII
For the City	9.3	10.7	10.9	11.2	12.1	13.1
Emerson School	9.6	9.5	12.5	10.9	12.4	11.3
Forest School	9.3	10.4	10.2	9.9	11.9	13.2
Grant School	8.2	10.1	10.9	10.9	10.4	
Hamilton School	11.9	10.1	11.5	12.9	12.5	
Jackson School	10.7	10.7	9.9	10.5	11.4	13.
Jefferson School		9.5	11.3	11.5	11.3	11.6
Lafayette School	10.5	11.3	10.6	10.3	12.2	14.7
Lincoln School	9.0	9.2	9.0	11.	11.2	
Lowell School	8.6	10.6	11.7	11.8	14.	14.6
Onequa School	10.5	11.6	10.9	9.9	12.2	13.5
Oquirrh School	8.7	10.7	12.2	13.3	12.1	
Poplar Grove School		9.5	9.8	11.3	11.6	12.4
Riverside School	9.4	12.7	9.8	11.	12.	12.2
Sumner School	10.2	13.8	12.4	12.2	12.7	13.9
Training School	7.1	9.0	9.8	9.6	11.6	12.5
Wasatch School		12.7	13.4	11.3	12.4	12.3
Washington School	8.9	9.7	9.5	10.7	11.2	
Webster School	7.6	11.1	10.7	12.1	12.8	11.6
Whittier School	9.1	11.7	11.4	12.0	12.8	14.7

*Thorndike, Edward L. A Scale for Handwriting of Children in Grades 5 to 8, published by Teachers College, Col. Univ., N. Y. For full explanation of how the scale was derived see Teachers College Record, March, 1910.

teaching standards throughout the city. Since there is little uniformity with respect to the amount of time assigned to this subject in the different schools, it is of interest to state that the school which makes the lowest standing in the test is devoting nearly one-third less than the average amount of time to the subject. A pleasant and profitable diversion for each principal would be the figuring out of the actual time-cost of his school's achievement per unit attained on the scale.

Variability among individuals in the same grade. Averages are important, but do not tell the complete story, and the reader is referred to Table No. 21, which shows the en-

TABLE NO. 21.

THE DISTRIBUTION OF SCORES ON 3685 SAMPLES OF PENMANSHIP BY GRADES.

Score	GRADES, number making score.					
	III	IV	V	VI	VII	VIII
0						
1						
2						
3						
4	3					
5	4					
6	21	5		3		
7	55	30	3	3	2	
8	85	63	59	26	8	
9	196	175	147	117	70	28
10	46	37	23	38	12	4
11	102	152	190	153	163	97
12	44	60	65	92	91	81
13	39	101	98	87	189	84
14	11	38	41	52	68	50
15	4	12	15	20	31	35
16	4	9	4	10	24	61
17		4	1		2	10
18		1		1	2	22
No. of Samples.....	616	687	646	602	662	472
Median Score for Grade.....	9.2	10.7	11.0	11.3	12.2	12.8

tire distribution of the scores attained by the children of each grade, the number of samples included, and the rank of the median sample. These facts are brought out clearly in Figure 19, which shows the same wide variation from the average, so apparent in the spelling and language results. The two vertical dotted lines enclose the records of all the chil-

dren who scored between 8 and 17, thus showing the extensive overlapping between grades widely apart.

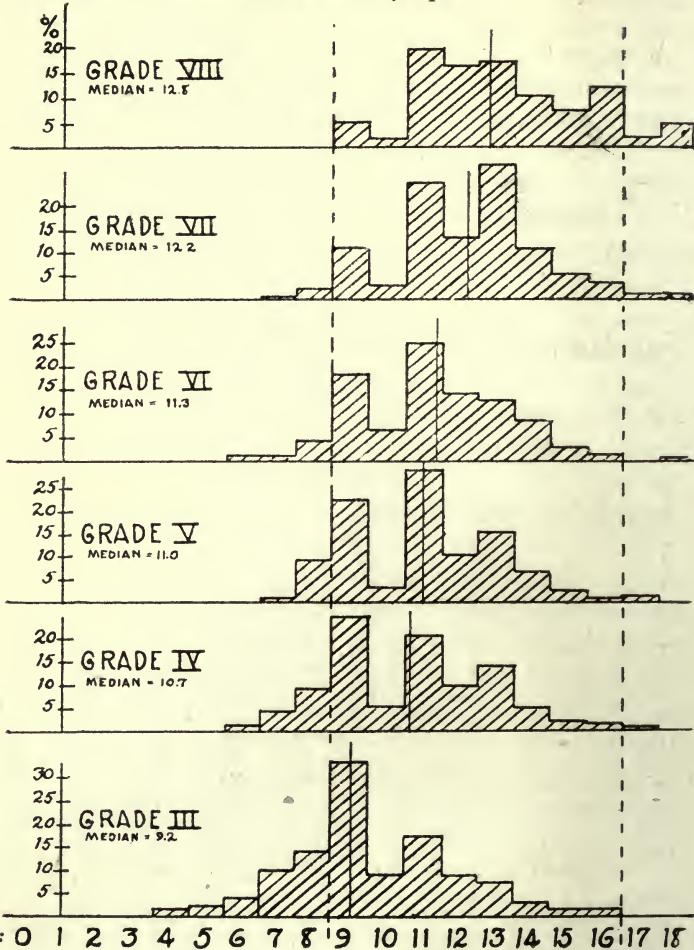


FIG. 19. SHOWING THE PERCENTAGE OF CHILDREN WHO ATTAINED EACH OF THE POSSIBLE SCORES. (Thorndike Scale.)

Since the instruction in writing is an individual rather than a group procedure, classification of children on the basis

of this subject is not at all important. But teachers will not need to study this diagram long to discover that there are quite a number of third grade children in the schools who even now are ready for the eighth grade writing classes; or, vice versa, that there are many children now in the eighth grade who write no better than the better writers in grade three. Assuming that all have had approximately similar training, as far as they have gone, we may reasonably conclude that these differences are largely due to differences in the native abilities of individual children.

However true this may be, the results of the test emphasize the importance of making provision for these differences by further individualizing the instruction, and by providing special treatment for the few who do not understand and do not improve under ordinary methods. This is as economical as it is wise from the children's standpoint. Still further, if third, fourth and fifth grade children can now write as well or better than is expected of the average eighth grade pupil, then it is entirely wrong to have such children spending 75 minutes per week on this subject. Such children should be excused from formal work in writing, with the understanding that so long as their written work shows a certain quality this extra time may be used on other studies. Such methods of saving time are commendable because they stimulate those children to do their best who might otherwise merely drift, for the reason that it is no trouble for them to keep ahead of their classes.

Comparison with other cities. To compare the results of this test in Salt Lake City with those achieved elsewhere, comparable data from several sources have been brought together in Table No. 22.

Here the median, which differs very slightly from the average, has been used, and it will be seen that the schools of Salt Lake City rank high in two respects. First, with the exception of a few cases in the seven school systems tested by Dr. Stone, no schools cited rank as high;

TABLE NO. 22.

SHOWING THE COMPARATIVE STANDING OF THE SALT LAKE CITY SCHOOLS IN PENMANSHIP, AS JUDGED BY THE MEDIAN SCORE FOR EACH GRADE. (Thorndike Scale.)

City	GRADE, and Median Score						
	II	III	IV	V	VI	VII	VIII
Butte, 1.....	8.2	8.0	8.8	8.9	11.6	11.2	12.1
Cornersville, Ind. 2....		10.3	10.0	10.3	11.7	11.7	11.0
Southington, Conn. 3..						10.0	
						10.3	10.3
						11.1	11.2
Seven School Systems 4						10.6	11.0
						11.3	11.7
						12.7	11.6
						13.0	13.7
Salt Lake City.....		9.2	10.7	11.1	11.3	12.2	12.8

1. Butte School Survey, Chap. IV.

2. Wilson—Writing of school children; in Elem. Sch. Tr., June, 1911 (1,200 children).

3. Witham—All the Elements of Handwriting measured: Educl. Admin. and Supv., May, 1915.

4. Stone—Quoted by Thorndike, Investigation covers seven school systems and about 3,000 children. Trs., Col. Record, March, 1910.

and second, because the progress from grade to grade is much more even in the Salt Lake City schools than in most of the other cases. In time it will be possible to standardize the matter of progress from grade to grade. Until then it is fair to assume that a reasonably even rate of progress is more nearly normal than is an uneven rate.

How well the average child can write. As in the case of the compositions there is presented here, in Figure 20, a sample specimen of the writing from the papers in each grade which received a mark approximately that of the grade median.

Selection on the basis of the median means that there are as many children in these grades in Salt Lake City who can write better than the specimens shown in Figure 20 as there are who cannot write so well.

corn in her hand and held it
very still. they would eat out

GRADE III

soon opened her hand and
let them go again.

GRADE IV

come in every day, and when
she put corn in her hand and

GRADE V

her hand, until one day she gently
closed it over them so that Frisky and

GRADE VI

eat out of it. Finally they would get into
her hand, until one day she gently closed

GRADE VII

every day, and when she put corn in her
hand and held it very still, they would

GRADE VIII

FIG. 20. SAMPLE REPRESENTING THE MEDIAN
ACHIEVEMENT IN WRITING IN EACH GRADE.

(Reduced $\frac{1}{2}$ in size.)

It can be said that these samples fairly represent the kind of writing which is now being done by the average children of each grade in the city. That is, there are as many children in the city who can write better than these samples (grade one and two omitted) as there are children who cannot write as well. The average business man will do well to place his

own writing by the side of either of the last two of these specimens before arguing that the children of the public schools cannot write. It is true that some of the writing was done with a cramped hand, and that it is somewhat childish looking, but it must be added that it is easily legible and that legibility is the final test which the world puts upon writing.

Needed changes in instruction. In conclusion we must say that the writing work in the schools of this city is well up to the standard; that in the light of present practice this work is being accomplished in a reasonable amount of time; and that the basis for promotion in the different schools appears to be equal, but that more careful individualization of instruction for the lower five to ten per cent of each grade, and the temporary relieving from formal training of those who are several points ahead of their grades, are lines along which the schools may look for even greater progress.

A. THE TEST IN READING.

Reading in the course of study. Almost every classroom visited by the members of the survey showed evidence that the point of view, the aim and purpose, and the general method for teaching reading, so clearly set forth in the printed course of study, are being effectively carried out. The time allotment, which varies from 50 to more than 900 minutes per week between classes in the city, with an average of from 200 to 375 minutes per week in the different grades; and the constant attention to home as well as school reading, which one finds in every classroom; give evidence that the schools of the city have not underestimated the importance of this subject, nor the fact that teaching children how to read is but incidental in teaching them to read. Speed, getting the meaning, remembering the language used,—that is, developing vocabulary,—and that clear expression which is evidence of appreciation, all are ends to be sought in teaching reading.

How the reading was tested. To provide a test by which we may be able to make a quantitative statement of the degree of efficiency attained by a given child or class in all these features, is in large part the work of the future. A simple test of speed and of accuracy of memory for words used has been devised, and this was applied in thirteen schools,

The test, which is printed on pages 156 and 157, and which is known as the Courtis test, consist of a simple prose story which the children were asked to read silently, with as great speed and with as great care as possible. They were told that they would be permitted to read a certain length of time, after which they would be tested to see what they knew of the part they had read. Exactly one minute was given, at the end of which each child drew a ring around the last word he had read. By use of the figures on the margin the number of words read in one minute (the child's speed) was quickly ascertained and recorded in the square at the upper left hand corner of what was called Test No. 1.

In Test No. 2 no time limit was enforced. In this test the same story is used, but instead of the subject being "Bessie's Adventures," we have "Bessie's (Experiences, Adventures, Story." This same idea is carried out throughout the body of the story, and the test, which is a test of memory for words used, consists in checking the one of these three words (three words always appear in italics enclosed in parentheses) which the pupil remembers as the word he read in Test No. 1. These puzzles, or points, as they were termed in the explanation to the children, are numbered on the margin, as were the words in Test No. 1. When the child had checked the words down as far as he had read the story in Test No. 1, he drew a line around the last word, and, with assistance, recorded in the proper place the number of points he had read. The papers were then taken by the teacher, who verified the count made by the children and assembled the scores for her class on a record sheet designed for that purpose.

ENGLISH. NORMAL READING.

TEST NO. 1. SPEED TEST.

(Copyrighted by S. A. Courtis, 1914.)

Bessie's (Adventures, Experiences, Story).

BESSIE'S ADVENTURES.

SCORE
Number of
Words.....

	No. of Words
Before the frightened little girl could decide what to do, the dog sat up on his hind legs and began to beg. He gave another impatient little "Bow!"	18
but this time his bark did not seem so sharp and terrifying to Bessie, and her fears began to disappear. "Why, he's really a cute little doggie," she thought, and sitting up, she timidly offered him her bowl. The dog needed no second invitation, but eagerly lapped the milk until every drop was gone.	32 47 60 73 86
Bessie set the empty bowl down upon the doorstep and patted the little dog's head. He in turn was equally friendly, wagging his tail and trying to lick her hand. In a few minutes more the two were the best of friends, racing about the garden in a wild game of tag. Sometimes it was Bessie, laughing and screaming, who was chasing the dog this way and that in and out among the bushes of the garden; sometimes it was the dog, barking and jumping, who was chasing Bessie. More than once dog and girl were so much in each other's way that both fell down, rolling over and over on the soft grass. Not for a long time had Bessie had such a pleasant playmate,	99 113 128 142 156 170 183 198 212
They were on the front lawn now, resting a minute after a particularly wild romp. Suddenly, through the pickets of the fence, the dog spied a cat crossing the street outside. Immediately he dashed after her, squeezing between the pickets, and running down the street at top speed. "Here, doggie, doggie," the little girl cried, and ran after her playfellow, only to be stopped by the fence. From between the pickets, she could see both the cat and the dog rapidly disappearing down the street. Hot tears of disappointment welled from her eyes. She hurried to the gate and shook it; it was securely latched. Could she open it? Many times before had she tried, but without success. Little girls grow, however, and standing on the lower part of the gate, and stretching to her utmost, she was just able to press her little fingers against the latch. Click, and the gate swung open. Bessie was free to hurry down the street. The cat and dog had disappeared around the corner of the next block.	225 239 249 261 275 289 300 314 325 337 353 366 379 386

Name..... Grade.....

ENGLISH. NORMAL READING.
TEST NO. 2. MEMORY TEST.

SCORE.

Time.....	.....
No. Left.....	.....
No. Right.....	.....

Bessie's (Experiences, Adventures, Story,) Part B.

Before the (terrified, frightened, poor) little girl could (decide, think,	1
know) what to do, the dog sat up on his hind legs and began to (bark, tease,	3
beg.) He gave another impatient little ("Bow!", bark, whine) but this time	4
his bark did not seem so (loud, sharp, harsh) and terrifying to Bessie, and	5
her (fears, terror, distress) began to disappear. "Why, he's really a (nice,	6
cute, dear) little doggie," she thought, and sitting up, she (cautiously,	7
timidly, boldly) offered him her bowl. The dog (wanted, asked, needed)	9
no second invitation, but (eagerly, quickly, rapidly) lapped the milk until	10
every drop was (swallowed, eaten, gone.)	11
Bessie set the empty bowl down upon the (grass, doorstep, ground) and	12
patted the little dog's (head, back, neck.) He in turn was (very, also,	13
equally) friendly, wagging his tail and trying to (paw, kiss, lick) her hand.	15
In a few minutes more the two were the best of (comrades, friends, play-	16
mates) racing about the (grounds, lawn, garden) in a wild game of tag.	17
Sometimes it was Bessie, laughing and (screaming, dancing, skipping) who	18
was chasing the dog this way and that in and out among the (trees, bushes,	19
benches) of the garden; sometimes it was the dog, barking and (squealing	20
jumping, biting) who was chasing Bessie. More than once dog and girl	21
were so much in each other's way that (they, both, each) fell down, rolling	22
over and over on the (soft, green, cool) grass. Not for a long time had	23
Bessie had such a pleasant (game, frolic, playmate.)	24
They were on the (front, side, back) lawn now, resting a minute after	25
a particularly wild (race, game, romp.) Suddenly, through the pickets of	26
the fence, the dog (noticed, saw, spied) a cat crossing the street outside.	27
Immediately he (ran, dashed, chased) after her, squeezing between the	28
pickets, and running down the street at (top, high, great) speed. "Here,	29
doggie, doggie," the little girl cried, and ran after her (friend, playfellow,	30
companion) only to be stopped by the fence. From between the (pickets	31
posts, palings) she could see both the cat and the dog (gradually, rapidly,	32
slowly) disappearing down the street. Hot tears of (anger, grief, disappoint-	33
ment) welled from her eyes. She (hurried, ran, went) to the gate and	34
shook it; it was (safely, firmly, securely) latched. Could she open it? Many	35
times (before, yesterday, halfheartedly) she had tried, but without success.	36
Little girls grow, however, and (resting, standing, stepping) on the lower	37
part of the gate, and (reaching, stretching, pushing) to her utmost, she was	38
just able to (press, push, touch) her little fingers against the latch. Click	39
and the gate (came, was, swung) open. Bessie was (free, able, quick) to	40
hurry down the street. The cat and dog had disappeared around the corner	41
of the next (street, block, square.)	42

While the children were reading Test No. 1, they did not know what sort of test was to follow. The two pages were printed together on one sheet, but in such a manner that when reading one the other was upside down. They only knew that they would be tested on what they had read. This would naturally have the effect of retarding their natural normal speed in reading, and the results of Test No. 1 are therefore more nearly comparable with the tentative standard which the author of the test has defined for "careful reading." This combination of the two tests seemed to more nearly meet the needs of the situation, in view of the fact that two members of the survey staff were to devote some time to hearing reading recitations, to a study of reading texts and courses of study, and to methods and devices in use.

Results of the test. The results of these tests are shown in the following tables and diagrams, and the reader is at liberty to try his own rate of reading the selection presented

TABLE NO. 23.
SHOWING THE NUMBER OF WORDS READ PER MINUTE BY THE MEDIAN CHILD IN EACH CLASS TESTED.
(Courtis Test)

SCHOOL	GRADE			
	VIII	VII	VI	V
Forest	213	230	206	224
Grant		219	223	214
Hamilton		225	219	159
Lafayette	199	230	222	179
Lincoln		219	213	159
Lowell	210	293	220	203
Onequa	190	199	173	239
Oquirrh	190	213	210	203
Riverside	199	226	206	214
Sumner	148	219	199	159
Training	217	178	205	202
Wasatch	287	215	246	167
Whittier	239	207	239	190

*The rate of silent reading shown here was attained by the children, understanding that they were later to be tested on the content of what they read.

above, in comparison with the results here shown for 1,624 children in thirteen schools, from grades five to eight inclusive.

Table No. 23 shows the median number of words read in one minute by the children of each grade and school tested. The range between classes is from 148 to 287 words in grade eight, from 178 to 293 in grade seven from 173 to 246 in grade six, and from 159 to 239 in grade five. The differences between schools as a whole are not specially marked. Whether a foreign language in the home increases the difficulties of learning to read English is perhaps a fair question. Some schools have no children from such homes, while others have a high percentage of such. Other factors, such as a large percentage of children from homes with no facilities for stimulating intellectual ideals, etc., probably tend to make slight differences between community or school records in a reading test, for very many children learn more reading at home than they learn at school.

Variation between individuals. The variation between individuals, however, is extreme, as shown by Table No. 24, which presents a complete distribution of the individual scores by grades. This table also shows the median score for each grade, and the tentative standard which Mr. Courtis, the author of the tests, has established.

Speed in reading would to some extent depend upon quality of vision. If, as is shown in Chapter XI of this report, 15 per cent of the children have defective vision, we could expect the extreme cases from that group to produce some low scores. As an illustration of the wide difference in ability to read rapidly, which was found to exist between children in the same class, the records from four rooms are shown in Table No. 25.

Knowing what we do of children's reaction time, it is not surprising to find these differences. It is important, however, that they should be clearly set forth here for the reason that these very differences are the basis of important problems in

TABLE NO. 24.

Showing the rate of silent reading for children of the upper grades who were warned that they would be examined - on what they had read. (Courtis test—standard for "Careful Reading.")**

Grade ...	NUMBER OF WORDS READ PER MINUTE.																			Median	Courtis Standard	
	400	380	360	340	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40			20
ovr	399	379	359	339	319	299	279	259	239	219	199	179	159	139	119	99	79	59	39	19		
VIII.	9	5	3	9	15	14	26	23	32	45	35	42	35	15	11	5	1				325	209
VII.	3	9	12	1	19	19	27	42	36	41	70	37	54	18	9	11	7	3			418	219
VI.		6	8	4	14	16	12	35	40	46	70	40	58	27	26	12	5	2	1		422	212
V.		5	3		5	13	14	26	24	39	82	33	56	35	31	36	15	5	2		459	191

*NOTE: The standard is that obtained by Courtis on the basis of reading done by children who understood that they were to "reproduce the story." The median for Salt Lake City was obtained on the basis of reading done by children who were told that they would "be examined on what they read." It is believed that the results are comparable.

TABLE NO. 25.

Showing by typical classes, the wide diversity in ability to read rapidly, and at the same time thoughtfully, which was found to exist in small groups.

SCHOOL	GRADE	NUMBER OF WORDS READ PER MINUTE BY TYPICAL CLASSES.																			No. of Pupils	Median	
		400	380	360	340	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40			20
Lowell	8	1		2		1	1	6	2	3	4	4	6	1	1	4						36	210
Oquirrh ...	7	3	1		1		5	2	2	3	7	5	5	1		1		1				37	213
Training	6		1			2		4	2	4	8	5	6	2	1	2		2				39	205
Wasatch	5	1			1		1	1		2	3	2	5	3	3	3	3					27	167

method, promotion and grading, amount of reading to assign, etc. Referring to this table again, let us ask what the upper ten children do while the lower ten are reading aloud in class. This is concretely what is meant by the statement that these differences constitute important teaching and organization problems. Just as it is good method for a teacher to demonstrate good reading to her class, so it is good to relieve the brighter children of the necessity of droning over a passage in the lesson while some extremely poor reader is struggling through it word by word. If these ten children can show equally well in expression and getting the meaning out of what they read, they should recite reading in some higher grade, for they certainly do not have to study where they are.

The speed test. Reference to Table No. 24 with these points in mind, and a study of Figure 21 will make it plain,

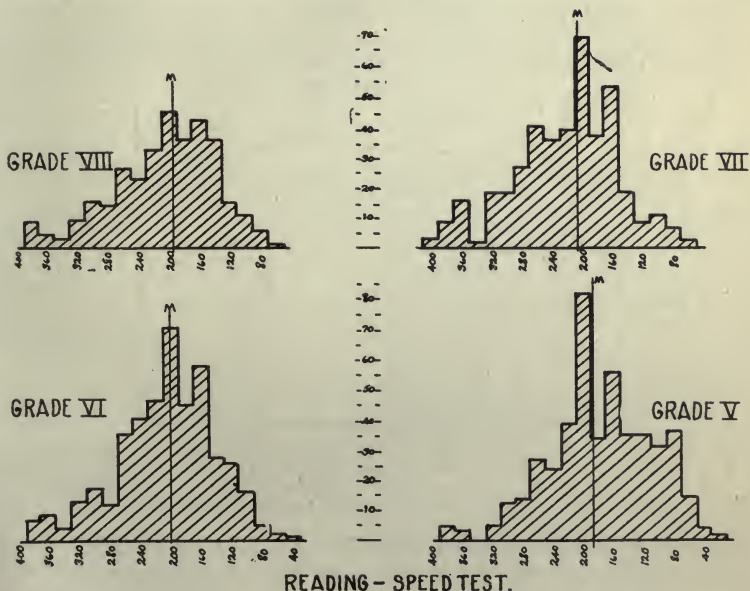


FIG. 21. SHOWING THE DISTRIBUTION OF SCORES IN THE SPEED READING TESTS.

that, so far as speed is concerned, one could not judge in which grade any single child's score might appear. It will be seen that there are only seven children in grade five whose scores are below the lowest score in grade eight, and there are no scores in grade eight which are above the best five in grade five, and by the diagram it appears that all children, irrespective of grade, average somewhere near 200 words per minute as their rate for rather careful reading.

Salt Lake City compared. As compared with the Courtis standard (see Table 24) all grades rank high. The surprise is that grade eight ranks between grade five and six. For comparative purposes Figure 22 is introduced, which indicates the

WORDS PER MIN.

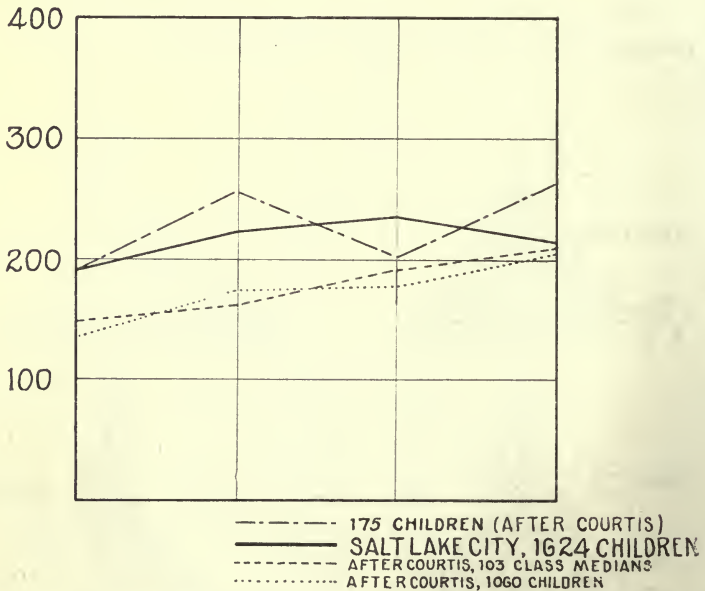


FIG. 22. RATE OF READING IN SALT LAKE CITY COMPARED WITH TESTS MADE IN OTHER CITIES.

rate at which these passages have been read by three other groups of children. The showing which the Salt Lake City

schools has made stands well above these records, with the exception of three points at which the small group of 175 children surpassed them. This would seem to indicate that Salt Lake City ranks well in point of speed in reading.

The memory test. As explained above the second test was a check on memory of what was read. In this test the same wide variety of results were found to appear, and are shown in Table No. 26, both with the median for each grade and the per cent of the points which were correctly checked. In the per

TABLE NO. 26.

SHOWING THE DISTRIBUTION OF POINTS READ AND OF THE NUMBER WHICH WERE REMEMBERED, WITH THE MEDIAN, AND THE PER CENT, CORRECT.
(Courtis Test)

GRADE	Points	NUMBER OF POINTS										Median Score	Per Cent Correct
		0 4	5 9	10 14	15 19	20 24	25 29	30 34	35 39	40 ovr			
VIII.	Read		2	14	67	121	67	29	13	12	22.7	79.3	
	Right		5	49	122	78	35	11	4	2	18.0		
VII.	Read		1	14	66	145	94	59	22	11	23.9	72.8	
	Right	1	13	58	152	104	41	15	3		17.4		
VI.	Read		3	23	86	135	77	20	20	31	22.7	77.1	
	Right	3	19	85	146	94	32	18	1		17.5		
V.	Read		2	5	32	112	126	57	32	12	3	20.8	74.0
	Right	7	57	101	133	60	16	2	5		15.5		

cent correct the eighth grade stands somewhat above the others, but the seventh grade falls below the sixth, none averaging far from three-fourths correct. In Figure 23 the relation of the amount remembered to the amount read in one minute is clearly shown. By the solid line one sees the number of points read, and by the dotted line the number correctly checked. The

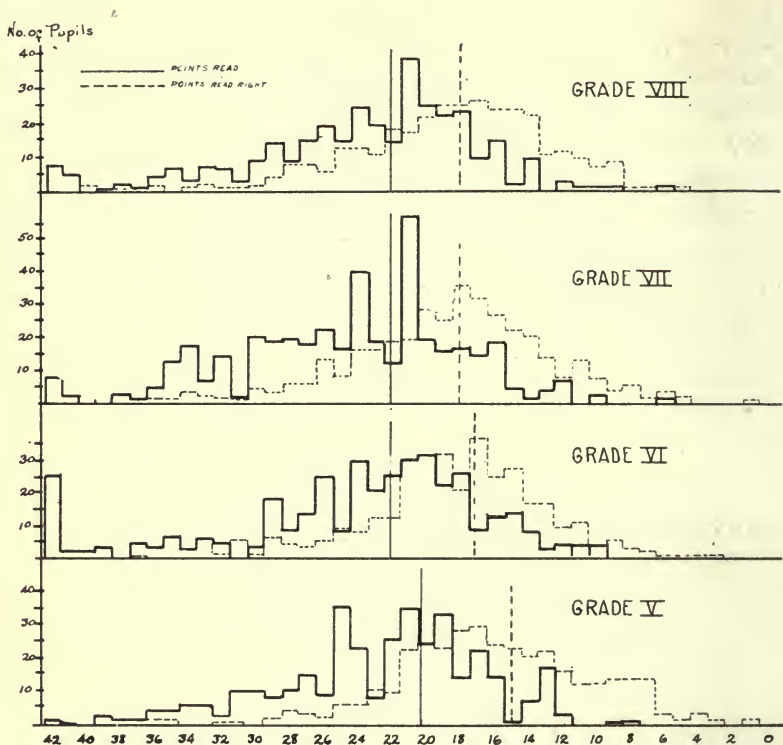


FIG. 23. RELATION OF SPEED TEST TO MEMORY TEST IN READING.

scale at the bottom shows the number of points, and the scale on the left indicates the number of children attaining these scores. The medians are marked by vertical lines, solid for the number read, and dotted for the number right. It is regretted that there are no available data with which to compare these facts. They may stand, however, as a valuable basis for later tests by teachers and supervisors who wish to measure progress from time to time in this feature of reading.

The problem the schools must meet. The main suggestions that grow out of these tests of reading are that, as in the other subjects, the real genius in the schools is not being instructed

under the best conditions. These children should be so classified that they will need to work up to their full capacity. On the other hand, the extremely slow pupils shown in these tests should be receiving special instruction which cannot be given economically in the ordinary classroom and with the regular class. Less emphasis needs to be placed upon school grades, and more upon proper classification of the individual child. Along with the excellent standing which the city's schools are showing in these tests they must bend their energies to this problem of refining the teaching adjustments to more adequately meet the needs of individual children. So far as these tests go they show this to be an immediate and a pressing problem in instruction and internal organization which the schools are now facing.

5. THE TESTS IN ARITHMETIC.

Arithmetic in the course of study. Arithmetic is taught in all grades, and the course outlined seems in the main in keeping with the best thought on this subject. The degree of importance which attaches to this subject in the schools of the city is well indicated by the amount of time which is devoted to it. The amount varies greatly between schools, and between grades. Some classes are spending as much as 500 minutes per week on the subject, while others are spending but 20 or 30 minutes. The approximate average ranges from 50 minutes per week in grade one to 290 minutes for grade eight. Rather extensive investigation of this matter has led to the recommendation of the following grade distribution of time for

TABLE NO. 26.

AMOUNT AND DISTRIBUTION OF TIME IN ARITHMETIC.

Grade	1	2	3	4 ^a	5	6	7	8	Per cent of total time
Proposed maximum Standard	75	100	125	150	150	150	150	170	10.7
Salt Lake City ..	50	100	225	225	250	240	250	290	14.3

arithmetic, with which that for Salt Lake City may be compared:*

From this it will be seen that arithmetic is receiving more than its full share of attention in the city, approximately 14.3 per cent of the school time being devoted to the subject, whereas this investigation supports argument for but 10.7 per cent. It should be added here that another investigation has shown that, of twenty-six cities devoting from 7 to 22 per cent. of their school time to arithmetic, those devoting more than the median amount for these twenty-six cities ranked very little higher in the reasoning test reported below than did the cities using less than that amount.**

In interpreting the following results in the tests this time cost must not be overlooked, even if there are numerous cities whose time allotment for arithmetic is equally high.

The tests in arithmetic covered the four fundamental operations, and their application in a series of problems involving a test of the children's ability to reason. The first are known as the Courtis Standard Tests,† and the second as the Stone reasoning tests.††

How the Arithmetic was tested. The following instructions, followed by typical examples, illustrate the nature of the tests in addition, subtraction, multiplication and division.

*The distribution recommended is based on the median recitation time expenditure in 630 cities. W. A. Jessup: The Fourteenth Year Book of the National Society for the Study of Education, Ch. VIII. (1915.)

**Stone, C. W. Arithmetical Abilities and Some Factors Determining Them. Teachers' College, Publications, N. Y., 1908.

†Courtis, S. A. Standard Tests. 82 Eliot St., Detroit, Mich.

††Stone, C. W. Arithmetical Abilities and Some Factors Determining Them.

ARITHMETIC. FOUR FUNDAMENTAL OPERATIONS.

(The following are selected examples of the problems given the children to solve in the assigned time. Four printed pages, one for each of the fundamental operations, were used. The problems have been so arranged that each presents equal difficulty.)

You will be given eight minutes to find the answers to as many of these addition examples as possible. Write the answers on this paper directly underneath the examples. You are not expected to be able to do them all. You will be marked for both speed and accuracy, but it is more important to have your answers right than to try a great many examples.

927	297	136	486	384	176	277	837
379	925	340	765	477	783	445	882
756	473	988	524	881	697	682	959
837	983	386	140	266	200	594	603
924	315	353	812	679	366	481	118
110	661	904	466	241	851	778	781
854	794	547	355	796	535	849	756
965	177	192	834	850	323	157	222
344	124	439	567	733	229	953	525

You will be given four minutes to find the answers to as many of these subtraction examples as possible. Write the answers on this paper directly underneath the examples. You are not expected to be able to do them all. You will be marked for both speed and accuracy, but it is more important to have your answers right than to try a great many examples.

115364741	67298125	92057352	113380936
80195261	29346861	42689037	42556840

You will be given six minutes to work as many of these multiplication examples as possible. You are not expected to be able to do them all. Do your work directly on this paper; use no other. You will be marked for both speed and accuracy, but it is more important to have your answers right than to try a great many examples.

8246	3597	5739	2648	9537
29	73	85	46	92

You will be given eight minutes to work as many of these division examples as possible. You are not expected to be able to do them all. Do your work directly on this paper; use no other. You will be marked for both speed and accuracy, but it is more important to have your answers right than to try a great many examples.

25)6775	94)85352	37)9990	86)80066
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(On the following page is a reduced reproduction of the sheet given each pupil for the reasoning test. The use of scratch paper was permitted, and the results were entered after each problem on this sheet.)

ARITHMETIC. REASONING TESTS.

School.....Grade.....Name of Pupil.....

Problem Value	PROBLEMS.
1.0	1 Solve as many of the following problems as you have time for; work them in order as numbered: If you buy 2 tablets at 7 cents each and a book for 65 cents, how much change should you receive from a two-dollar bill?
1.0	2 John sold 4 Saturday Evening Posts at 5 cents each. He kept $\frac{1}{2}$ the money and with the other $\frac{1}{2}$ he bought Sunday papers at 2 cents each. How many did he buy?
1.0	3 If James had 4 times as much money as George, he would have \$16. How much money has George?
1.0	4 How many pencils can you buy for 50 cents at the rate of 2 for 5 cents?
1.0	5 The uniforms for a baseball nine cost \$2.50 each. The shoes cost \$2 a pair. What was the total cost of uniforms and shoes for the nine?
1.4	6 In the schools of a certain city there are 2,200 pupils; $\frac{1}{2}$ are in the primary grades, $\frac{1}{4}$ in the grammar grades, $\frac{1}{8}$ in the High School and the rest in the night school. How many pupils are there in the night school?
1.2	7 If $3\frac{1}{2}$ tons of coal cost \$21, what will $5\frac{1}{2}$ tons cost?
1.6	8 A newsdealer bought some magazines for \$1. He sold them for \$1.20, gaining 5 cents on each magazine. How many magazines were there?
2.0	9 A girl spent $\frac{1}{8}$ of her money for car fare, and three times as much for clothes. Half of what she had left was 80 cents. How much money did she have at first?
2.0	10 Two girls receive \$2.10 for making button-holes. One makes 42, the other 28. How shall they divide the money.
2.0	11 Mr. Brown paid one-third of the cost of a building; Mr. Johnson paid $\frac{1}{2}$ the cost. Mr. Johnson received \$500 more annual rent than Mr. Brown. How much did each receive?
2.0	12 A freight train left Albany for New York at 6 o'clock. An express left on the same track at 8 o'clock. It went at the rate of 40 miles an hour. At what time of day will it overtake the freight train if the freight train stops after it has gone 56 miles?
Total Score Made by Pupil.	

Directions to Teacher:

1. Cross off the problem value for each problem not correctly solved or not attempted by the pupil named, and then add up the remainder. This will give the score earned by this pupil.

There were more examples in each of the four sets than any child would be likely to work in the time allowed, which was 8 minutes each for addition and division, four minutes for subtraction, and six minutes for multiplication. The examples were all printed, and the necessary oral explanations were made by the member of the survey in charge, who timed the classes and instructed teachers how to score the results.

The same schools and classes as were used in the other tests were used for all the arithmetic tests.

The reasoning test was presented to the child in the form printed on page 168. On the left are the values assigned to the problems, each of which has been carefully standardized for testing purposes, and the values assigned represent the relative difficulties of the different problems.

Results of tests in the fundamentals. The tables and diagrams given on the pages which follow will show the results of the tests, first presenting those for the fundamentals, and later those for reasoning.

Table No. 28 shows the full distribution of scores, by grades, for each of the subjects, and with the median score attained in each case. It will be seen that the same wide range of abilities as was shown in the other tests appears here also, and in each grade. The nature and extent of this distribution is clearly brought out in Figure 24, which shows on each section the median score attained by each grade.

It appears that the median child in the seventh grade is not as far ahead of the median child in the sixth as is the sixth grade child ahead of the fifth, or the eighth ahead of the seventh. In the matter of accuracy, which will be discussed later, this difference does not appear.

From this test, the average, or median child in the Salt Lake City schools may be expected to work examples in the fundamentals, such as those used, at the following rates (using 8 minutes in addition, 4 minutes in subtraction, 6 minutes in multiplication, and 8 minutes in division):

If in grade 5, he can add 4.1 examples, subtract 5.2, multiply 4.3 and divide 3.0.

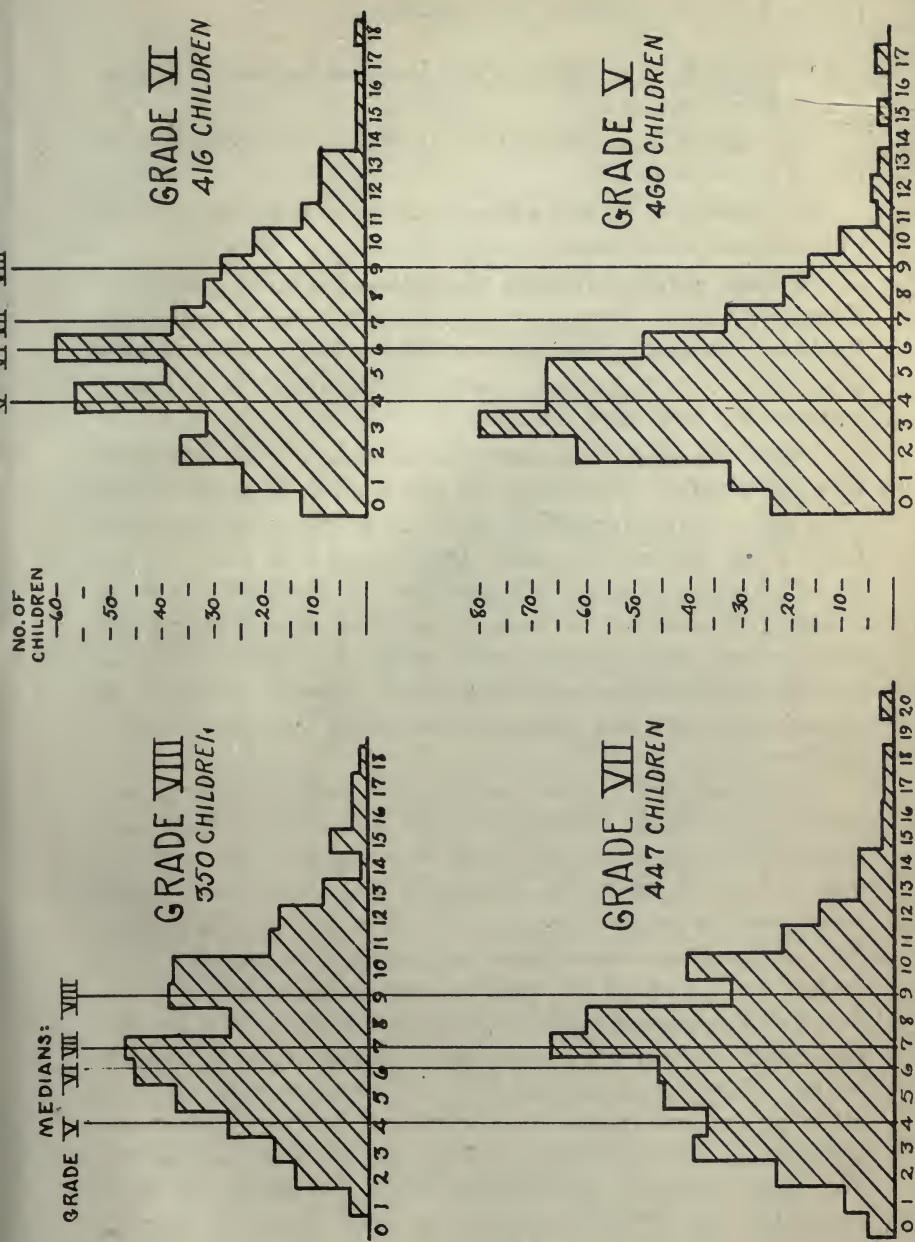


FIGURE 24. DISTRIBUTION OF SCORES ATTAINED IN THE ADDITION TEST.

If in grade 6, he can add 6.4 examples, subtract 7.8, multiply 5.3, and divide 5.5.

If in grade 7, he can add 6.9 examples, subtract 8.8, multiply 7.1, and divide 7.7.

If in grade 8, he can add 8.8 examples, subtract 9.8, multiply 8.3, and divide 9.5.

Widely different results in different schools. The full details of this is shown, for the fourteen schools tested, by Table No. 29, which gives the score of the median child in each grade and in each subject, combining them for the city as a whole at the bottom of the table.

From this table it appears that there is a wide difference between schools. In addition we find a range in grade five of from 2.8 to 6.5; in grade six from 2.5 to 9.3; in grade seven from 3.7 to 9.9; and in grade eight from 5.3 to 10.0. In the other subjects the range is approximately the same. It is interesting to add that in three of the four grades taking the addition test, those classes which made the highest standing are using exactly the same number of minutes per week on arithmetic as are the classes which made the lowest standing.

If the amount of time used on the subject does not account for the wide differences which this table reveals, and apparently it does not, then this would seem to be a condition worthy of study by principals and supervisors. Just what ought to be accomplished in a given grade, with a given time allotment, is a question which can well be raised in connection with each of the subjects presented in this chapter. Every city system of schools should have standards of its own for every subject, which each school should strive to approximate. These standards need not be identical with those in other cities, but should be determined by the relative importance of the different subjects for its own community. The same principle will justify slight variations in those standards for different schools, as they represent varying types of community life within a city. But this table reveals

TABLE NO 29.

Showing the relative standard of schools in the fundamentals of arithmetic as judged by class medians.

SUBJECT	ADDITION				SUBTRACTION				MULTIPLICATION				DIVISION			
	GRADE				GRADE				GRADE				GRADE			
	V	VI	VII	VIII	V	VI	VII	VIII	V	VI	VII	VIII	V	VI	VII	VIII
Forest	3.9	9.3	5.8	5.3	3.6	8.2	8.2	8.8	3.9	6.5	6.5	7.0	2.4	6.5	6.5	7.7
Grant	4.0	4.7	7.0		4.6	9.5	9.5		4.2	6.8	6.8		3.3	8.0	8.0	
Hamilton	2.8	6.6	6.2		4.8	8.2	8.5	12.1	4.2	5.9	8.5		2.3	5.7	9.6	
Lafayette	6.5	5.0	5.7	8.3	6.5	7.1	9.5		5.1	6.2	7.3	9.9	4.0	6.8	7.5	12.3
Lincoln	3.3	5.0	6.5		4.0	8.5	8.5		3.9	3.7	6.5		1.5	4.5	8.5	
Lowell	4.5	7.2	5.7	6.3	5.3	6.5	5.9	9.5	4.9	7.5	6.3	7.5	3.4	5.5	5.5	9.5
Onequa	4.2	5.9	3.7	6.5	3.3	6.5	5.9	7.4	3.5	3.7	7.2	7.1	3.6	5.9	6.5	7.8
Oquirrh	6.5	5.0	9.4		9.0	7.1	9.4		7.5	6.3	9.4		6.0	6.8	11.5	
Riverside	3.9	5.1	9.9	9.0	3.9	7.3	9.7	12.0	3.8	5.1	7.5	8.8	2.5	6.0	7.8	10.9
Summer	3.1	3.2	6.0	7.5	5.1	6.5	8.9	15.0	2.8	3.8	5.3	8.1	2.8	3.3	7.0	10.3
Training	3.7	2.5	4.0	6.2	3.1	4.0	5.8	8.5	4.1	3.4	4.0	7.1	1.9	3.2	4.6	7.3
Wasatch	5.2	6.4	9.8	7.5	5.2	9.9	8.3	9.5	4.0	5.9	7.7	13.5	2.8	6.3	8.7	11.0
Webster	3.2	5.5	6.0	6.5	7.5	6.7	9.2	8.5	3.7	5.2	7.5	8.5	2.6	4.2	8.7	8.2
Whittier	4.5	8.3	7.5	10.0	9.0	7.5	10.1	11.3	5.2	8.0	8.1	11.5	4.0	8.0	10.5	11.6
Total for City.....	4.1	6.4	6.9	8.8	5.2	7.8	8.8	9.8	4.3	5.3	7.1	8.3	3.0	5.5	7.7	9.5

extremely wide differences, which conditions in Salt Lake City do not seem to warrant. A reasonable uniformity in results is as desirable as is a wholesome lack of uniformity in methods of getting those results.

Comparison with other cities. To measure the results achieved in Salt Lake City with similar results attained in other cities, Table No. 30 is presented. Here the relative standing of Detroit, Boston, a group of smaller cities, called "other cities," Butte, and Salt Lake City, are placed side by side for each of the four subjects. These results are absolutely

TABLE NO. 30.

THE STANDING OF SALT LAKE CITY IN THE FUNDAMENTALS OF ARITHMETIC AS COMPARED WITH OTHER CITIES, JUDGED BY THE MEDIAN SCORE ATTAINED BY EACH GRADE.

ADDITION					MULTIPLICATION			
V	VI	VII	VIII		V	VI	VII	VIII
3.9	4.6	5.4	6.7	Detroit	3.8	4.8	6.0	7.5
3.7	4.9	5.6	7.8	Boston	3.3	4.8	5.1	6.5
3.9	4.4	4.7	5.6	Other Cities	2.6	4.5	5.2	6.4
2.9	3.4	3.8	5.3	Butte	4.1	5.0	6.5	8.1
4.1	6.4	6.9	8.5	Salt Lake City	4.3	5.3	7.1	8.3
SUBTRACTION					DIVISION			
5.5	6.2	7.3	9.5	Detroit	2.7	4.4	7.1	8.8
4.9	6.3	6.9	8.6	Boston	2.0	3.3	5.1	6.9
4.5	6.1	7.8	8.4	Other Cities	2.3	4.3	5.8	6.3
2.9	3.4	3.8	5.3	Butte	3.6	4.3	7.2	10.2
5.2	7.8	8.8	9.8	Salt Lake City	3.0	5.5	7.7	9.5

comparable, and show the Salt Lake City schools to stand well ahead in all grades in addition and multiplication, in two grades in subtraction, and in two grades in division. Nowhere are the Salt Lake City schools more than .7 of one score behind the best. Figure 25 presents this data graphically, and by following the dotted line across from each of the grades it will be seen that in many cases Salt Lake City is from one-half to a full grade ahead of other cities, rarely being surpassed by any except Butte. This is perhaps an enviable record, but it must

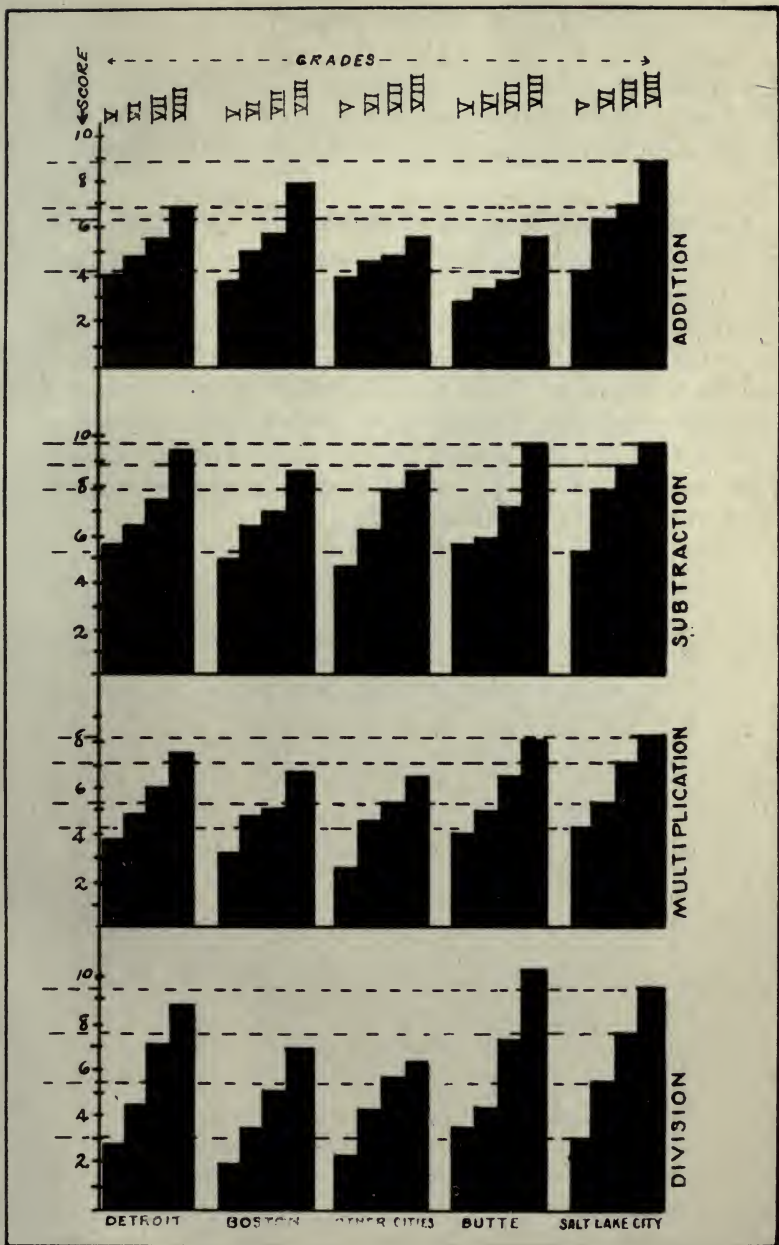


FIG. 25. STANDING OF THE CHILDREN OF SALT LAKE CITY IN THE FUNDAMENTALS OF ARITHMETIC, JUDGED BY THE MEDIAN SCORE ATTAINED BY EACH GRADE.

(Courtesy Standard Tests.)

not be forgotten that the above reference to individual, class, and school records leaves much to accomplish by way of finer internal organization and more careful individualized instruction.

Accuracy in use of number combinations. The above has dealt only with examples correctly worked, and does not show how many were attempted, or for which incorrect answers were given; that is, how dependable the figuring of the children really is. A typical illustration of the distribution of attempts is shown in Table No. 31, which gives the number of addition examples attempted by each grade, the median number attempted, and finally the per cent which the median number correctly worked is of the median number attempted. That is, the per cent of accuracy.

TABLE NO. 31.
 SHOWING THE DISTRIBUTION OF CHILDREN ACCORDING TO THE NUMBER OF ADDITION
 EXAMPLES ATTEMPTED, THE MEDIAN NUMBER ATTEMPTED AND THE
 PER CENT CORRECT.

(Curtis Standard Test)

Grade	NUMBER OF EXAMPLES ATTEMPTED—ADDITION																								Median	Per Cent Correct	
	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
VIII						3	19	25	48	56	67	42	26	29	19	7	5	3	3	3	1	1				9.9	88.8
VII					5	12	32	46	69	73	48	49	24	17	13	8	13	2	1	1	1			1		9.1	75.8
VI				2	15	33	55	70	71	41	42	27	21	7	10	8	6	3	1	2	1					7.9	81.0
V		1	5	12	33	48	89	59	69	53	19	16	5	3	5	1	2				1					6.9	56.9

In the matter of accuracy thus measured, Table No. 32 compares the schools of Salt Lake City with those of Boton, Detroit and twenty cities in Indiana recently tested. The median

TABLE NO. 32.

SHOWING THE MEDIAN NUMBER OF EXAMPLES TRIED AND THE MEDIAN NUMBER CORRECTLY WORKED IN THE SALT LAKE CITY SCHOOLS, AND THE PER CENT OF EXAMPLES TRIED WHICH WERE CORRECTLY WORKED IN SALT LAKE CITY AS COMPARED WITH OTHER CITIES.

Subject	Grade	Salt Lake City Median		Per Cent of Examples Correct Worked			
		Attempts	Rights	Salt Lake City	Boston	Detroit	20 Ind. Cities*
Addition	VIII	9.9	8.5	88.8	70.9	65.7	56.8
	VII	9.1	6.9	75.8	60.8	59.8	60.5
	VI	7.9	6.4	81.0	59.0	54.7	59.4
	V	6.9	4.1	56.9	51.4	58.2	54.5
Subtraction	VIII	11.8	9.8	83.1	75.4	77.2	68.5
	VII	10.1	8.8	87.1	69.0	74.5	73.0
	VI	8.5	7.8	91.7	70.0	70.4	76.4
	V	7.5	5.2	69.3	64.4	68.7	79.5
Multiplication	VIII	10.8	8.3	76.8	68.4	71.4	61.9
	VII	8.6	7.1	82.5	63.8	62.5	67.1
	VI	7.7	5.3	66.8	69.5	64.8	68.6
	V	6.6	4.3	65.1	56.8	59.3	71.5
Division	VIII	10.3	9.5	92.2	77.1	55.1	57.8
	VII	8.7	7.7	88.5	73.9	68.7	84.2
	VI	6.7	5.5	82.1	56.9	82.5	78.8
	V	4.4	3.0	68.2	44.4	85.4	85.8

*Indiana University Bulletin, Vol. XII, No. 18, Mar., 1915. These figures represent the record attained by the median city of the twenty cities studied. A co-operative study, directed by Prof. M. E. Haggerty.

attempts and median rights are shown for Salt Lake City, the rights being divided by the attempts to ascertain the per cent of accuracy. Here again Salt Lake City stands high. In accuracy the city is surpassed in but one grade out of the four tested; in subtraction in but one grade; in multiplication, by two grades; and in division by two. The seventh and eighth grades are not surpassed in any case.

A graphic illustration, fully typical of the results in this table, is shown in Figure 26, where Salt Lake City is compared with Detroit, and the twenty Indiana cities in respect to accuracy in addition.

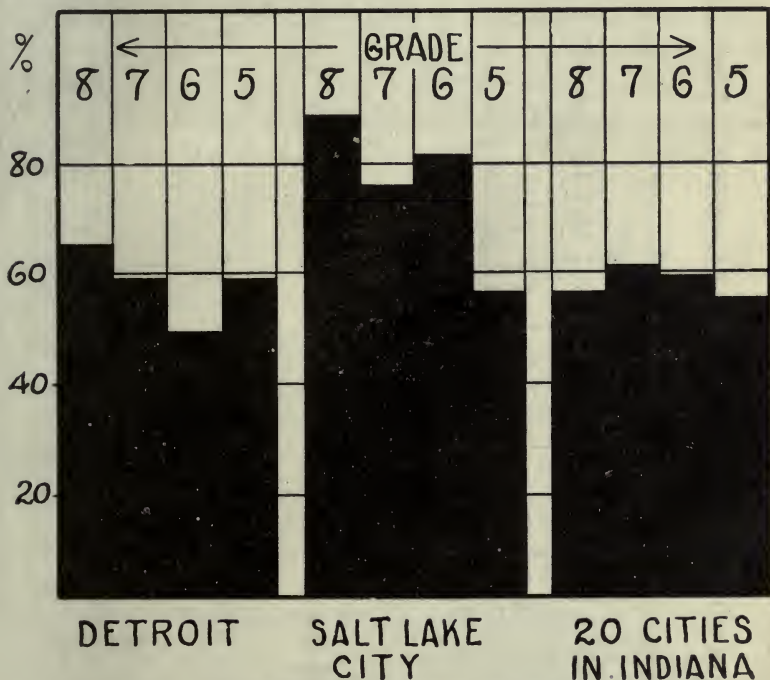


FIG. 26. RELATIVE ACCURACY IN ADDITION.

It is clear then that Salt Lake City, as compared with other cities, is achieving nothing short of excellent results in the fundamentals of arithmetic, and that not only with respect to the number of examples worked in a given amount of time, that is, speed, but also in respect to the degree of accuracy with which this work is done.

The reasoning test. Where reasoning is involved, the test is not only one of correct use of number combinations, but also one of analyzing simple arithmetical problems. In this test the children of Salt Lake City again rank high. The

TABLE NO. 33.

SHOWING DISTRIBUTION OF SCORES ATTAINED IN THE REASONING TEST IN ARITHMETIC
(Stone Test)

Grade ..	NO OF PROBLEMS SOLVED.																	Total	Median	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			17
V	15	32	70	86	71	61	55	40	14	6	2	1						453	3.7	
VI		9	13	34	41	70	75	60	76	42	24	16	2	5	1			468	6.4	
VII	1		2	10	18	36	40	47	45	50	37	35	23	29	16	13	3	5	409	8.6
VIII ...			2	3	8	18	14	18	28	27	25	31	16	33	13	24	9	15	284	10.5

TABLE NO. 34.

SHOWING THE DISTRIBUTION OF SCORES ATTAINED BY INDIVIDUAL MEMBERS OF TYPICAL CLASSES.

School Grade	NUMBER OF PROBLEMS SOLVED (Stone Test)																	Size of Class	Median	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			17
Training .. V				7	7	4	12	4	3	1	1								40	4.6
Riverside . VI		3	2	4	2	8	1	3	4	1		1	1						32	5.1
Sumner . VII				2	1	2	2	3	3	5	2	5	4	1	2	3	1	2	38	10.0
Lafayette VIII						2	2	3	3	5	5	4	4	7	1	8	1	4	47	12.0

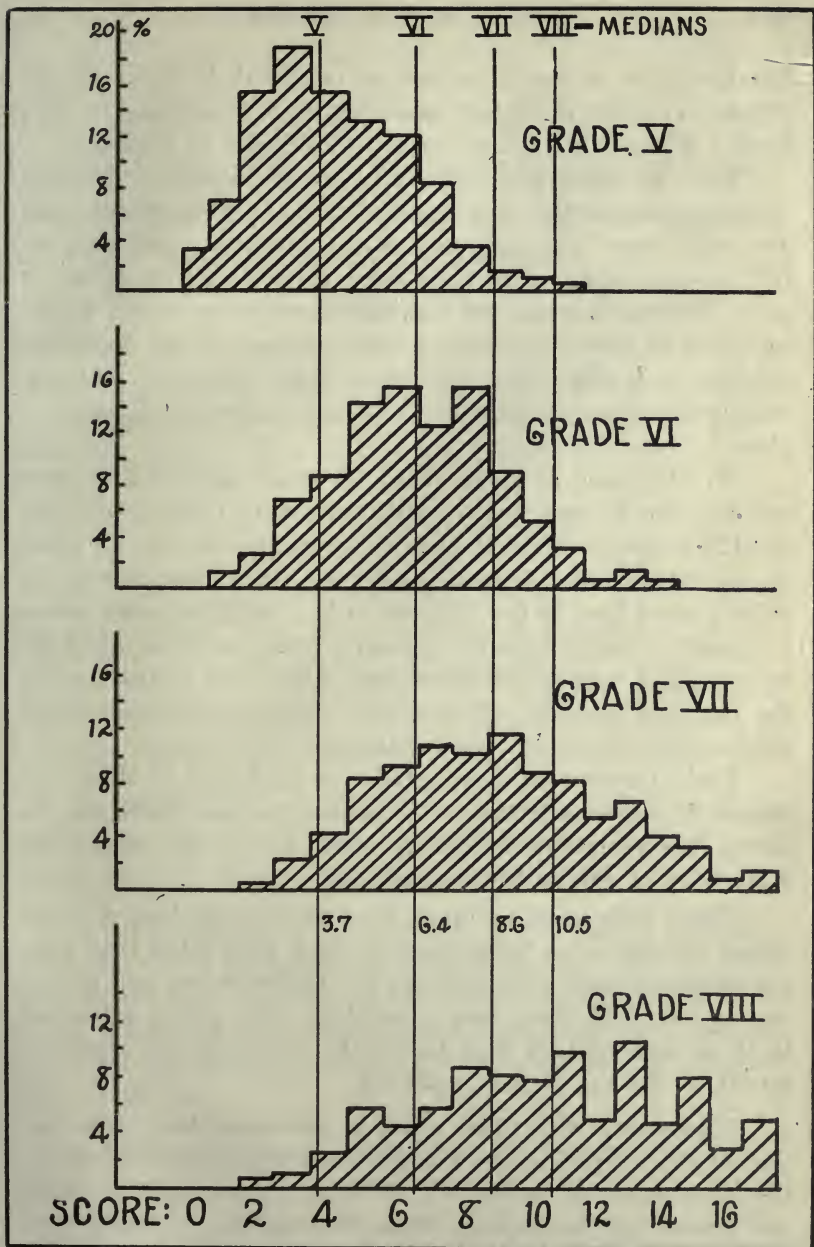


FIG. 27. DISTRIBUTION OF RESULTS IN THE STONE REASONING TESTS

distribution of individual scores are set forth in Table No. 33 which shows also the achievement for the median child of each grade. These facts are presented graphically in Figure 27.

Here the same wide variability as has appeared in other tests is again evident. In grade five there were fifteen children who could not solve one of the seventeen problems set for the test, while more than sixty children solved seven or more. In grades seven and eight the distribution is still wider. In order to show that this is fully typical of the condition existing in almost every individual class, Table No. 33, presenting the exact scores made by one class from each grade is given.

On the basis of these facts we must again ask: How can a lesson be assigned to such classes so that, on the one hand it is not so difficult as to be impossible for the children at one extreme of this table, or on the other hand so easy as to be a mere bore to the children at the other extreme. Here it is not a question of high average results, for these are high enough; it is one of refining organization and instruction to the end that children of extremely high and extremely low abilities will not constitute handicaps for each other.

The improvement from grade to grade, as is shown in Figure 27, seems all that could be desired, and Table No. 35 shows, with some exceptions in grade five, a fair degree of uniformity of results between schools.

These facts seem to argue that the schools have a clear notion of what is to be attained by each grade, but that they are getting results only in terms of class averages and at the expense of right class room conditions. By giving attention to these inner details Salt Lake City can raise the excellent standards she has already achieved.

Comparison with other cities in reasoning test. The author of this reasoning test has presented the records made by the sixth grade in twenty-six different cities. Add to these the records of Bridgeport, Conn., Springfield, Ill., and Salt Lake City, and Salt Lake City stands 9th from the top of the

TABLE NO. 35.

SHOWING THE AVERAGE SCORE ATTAINED BY CLASSES IN THE VARIOUS SCHOOLS IN THE REASONING TEST IN ARITHMETIC.

(Stone Test).

School	GRADE			
	VIII	VII	VI	V
Total for City.....	10.5	8.6	6.4	3.7
Forest	9.3	10.6	6.6	2.9
Grant		7.7	7.4	4.6
Hamilton		8.2	5.4	4.6
Lafayette	11.7	8.3	6.5	4.0
Lincoln		10.8	4.1	2.2
Lowell	10.6	8.6	7.4	4.8
Onequa	9.1	9.5	6.2	3.2
Oquirrh		8.9	7.6	4.6
Riverside	9.7	7.6	5.3	3.3
Sumner		10.0	6.2	4.4
Training	9.0	7.8	4.8	4.4
Wasatch		8.0	7.2	3.4
Webster	10.2	10.4	5.9	4.1
Whittier	14.5		7.0	5.5

list. The highest score, based on the score per each 100 pupils, attained by any one of these twenty-nine cities was 914; the lowest was 356. That for Salt Lake City was 646.

As compared, grade by grade, with the results in Butte, Salt Lake City's median fifth grade child can solve 1.5 more problems of this test than can the median fifth grade child of Butte; the sixth grade child of Salt Lake City can solve 2.5 more; the seventh grade child 2.8 more, and the eighth grade child 2.8 more.

From these results it is clear that the schools of this city rank high in the ability of their children to reason. It is also true, as stated above, that the present problem is one of perfecting the details of class organization and instruction.

6. SUMMARY AND RECOMMENDATION.

This chapter has not dealt with the quality of instruction in general, but only as quality has been revealed by actual results, stated in terms of standardized tests. It is therefore concerned with the causes of poor or excellent quality, only as the data with which it deals makes these causes evident.

Conclusions. In so far as the results found have shown that the schools are controlling, with good effect, those main factors which were enumerated at the outset of the chapter as being principally responsible for the quality of instruction, those results have been commended. On the other hand, where the schools are clearly not exercising such control, the nature of such failure has been pointed out, and the responsibility placed. It is only necessary to summarize the findings here, and to further emphasize the lines along which improvements and further progress should be sought.

1. It should first of all be said that Salt Lake City ranks high among cities of her class, in each of the five studies in which tests were given. The comparison being made in terms of average attainment.

2. In spelling, so large a percentage of children made a perfect score that full interpretation of the results is difficult. The city's average standing being 16 per cent above the standard.

3. In spelling, language, writing, and in the fundamentals of arithmetic, wide differences exist between the results shown for different schools. Foreign languages at home may partly account for such differences, particularly in composition. There is a limit, though, to which even such causes should be permitted to modify the school standards. If a child is doing fifth grade language work he should not ordinarily be classed as an eighth grade pupil.

4. The differences between grades are, with few exceptions, approximately what they should be.

5. The range of abilities in any given grade is entirely too great, as judged by all of the five tests.

6. Similarly the range of abilities within a given class, again in all subjects tested, is far too great.

7. At least one-fourth more time is being given to spelling and more than one-fourth more to arithmetic than is justified in the light of the best knowledge on the subject.

Recommendations. With these facts before us the following recommendations are made:

1. Spelling should not have more than 60 to 75 minutes per week, and arithmetic from 75 minutes in grade two, to 200 minutes in grade eight. A part of the surplus time from these two branches should be given to language work, and part to other parts of the curriculum than the subjects dealt with here.

2. The only economical and pedagogical way of meeting the needs of the extremely dull and extremely bright pupils (perhaps from four to ten per cent of each class tested) is by a much larger use of ungraded rooms to which the most skillful teachers should be assigned. It would be easy for all the larger schools of the city to find from 25 to 50 children who ought for their own sakes, and for the sakes of other children as well, to be placed in such rooms. This would provide an inestimable relief in all class work in the school. This is the most evident and the most important need which is brought to light by these tests.

3. The best and most constant supervision of this work is needed to work out necessary readjustments. It should be added that, so long as the grade lines are stiffly maintained as the only basis for the classification of children, part of the value of expert supervision is nullified.

4. In addition to this, promotion by subjects ought to be a possibility more frequently made use of. When a fourth grade child can read as well as a seventh grade child, he ought not to be kept in the fourth grade for reading just because he cannot leave his fourth grade arithmetic.

5. Briefly, what the schools have achieved in general, they should now set themselves to achieve in particular.

The use of standardized tests. A final word may be said about the use of standard tests. First, we desire to commend the use the supervisors and principals have been making of these modern educational tools. Teachers should become familiar with such scales and tests as have been used here, not with how they were made, but with how to use them. The teacher who is able to measure her own product, or to have it measured by the supervisor, will develop confidence in her methods or discover reasons for changing them.

As an instrument in supervision, tests are indispensable. Of course testing can never displace constructive helpful criticism, but standardized tests furnish a rational basis for such criticism, without which the best supervision is handicapped. So far as was observed they are being properly used by the principals and supervisors, but they may even go further in displacing the ordinary form of school examination.

CHAPTER IX.

THE PROGRESS OF CHILDREN THROUGH THE SCHOOLS.

(Williams.)

Importance of proper school progress. A problem which is of increasing importance in education today is that of school progress. Since the welfare of the individual child is the aim toward which every good school system works, the recognition and analysis of the differences among children calls for much greater attention than is usually given. Children are ordinarily expected to enter the first grade of the elementary school at the age of six, and to complete the eighth grade during their fourteenth year. Those who accomplish this are said to have made normal progress. It is for these, who constitute the majority of our school children, that the course of study and the system of grading are best adapted.

Those who complete the eighth grade in less than eight years after entering, or whose age at any time during that period is less than that of the child whose progress is normal, are said to be accelerated.

There is still another group of children, who require more than eight years to finish the elementary school, or whose age at some time is greater than that of the normal child. These are said to be retarded.

Age and grade distribution. Statistics were collected in regard to the ages and grades of all the children in the public schools of Salt Lake City on the tenth day of May, 1915. The results have been tabulated, and are shown in Table No. 36. The number of children of each half-year of age, and in each half-grade are given, and the heavy-faced figures running diagonally through the center of the table indicate the number of children who are normal for each age and grade. For example, this includes those in the first grade who are between the

AGES IN YEARS AND MONTHS	GRADE I		GRADE II		GRADE III		GRADE IV		GRADE V		GRADE VI		GRADE VII		GRADE VIII		GRADE IX		GRADE X		GRADE XI		Totals by Ages	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B		
Under 5	13																						13	
5.0 to 5.5 inclusive	72																						72	
5.6 to 5.11 "	210	4																					214	
6.0 to 6.5 "	224	33	49	1																			307	
6.6 to 6.11 "	91	216	531	4																			842	
7.0 to 7.5 "	28	139	560	41	42	4																	814	
7.6 to 7.11 "	5	157	394	163	284	16	2																1021	
8.0 to 8.5 "	1	44	222	155	407	66	50	2															947	
8.6 to 8.11 "		18	101	116	282	191	204	17	2														991	
9.0 to 9.5 "		7	40	79	167	334	58	41		2													904	
9.6 to 9.11 "		5	22	34	88	162	322	158	163	12	5												925	
10.0 to 10.5 "		2	5	16	53	87	227	187	236	63	44	3	2										950	
10.6 to 10.11 "		2	5	11	30	65	110	162	282	112	131	38	5	1	1								924	
11.0 to 11.5 "	1	3	3	11	17	34	78	116	185	167	230	49	25	4	1								805	
11.6 to 11.11 "				2	9	22	52	83	136	121	196	67	91	13	11	1							848	
12.0 to 12.5 "		2	2	6	11		26	43	83	106	169	158	175	31	28	6							917	
12.6 to 12.11 "	1			1		10	27	57	155	146	184	183	73	105	7	17	1						824	
13.0 to 13.5 "						3	6	18	37	59	77	127	163	110	146	22	55						809	
13.6 to 13.11 "					1	4	13	20	28	56	75	139	194	105	157	73	160	4	10	1			737	
14.0 to 14.5 "						2	2	12	25	29	55	86	118	118	157	73	160	12	14	1			747	
14.6 to 14.11 "		1		1	1	4	8	15	27	49	64	75	152	86	67	188	36	67	2				656	
15.0 to 15.5 "						1	5	9	16	27	47	54	88	65	172	53	84	6	24	4			521	
15.6 to 15.11 "						2	2	5	2	5	12	19	26	53	89	142	66	88	15	44	2	6	3	
16.0 to 16.5 "						1	1	1	1	1	3	5	7	8	18	16	75	90	69	18	59	1	333	
16.6 to 16.11 "						2	2	1	1	1	3	5	7	8	18	16	75	90	69	18	59	1	294	
17.0 to 17.5 "						1	1	1	1	1	2	2	3	4	9	38	24	58	15	76	8	8	11	
17.6 to 17.11 "						1	1	1	1	1	2	2	3	4	8	21	21	49	17	68	15	60	259	
18.0 to 18.5 "											1	1	1	1	2	8	17	30	7	54	12	40	31	
18.6 to 18.11 "											1	1	1	1	4	8	7	14	6	22	7	44	39	
19.0 to 20																1	8	14	2	16	6	29	54	
ABOVE 20																	5	7	9	10	11	26	1	
TOTALS	645	631	1934	636	1388	839	1488	892	1272	879	1135	796	1009	624	966	361	976	286	499	95	378	63	265	18,268

TOTALS 645 631 1934 636 1388 839 1488 892 1272 879 1135 796 1009 624 966 361 976 286 499 95 378 63 265 18,268

ages of six and one-half and eight years.* All of those falling below this normal line are "over age," and may be considered retarded; those above the normal line are accelerated.

The percentages of children of each of these groups, and by grades, are shown in Table No. 37.

TABLE NO. 37.

ACCELERATED, NORMAL AND RETARDED PUPILS IN SALT LAKE CITY, BY GRADES.

GRADE	ACCELERATED		NORMAL		RETARDED	
	No.	%	No.	%	No.	%
IA	37	5.9	355	55.8	239	38.3
IB	580	30.0	954	49.3	40	20.7
IIA	45	57.1	318	30.7	273	12.2
IIB	327	23.6	689	49.6	372	26.8
IIIA	86	10.7	368	43.9	385	46.3
IIIB	316	21.3	656	44.0	516	34.7
IVA	77	8.6	345	38.8	470	52.6
IVB	206	16.2	518	40.8	548	43.0
VA	75	8.5	279	31.7	525	59.8
VB	182	16.1	426	37.5	527	46.4
VIA	85	10.7	225	28.3	486	61.0
VIB	123	12.2	358	35.5	528	52.3
VIIA	49	7.7	183	29.8	392	62.5
VIIIB	146	15.1	340	35.3	480	49.6
VIIIA	36	9.9	131	36.4	194	53.7
VIIIB	178	18.1	338	34.7	460	47.2

High School.

IXA	17	5.7	89	31.2	180	63.1
IXB	91	18.1	172	34.4	236	47.5
XA	6	6.3	33	34.7	56	59.0
XB	71	18.7	135	35.7	248	45.6
XIA	3	4.8	23	37.3	36	57.9
XIB	70	26.3	90	33.9	105	39.8
XIIA	0	66.7	4	33.3	2	0
XIIB	53	25.7	93	45.2	59	29.1
Totals	2859	16.2	7122	40.0	7641	43.4

*It should be remembered that the age-grade statistics were taken at the end of the school year, so that the age for completing any grade rather than that of beginning is taken. The basis used in determining overageness is the usual basis for counting. The three-year limit used in the Salt Lake City school reports is too liberal.

Figure 28, in which the distribution of the total school enrollment in this respect is shown, gives the same result in graphic form.

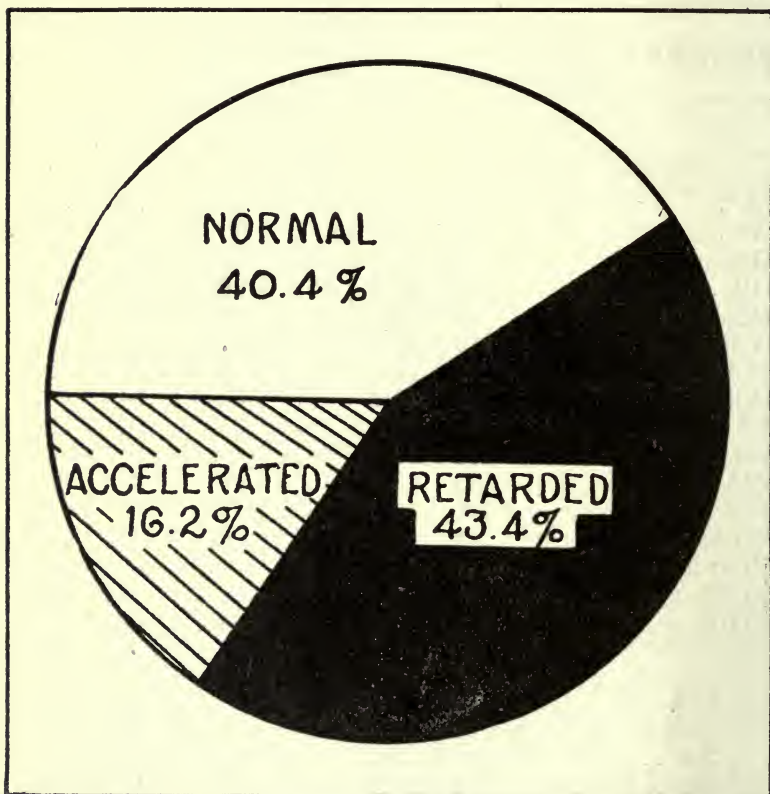


FIGURE 28. SHOWING RELATIVE PROPORTIONS OF NORMAL, RETARDED AND ACCELERATED PUPILS IN THE SALT LAKE CITY SCHOOLS.

High percentage of retarded pupils. The significant fact in regard to this distribution is that the retarded group is the largest of the three. The backward children in the ungraded school are not included in these percentages. If these were

added, the proportion represented by the dark area of the circle would be still greater.

This city ranks among those having a relatively high percentage of retarded pupils. Table No. 38 gives a list of cities in which similar studies have been made. All, with the exception of Salt Lake City and Butte, Montana, have been taken from Ayres' "Identification of the Misfit Child.**"

TABLE NO. 38.
RETARDATION IN AMERICAN CITIES.

	Retarded	Normal	Accelerated
1. Quincy, Mass.	19%	31%	50%
2. Racine, Wis.	28	42	30
3. Amsterdam, N. Y.	28	23	49
4. Syracuse, N. Y.	29	29	42
5. Indianapolis, Ind.	29	37	34
6. Danbury, Conn.	31	31	38
7. Milwaukee, Wis.	31	41	28
8. Rockford, Ill.	32	40	28
9. Canton, O.	34	38	28
10. Elmira, N. Y.	34	28	38
11. New Rochelle, N. Y.	34	30	36
12. Muskegon, Mich.	35	40	25
13. Niagara Falls, N. Y.	36	33	31
14. Topeka, Kansas	36	38	26
15. Danville, Ill.	38	34	28
16. Trenton, N. J.	38	31	31
17. Reading, Pa.	40	35	25
18. Plainfield, N. J.	40	30	30
19. Perth Amboy, N. J.	41	32	27
20. Bayonne, N. J.	42	31	27
21. Hazelton, Pa.	42	36	22
22. Salt Lake City	43	40	16
23. East St. Louis, Ill.	44	34	22
24. Elizabeth, N. J.	46	31	23
25. Kenosha, Wis.	48	36	16
26. Mont Clair, N. J.	48	34	18
27. New Orleans, La. (White)	49	31	20
28. Butte, Mont.	51	41	7
29. Passaic, N. J.	51	32	17

**Russell Sage Foundation, Bulletin No. 108.

It is of further importance to note that not only are 43.3 per cent of the school children in this city retarded, but in many cases the degree of retardation reaches two, three, or even more than four years. The amount of each is shown in Figure 29.

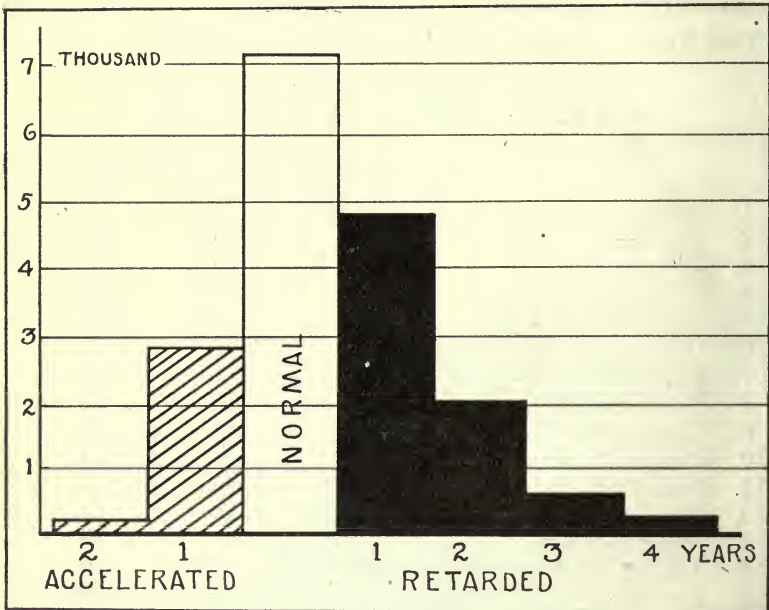


FIG. 29. DEGREE OF ACCELERATION OR RETARDATION OF PUPILS IN THE SALT LAKE CITY SCHOOLS.

Thus it will be seen that although in the shaded area the number retarded one year make up the largest group, nearly one-half as many are retarded two years; and that the number retarded three and four years is half as large as the two year group. Such a condition emphasizes anew the need for more ungraded rooms and those pupil adjustments pointed out in the last chapter.

Distribution of the retarded pupils. Figure 30, on the opposite page, shows the extent of this problem in detail, indicating how each grade in the school is affected by the great number of children who vary from the normal.

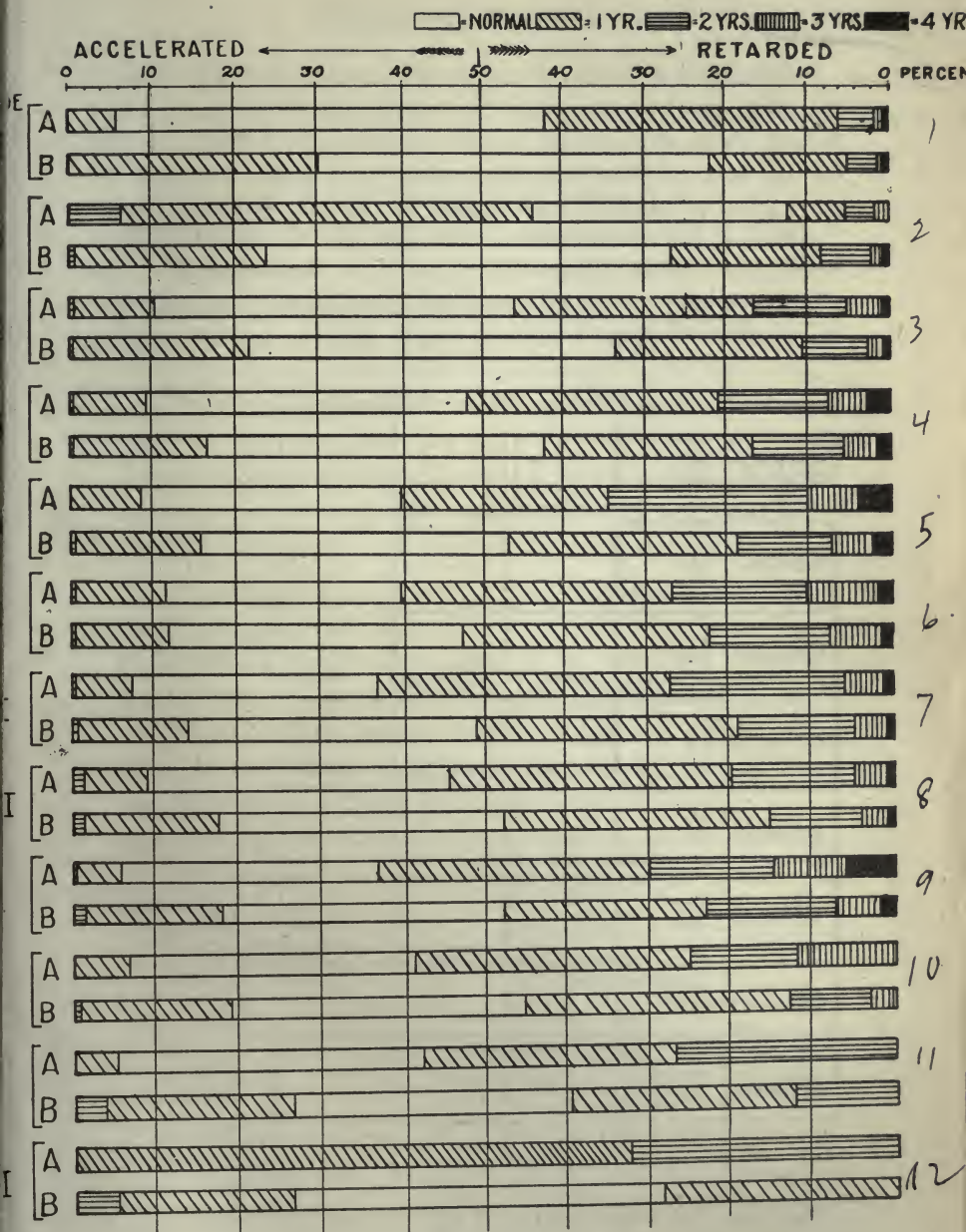


FIG. 30. SHOWING DISTRIBUTION OF NORMAL, ACCELERATED, AND RETARDED PUPILS, BY GRADES

Retardation begins early in the grades and increases to the sixth grade, when there is a noticeable falling off. This falling off is due in part to the fact that the regular routine school work offers little attraction to a child who has become greatly retarded, and in part to the fact that many reach the end of the compulsory school age by the time this point is reached. (See Figure 13, page 63.) Repeating the same work over and over again becomes monotonous even for normal adults. In Fig 31 the number of children in the A and B

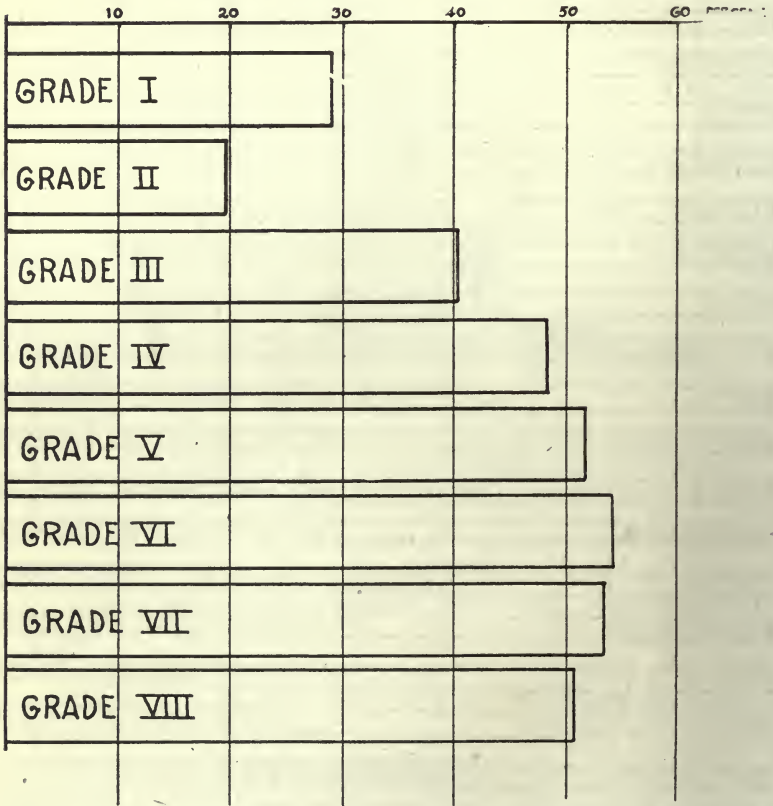


FIG. 31. PERCENTAGE OF RETARDED PUPILS, BY GRADES.

sections of each grade have been added together, and the increase in retardation to the sixth grade and the falling off thereafter are more clearly shown.

The amount of retardation in Grade I is 29.5 per cent; in Grade VI, 56.6 per cent; and in Grade VIII, 50.4 per cent.

Dropping out of school on the part of retarded pupils is not an uncommon occurrence in our city schools, and has been noted in many cities. Investigations show that the children who drop out at that time are usually those who have become discouraged through failures, and through the embarrassment of being greatly over age. It would be comparatively easy to show that dropping out of school before reaching the eighth grade is many times as common among retarded children as among those who have made normal progress.

Conditions in one room. The following is an example of the conditions found in one class in Salt Lake City. The condition shown here is not unusual for the city. Such conditions are not infrequently brought about by the wide range of ages in a single room: Miss G., teacher of Grades II-B and III-A, in the F. school, has in her room thirty-nine pupils, who are distributed by ages thus:

AGE	II-B	III-B	
7.0—7.5	2		Accelerated.
7.6—7.11	4	1	
8.0—8.5	6	1	
8.6—8.11.....	3	1	Normal.
9.0—9.5	3	4	
9.6—9.11	1	1	Retarded.
10.0—10.5	1	4	
10.6—10.11		3	
11.0—11.5	1		
11.6—11.11			
12.0—12.5	1	1	
12.6—12.11		1	

Only those enclosed by the heavy lines can be said to be normal. Those above are accelerated, and those below are retarded. With the accelerated pupils in this room the teacher will have little difficulty. True, they may be of superior intelligence, and capable of doing much more work than and teacher of thirty-nine pupils can afford to arrange for them. But their progress is assured to a reasonable degree. The striking feature of the class is the "over-ageness" with which the teacher has to deal. The seventeen pupils represented below the line will require her attention during the entire school day, if they are to be properly instructed. In fact, a class of seventeen retarded pupils is larger than the generally accepted maximum for such classes.

Fortunately, all of the pupils below the line in this instance are not mentally below normal. Those nearest the line may have been held out of school for a time, or may be retarded for reasons of such slight consequence that no unusual amount of special attention need be given them. There are at least seven pupils in the class, however, who are seriously over-age. We may be sure that all of those below the dotted line are in need of a great deal of individual instruction or training.

A proper redistribution of the pupils. Assuming that children can be properly graded in the schools, Figure 32 represents the pupils in this room, arranged in order of their ages, to show how a reasonable separation could be brought about. Such a separation, however, requires the general provision of ungraded and special classes.

After removing the extreme cases, this still leaves thirty pupils whose ages vary from $7\frac{1}{2}$ to 10 years. Considering further the conditions relative to the lighting and ventilating of the basement room in which this class was found, it is not difficult to see that the teacher will still have a task equal, at least, to her compensation.

The fifth grade as an example of uneven distribution. In further illustration of the uneven distribution of children in the

grades, data concerning all fifth grade pupils in the city have been brought together and presented in Figure 33.

The enrollment and age distribution in this grade are such that the group is fairly representative of all the grades, and this diagram is not an exaggeration of the unevenness found through the school system.

“Repeaters.” Inability on the part of pupils to do the work of their grade usually results in non-promotion, and hence the necessity of repeating the work another year or half-year. Some children have repeated the work as many as six times, and cases of even a larger number of repetitions have been found. There were at the time of the survey 1570 pupils in Salt Lake City who were repeating their grades. This is approximately 9 per cent of the entire number belonging. The

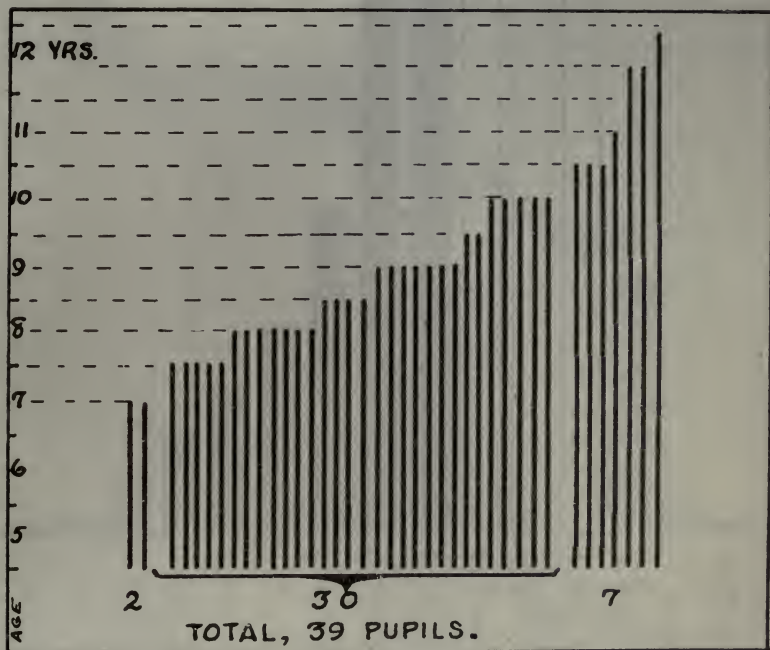


FIG. 32. ACCELERATED, NORMAL, AND RETARDED PUPILS IN ONE ROOM.

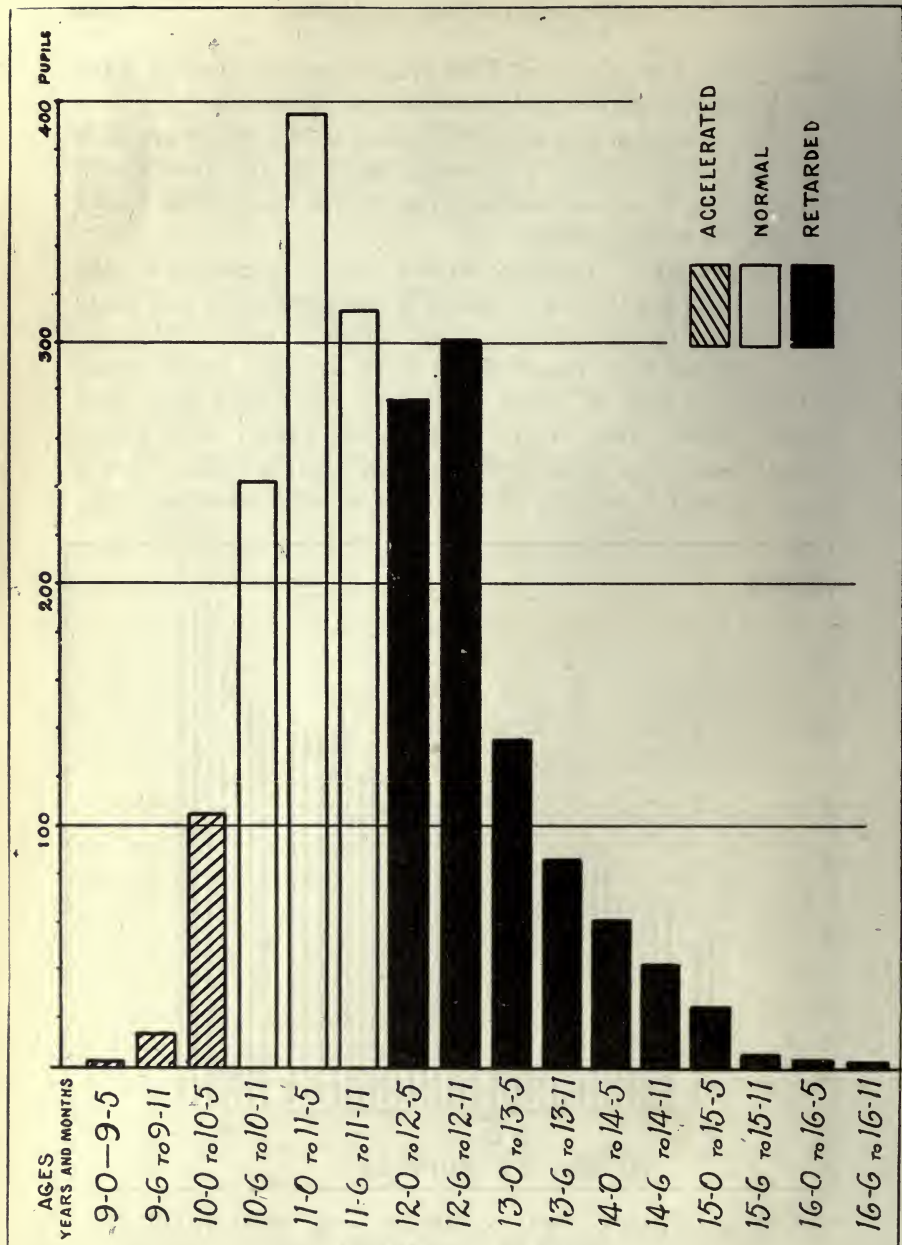


FIG. 33. AGE DISTRIBUTION OF ALL FIFTH GRADE PUPILS.

teacher was asked in each case to state whether the work of each child was being taken for the first, second, third, fourth, or more times. The number in each case of repetition is as follows:

Taking work the second time1555 pupils
 Taking work the third time 101 pupils
 Taking work fourth time, or more 14 pupils

In Figure 34 the relative number of promotions and failures are shown for each grade for the year 1913-14, as printed in the last annual report of the board of education.

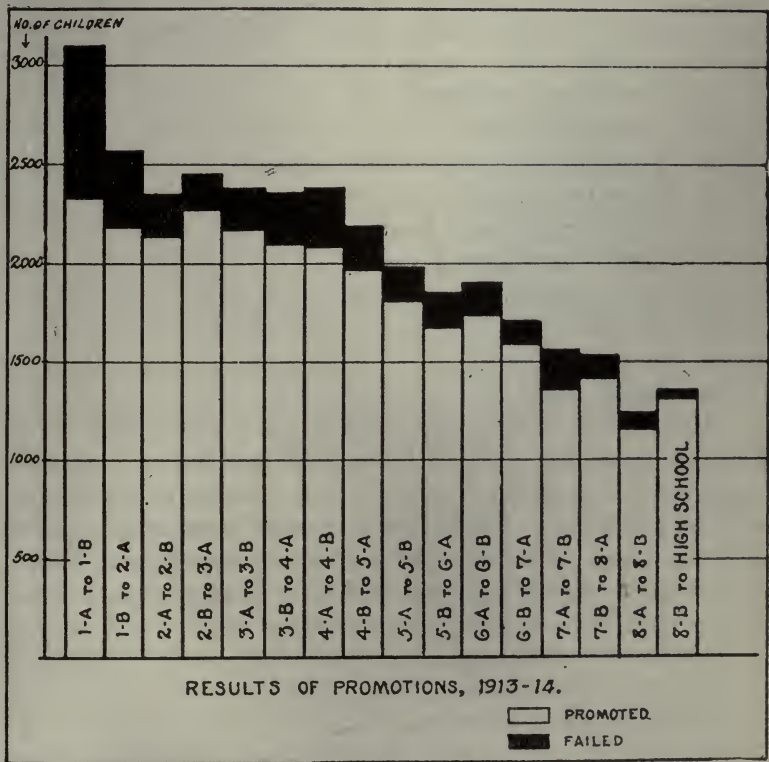


FIG. 34. RELATIVE NUMBER OF PROMOTIONS AND FAILURES, BY GRADES.

All of the children represented in each grade by the darkened area will become "repeaters" for the next half-year, provided they remain in school. It will be observed that the relative number of failures decreases somewhat through the grades, until the number who are not promoted to the high school grades is very small. This is unquestionably due to the dropping out of the backward pupils before reaching the higher grades. The number retained in the first grade is approximately 16 per cent of the total number belonging.

Causes of Retardation. The teachers were asked, in each case of repetition or serious retardation, to make some statement relative to the probable cause. The following were the most frequently given reasons:

1. Poor home conditions.
2. Physical ailments.
3. Transferring from another school.
4. Retarded mental development.
5. Difficulty with the English language.
6. Lack of application.
7. Poor attendance.
8. Laziness.
9. Late entering.
10. Delinquency.

Many more interesting reasons were given, and while probably in certain cases each could be justified as a separate excuse, it is obvious that there is a close relation among several of those given here. After analyzing many cases, and inquiring into the exact conditions, the writer has found that, with a few possible exceptions, the following have produced practically all of the retardation in the city:

1. Mental deficiency.
2. Physical ailments.
3. Poor home conditions.

Age at entering the first grade. It is not uncommon for teachers and principals to assume that much of the retardation in their rooms is due to the lateness with which the chil-

dren enter school. That this is not an important cause, considering the large amount of retardation, may be easily proven. Children in Salt Lake City commonly enter the first grade at the age of six years, some enter even earlier, and, although some enter later, the number whose retardation is the direct result of late entering is small. Figure 35 shows the distribution of the entering ages. Nearly 70 per cent have entered at five or six years, and nearly 90 per cent at not later than seven years.

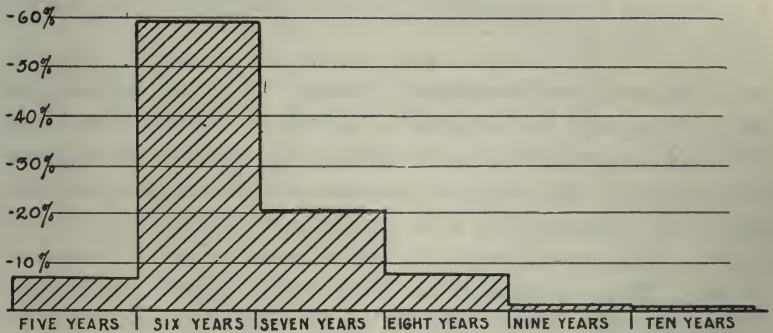


FIG. 35. DISTRIBUTION OF AGES AT WHICH SALT LAKE CITY CHILDREN ENTER THE FIRST SCHOOL GRADE.

Other explanations for retardation. "Poor home conditions" is one of the most common reasons given by teachers to account for a child's retardation, or his slowness in school. In some cases this is beyond a doubt a valid explanation. This is especially true where children are needed for long hours of work out of school, or where there is drunkenness, immorality, and other forms of social degeneracy which would cause discouragement and even contempt for school. There are, however, relatively few such homes in Salt Lake City. One instance of the kind was noted, but the amount of mental deficiency in the family would easily account for the conditions.

“Difficulty with the English language” is also a common answer. Since, however, the proportion of foreign persons in this city is so very small, and most of these being from Northern Europe, this can seldom account for slow progress. Further, many cases are on record of foreign children of normal mentality who have made even better than average progress.

Physical defects and ill health are probably more commonly causes of retardation than any factor except mental deficiency. How the health conditions of children are related to school progress are discussed in another chapter. With the development of the system of medical inspection these causes can be controlled.

Subnormal and backward children. The vast majority of the children who are retarded in school are making slow progress because their intelligence is below the average for children of their ages. By no means, however, are all of these mentally defective; children vary in mental capacity just as we all vary among ourselves in height, weight, strength, and ability of all kinds. There is thus often a degree of mental retardation which accounts for the retardation in school. This mental retardation is now measurable, and intelligence testing has been so perfected that by means of a brief examination with a series of psychological tests the child's mental age can be determined. This mental age represents the approximate level of intelligence of the child, by which he can be compared with other children, and his general ability determined, as far as this depends upon intelligence.

Usually about 75 per cent of ordinary school children have normal intelligence levels; that is, their mental age is approximately the same as their actual age in years and months. The remainder of the children deviate from the normal either above or below. Those whose mental ages are decidedly above their actual ages are said to be of superior intelligence. Those who are slightly below are said to be dull-normal, or backward; while there are some whose deviation is so far below the average that they are classified as feeble-minded. Another group,

just above the feeble-minded, consists of those who are above, but very little above, the lowest group. These are called border-line cases.

Mental classification groups. In the mental classification of children, then, we have five general groups:

1. The feeble-minded group.
2. The border-line group.
3. The dull-normal group.
4. The normal group.
5. Children of superior intelligence.

Not every child can be definitely placed in one of these groups. The names used here are but arbitrary, and do not represent the various "types" into which it was formerly supposed that children could be classified. In fact, each group contains so many varying degrees of intelligence that it is difficult to draw a line between any two groups. The classification is used merely for the sake of convenience in discussing the several relative levels of intelligence.

All of these groups are represented in the public schools of Salt Lake City. Children of all of these varying degrees were examined during the progress of the survey. It is not surprising that children should be greatly variable in their school ability and in the progress they make, when we consider that actual mental capacity is of such varying degrees. And it is important to remember that the degree of success or failure which will be met in the later life of these children is largely dependent upon these levels of intelligence.

Children examined by the intelligence tests. A number of children were examined during the survey, and their mental ages determined. Records were also obtainable of children who had been examined by school principals and the psychologist in charge of the ungraded school. Enough records were obtained so that the mental ages of about 120 children were secured. The children selected for examination were of three groups:

1. Those of supposedly normal intelligence.

2. Those of superior ability.
3. Those who were backward in their work.

The children selected by their teachers as being of normal intelligence usually tested approximately normal. In one case, a child who was thought to be normal was found to be somewhat mentally retarded, his quickness and alertness having misled persons in estimating his intelligence. In another case, a child supposedly no brighter than the average was found to be decidedly above the average for her age. These examples illustrate how the teacher may sometimes be mistaken in a child's mental capacity, and these mistakes sometimes lead to the misplacing of children in school. Not infrequently teachers of many years' experience will make such errors. On the whole, however, the teacher is better able to judge the intelligence of her pupils than any one else, except the psychologist, or one who is capable of giving intelligence tests. Teachers rarely make a mistake in selecting a child of superior intelligence, and almost never is a child found to be normal whom the teacher thinks is sub-normal.

Since mistakes do occur, however, it is best not to trust the judgment of any person who is not a psychologist, and even he will make use of what is known as the Scale for Measuring Intelligence before making any statement as to the mental level of the child.

The measuring scale used. In making the examinations, use was made of the Stanford Revision of the Binet-Simon Measuring Scale of Intelligence. This consists of a series of psychological tests which have been arranged in such order that from the number and kinds of tests which a child can pass the examiner can calculate the child's general level of intelligence. This scale was formulated in 1908 by Dr. Binet, a French psychologist, and Dr. Simon, a physician of Paris. Since that time many thousands of school children have been examined by this method, and it has been found everywhere to be surprisingly accurate and practically indispensable in judging intelligence. It has been successfully used with nor-

mal children, children of superior intelligence, and with backward and feeble-minded children and adults. It has been used in so many different countries, cities, and schools, and leading psychologists have so admired its usefulness, that scientific investigations have been able to revise and extend the scale until its value and accuracy are much greater than with the original set of tests devised by Binet and Simon. The Stanford Revision,* which was used during the survey, is the most carefully worked out revision which has been made up to the present time.

Backward children studied. To illustrate what a serious problem the mental retardation of some children presents to the school, the distribution of 108 backward children, for whom records were obtained, is shown in Figure 36.

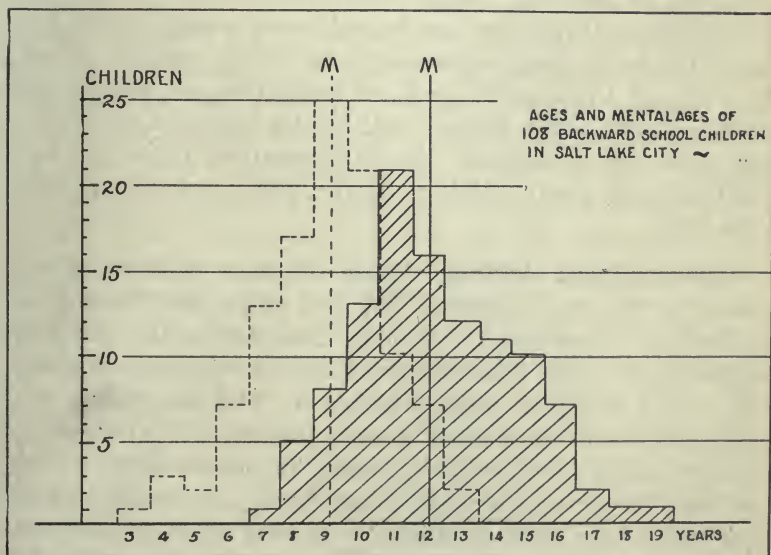


FIG. 36. ACTUAL AND MENTAL AGES COMPARED FOR A GROUP OF RETARDED PUPILS.

*The work of Dr. Lewis M. Terman. This revision, and a manual for its use, will shortly appear in print.

The area enclosed by the heavy line and shaded shows the distribution of the ages of these 108 children. The youngest is 7 years, while the oldest is 19. The dotted line encloses the area which represents the distribution of the mental ages of these same 108 children. The youngest mental age is 3 years, while the oldest is 13 years. Had a group of normal children been thus arranged, the dotted line would be superimposed upon the heavy line, and the area of mental age would be the same as that of actual age. The median mental age of this group is 9 years, while the median actual age is 12. Thus there is a general retardation of 3 years, or 25 per cent.

In some individual cases, the retardation is much more than 3 years. For example, the child who tested 3 years mentally in this case is actually 9 years of age, and thus his retardation is more than 66 per cent. Such a child, of course, is of extremely low intelligence, and does not belong in any public school, but should be placed in an institution for the feeble-minded. When the State of Utah builds such an institution, or colony, the teachers in the public schools will not be burdened with children who are so helpless. Very fortunately, there are but few such low grade children in the public schools of Salt Lake City.

Feeble-minded children. There are many children in the schools of this city, however, who just as properly belong in institutions or colonies for the feeble-minded as the one just mentioned, although their deficiency is proportionately so much less that it is not so easily recognized. For these cases the Intelligence Scale is of much greater importance. Ordinarily, children whose intelligence is found, by measurement, to be less than 75 per cent of their actual ages, are feeble-minded. This means that their intelligence, as long as they live, will not develop to a level much beyond that of the average child of 12 years. It must be remembered that this 12 year level is the upper limit, and that most feeble-minded persons never reach this level. Many of them, although they may be nearly normal physically, have never developed mentally beyond the

10, 9, 8, or 7 year level. Such persons cannot, of course, be expected ever to be able to compete in life with normal persons, or even to make a living for themselves if left unassisted. Many of those who are not cared for become criminals, prostitutes, paupers, or become socially degenerate in some other way. Among school children mental deficiency often expresses itself in the form of delinquency.

These waste both the teacher's time and their own. Feeble-minded children are not always vicious. Often their temperament is such that their teachers and friends are inclined to overlook their mental deficiency, and good conduct and obedience is mistaken for intelligence. Clara F.,* for example, is 15 years of age. She is in the seventh grade, and has been making such slow progress that the teacher had become discouraged with her. She was examined, and found to have a mentality of 10½ years. Because she has been a "good plodder" and has presented no difficulty in discipline, she was not considered feeble-minded, or even much below normal. In fact, she has long since reached the grade of work possible for one of her level of intelligence, and it is a waste of time and an injustice to the child to keep her in the regular school any longer. Much of the teacher's time has been taken from the already too large class in futile attempts to teach her things which she cannot learn, and which would be of little use to her if she could retain them. Clara should be in an institution or colony for the feeble-minded, where she could be taught at least how to do housework of the simpler kinds, where she will not be a burden upon those who have her in charge, and where normal children will not be neglected in order that she may be instructed. Numerous other examples just as striking have been found in the schools. Some of them, of whom space does not permit further description, are as follows:

George B.	Age 15,	Mentality 8.	In Grade 4.
Francis A.	Age 10,	Mentality 8.	In Grade 1.
Amy C.	Age 15,	Mentality 9½.	In Grade 7.

*Names used here are fictitious.

Verna K. . . . Age 12, Mentality 10: In Grade 3.
Everett D. . . . Age 13, Mentality 9½. In Grade 4.
Ernest L. . . . Age 12½, Mentality 9. In Grade 2.

All of these children are either feeble-minded or borderline cases, and none of them should be in the regular grades with normal children.

Number of such found in every city. It is generally estimated that in any city the number of feeble-minded children is between 2 and 3 per cent of the entire school enrollment. Probably the latter number is a safer estimate. Although there is reason to believe that the average intelligence among the population of Salt Lake City may be slightly above that of the average city, on account of the freedom from slums, etc., yet the number of feeble-minded children in the city cannot be much below 3 per cent of the school enrollment. The number is somewhat increased by the lack of state facilities for the care of mental defectives.

We may be reasonably certain that there are not less than 600 children in the public schools who are mentally retarded to such a degree that no amount of teaching can ever make them normal. In addition to these there are many more children who are mentally retarded to a less degree, but are still so far from average-normal that in classes with normal children they are likely to receive little benefit. It is these children who are the direct cause of much of the school retardation in the city.

Apparently the problem has been recognized, and an attempt has been made to solve it. For this attempt, although inadequate, the city is to be commended. Provision for backward children has been made (1) by the Ungraded School, and (2) by ungraded classes.

The Ungraded School. This now occupies one of the oldest school buildings in the city. The school consists of five teachers and a principal. There are five rooms, and about 90 children were belonging at the time of the survey. The usual enrollment is about 100. The building is very poorly lighted,

and the heating and ventilation facilities are worse than should be tolerated in any school. The principal's office occupies a basement room, which can be directly entered only through a back door. The conditions in the school rooms are no better. The property on which the building stands is of relatively high value, however, and since with adequate transportation facilities the location is of secondary importance, it is probable that the land could be sold at a figure which would apply substantially toward a new building on a less expensive site.

The children are given individual attention, especially in the subjects in which they seem to be the most backward. The principal is a university graduate in psychology, and is qualified to give mental tests and to judge the intelligence of the children. During the past four years he has made about 90 of such examinations. He is frequently called upon to examine children in the regular schools to determine their degree of defectiveness or backwardness, and to advise principals and teachers concerning the proper placing of certain children who offer difficulties of instruction or discipline.

Mistaken aim of the ungraded school. For the most part, the teachers in the ungraded school are energetic and interested. None have had special training for this work, however, although some are contemplating this for the present summer. Little manual training is taught, and the chief aim has been to instruct children in the subjects in which they are the most deficient, with a view to their being placed again in the grades.

To make this the aim of the ungraded school is misleading. Although it is a splendid thing for children who are slightly back in arithmetic, for example, to be specially assisted in making up their particular difficulties, this is not what the ungraded school should be doing. Fully 75 per cent of the pupils in the school are mentally so far below normal that they will not be able, even with this special instruction, to "make up" their grades, and continue thereafter to make normal progress. Practically all of those now enrolled in the school, and many

more who should be enrolled when provisions are made for a larger ungraded school, are in need of continued special class work. Teachers and principals should not be deluded by thinking that children are normal because the special class has improved them.

Proper training for such pupils. When the State Legislature makes adequate provision for the care of the feeble-minded, the public schools will be relieved of many of their defective children. This it should do without further delay. There will still be need for the special school, however. Probably none of the border-line and dull-normal cases will be removed, and there will always be many of the higher grade feeble-minded children who must be trained in the public schools. There should be a special school of not less than 15 teachers, equipped not for average children, as in other schools, but especially for children whose minds have not developed normally. This should include, first of all, material for manual work. In no other line can defective children be trained to any degree of usefulness. It is folly to waste much of their time in reading, arithmetic, etc., beyond the work of the lower grades. While it may happen frequently that feeble-minded children can retain for a short time some of the things they have been taught in these subjects, it is far from efficiency to learn things which can never be used. Backward and feeble-minded children can be trained in manual work, however, and in some cities and institutions much has been done in this line which has added to their happiness and usefulness.

The so-called ungraded rooms. Another method which has been used in dealing with retarded pupils is that of the ungraded room. There are at present six teachers giving full time in ungraded rooms. Four teachers of domestic science are giving approximately half-time to this work. In several schools, the ungraded room has been discontinued for financial reasons.

In reality, these rooms are not ungraded rooms at all. In fact, the children who make use of them are enrolled in the

regular grades, and one or more periods of thirty minutes each are given to their special instruction in the subject or subjects which present the most difficulty. A large number of children can be "coached" in this manner, and one teacher reported a class of 70 pupils per day.

The following is the daily schedule of one of these classes:

9:00 to 9:30	Arithmetic 7B.
9:30 to 10:00	Reading 2B.
10:00 to 10:30	Arithmetic 5B.
10:30 to 10:45	Recess.
10:45 to 11:00	Reading and Phonics 3B.
11:00 to 11:30	Reading 6B.
11:30 to 12:00	Grammar 7A.
1:00 to 1:40	Geography 7B.
1:40 to 2:10	Arithmetic 6B.
2:10 to 2:20	————
2:20 to 2:30	Recess.
2:30 to 3:05	Grammar 8B.
3:05 to 3:30	Grammar 9 and 7.
3:00 to 3:30	Reading 4A.

In reality "Batavia" rooms. This form of special instruction is similar to what is known as the "Batavia plan." While this work is of extreme importance to every school, and furnishes much relief to teachers, it is by no means a correct substitute for the special class for backward children. Quite naturally, children who are backward or sub-normal mentally are most commonly sent to these classes, and the writer has observed many feeble-minded children who have been sent to these Batavia teachers with the expectation that they could discover in what subjects they were in need of the greatest attention. In one case, the teacher pointed out a boy who has been retained in one of these classes for two years. In any school, even if made up entirely of normal children, there is a place for this work; but it is unfortunate that it has been instituted instead of the much needed special rooms, where the teacher may devote all her time to children who are men-

tally sub-normal. In nearly every school in the city there is need for such a class.

As in the ungraded school, none of the teachers of these rooms have had special training, and it is not surprising that there is no one in such schools who can recognize feeble-minded children. None have made use of tests for this purpose. This, of course, is a serious handicap in the conducting of an ungraded room, or any form of special class work.

What is needed. To what extent the school retardation has been affected by the presence of sub-normal children cannot be determined to an exact figure. To do this, it would be necessary to examine the mental condition of each retarded pupil, and to inquire into the other conditions which might have been responsible for his slow progress. Many cities are introducing research departments where this and other important work can be carried on. Little of value can be determined except by continued scientific investigation.

About 9 per cent, or 1570 pupils in the city schools, are repeating their grades one or more times. This means that the city is expending more than \$90,000 per year for repeated instruction. Calculating on the basis of the amount paid each year for teachers' salaries alone, \$40,000 per year is paid directly for this repeated instruction. This sum represents the salaries of 50 teachers at \$800 each. This \$40,000 would provide:

15 teachers in a special school;

15 additional teachers in ungraded rooms; each receiving a salary of not less than \$1200. These 30 teachers could relieve the regular classes of 450 sub-normal children, allowing each teacher 15 special pupils. The value of this to the schools, and to the happiness and usefulness of these pupils, need not be reiterated. To say nothing of these, the change is justified from a purely business standpoint.

The principal of such a school. The principal of the ungraded school should be a psychologist. This the city has already recognized. He should have jurisdiction, not only

over the ungraded school of 15 teachers, but over all of the special class work in the city. In the latter, he would have the co-operation of the school principals. He should be given a clerical assistant, to relieve him of routine office duties, in which otherwise he would lose much valuable time, and should devote at least one-half of each day to research work and investigation into such problems as retardation. Under his direction all retarded and greatly accelerated pupils should be examined, and the records permanently kept in the laboratory, which should be provided in the ungraded school. In a single year records of the intelligence of the 600 sub-normal children in the schools could be made. The amount of retardation could be greatly reduced, by the proper placing of pupils, and by the additional assistance rendered to the health officers in the diagnosis of cases.

Ungraded rooms for the different schools. In each school provision should be made for at least one real ungraded room. This is particularly important in planning new school buildings. The following are the salient points in the construction of a standard ungraded room.*

1. The room should be well lighted and ventilated.
2. Not more than 15 children should be provided for.
3. The room should be approximately 30x40 feet in size.
4. The windows should be adjustable, so that an open-air room can be made.
5. The walls should be of a neutral tint.
6. Instead of school desks, movable tables and chairs of various sizes should be provided.
7. There should be 8 work benches for manual training.
8. There should be cupboards and cases for the display and keeping of work.
9. The walls should be provided with plenty of blackboards, built low, so they can be reached by the smallest pupils.
10. A bathroom or shower should adjoin the room.
11. There should be equipment for training in practical

*Goddard, *School Training of Defective Children*. N. Y., 1914.

housework. This should be the essential equipment of a home, including a bed, stove, dishes, etc.

12. Books, play apparatus, etc., should be available.

It is obvious that such a room is not meant for the teaching of reading, writing, arithmetic, etc., except in an incidental manner. Trained teachers in charge of these rooms, under the supervision of an expert, will know to what extent the minds of the children are capable of each kind of work, and the instruction of each child will follow accordingly. As has already been pointed out, the greatest success with sub-normal children has been obtained by placing emphasis upon manual work of a practical sort.

Exceptional Children. Although the greater portion of this chapter has been devoted to the problem of backward and sub-normal children, there are other ways in which children may vary from the average, and for these special attention is just as necessary. Often the importance of the problem of retardation overshadows this fact, and these children are neglected.

There are many children whose minds have developed more rapidly than those of average children, and whose intelligence is such that they are capable of work which ordinary children cannot do at the same age. In some cases such children have been promoted to a grade or more beyond that in which they would be according to actual age. Some have been allowed to "skip" grades. Often the intelligence of these children is underestimated, and still more often teachers and parents are prevented by tradition and custom from allowing them to go beyond the work which seems to be suitable to their ages. On the other hand, parents not infrequently insist that a child is capable of advancement, when the school records plainly show that he is not.

Here again psychological tests are of great assistance. With the child's mental age known, teachers, parents, and principals will not need to rely upon personal opinion, and the child's course can be based upon scientific facts.

Typical cases found. The following cases are representative of school children of superior mentality. Both of these, and many others, were examined during the progress of the survey.

Lucile R.—Age 13. Mentality about 16. Is in the seventh grade. With special instruction for a time could be doing the work of the second year in high school. Temperamentally pleasant, and much devoted to her work. In good health, not nervous, and offers no special difficulty, except that the work of the seventh grade is too easy for her. Is from a home where less than average opportunities are available. Father “does not believe” in high school training, and expects to remove Lucile from school when she has completed the eighth grade.

George N.—Age 9. Mentality about 13. Is in fourth grade. From an average home. Has been well trained in politeness and obedience. Could be doing the work of which any normal child of 12 or 13 years would be capable. In excellent physical condition.

We little know what immense possibilities lie in these and other gifted children. Many cases of this kind are on record, and too often insufficient attention is given in the conservation of these possibilities. In some instances, capabilities just as remarkable have been found, but in some special direction, such as music, art, etc. It is of the greatest importance that children who early in life show such ability should be educated according to their levels of intelligence, rather than be held back with other children of the same age.

The problem of delinquency. This is fundamentally a problem for the public schools to handle. Many boys and girls are now in our reformatories and juvenile institutions who might have been saved through vocational guidance and other provisions which the public schools should have made for them. It is generally recognized that the feeble-minded child is a potential delinquent. The minds of these children will always remain like those of young children, and

consequently they will have neither the ability nor the desire to resist the temptations which cause their downfall. Even some children of normal mentality are weak in will power or have emotional characteristics which lead to crime.

In 1910 there were 25,000 children in institutions for delinquents. Of these, 14,000 had been committed in less than one year. Not less than one-third of these are feeble-minded; and not less than one-half are mentally retarded to such a degree that this deficiency would account for their delinquency. There are fully 12,000 who do not belong where they have been placed, and for whom no form of punishment can be of great benefit. Many, when released, will again enter lives of crime, and will spend many of their later years in prison. Hence the responsibility of the public school in the classification and guidance of children who exhibit these tendencies.

Summary of recommendations. As a result of the studies recorded in this chapter the following recommendations are made:

1. That a new special school, for ungraded work, be erected. This should contain not less than 15 rooms, and 20 would be a better number.

2. That the principal of the ungraded school be given such clerical assistance as to permit him to direct the work of the psychological laboratory, and to have direction over all ungraded rooms in the city.

3. That there be established not less than 15 ungraded rooms in regular schools, in addition to the Batavia teaching which is now provided for. It would be still better if at least one such room were provided in connection with each large school in the city.

4. That trained teachers be secured for this ungraded school work.

5. That no ungraded room contain more than 15 pupils permanently enrolled.

6. That in providing for ungraded rooms, especially in new buildings, the plan of the standard room, as outlined by Dr. Goddard, be followed as closely as possible.

7. That special classes, wherever practicable, be established for gifted children, or that some plan be adopted by means of which they may make more rapid progress through the course of study.

8. That greater attention be given to the problem of children who show evidences of becoming socially undesirable.

PART III

Buildings and Health

CHAPTER X.

THE SCHOOL PLANT.

(Terman.)

The present buildings. Of the 34 buildings at present in use, 30 belong to an obsolete type of school architecture. The heating, lighting and ventilation of most of these buildings are unsatisfactory. There are not enough class rooms to accommodate the children. Dark, damp, and dingy basement rooms which are totally unfit for human occupancy are used as class rooms, as are also poorly lighted and ill-ventilated halls. Many of the rooms used for domestic science are objectionable, both from the hygienic and the aesthetic point of view. There are hardly any assembly rooms. There are no school baths in any primary or grammar grade school. The toilet arrangements are in many cases unsanitary and unsightly. The janitor service is partly good and partly bad. A few of the sites are not well suited to school purposes, and in the case of more than half the schools the playground space is extremely inadequate. These and other items relating to the school plant warrant individual treatment in this report.

The school sites. A school is not properly located when it is in too close proximity to railroads, car lines, streets, noisy factories, saloons, or other otherwise morally objectionable places. It is also necessary, in selecting a school site, to take account of possible shifts of population and of possible objectionable changes which may later take place in the environment. Above all, playgrounds of adequate size should be obtained before the increase in value of the surrounding real estate renders this prohibitive.

Little adverse criticism can be made as to the location of the school sites except in two or three cases. Two railroad lines within a block of the Lincoln building detract from this

site, and a few others are located rather closer to street car lines than is desirable.

There is no school located where the surrounding population seems likely to decrease to a point which would render the building or any part of it unnecessary. Unfortunately, however, there has not always been sufficient foresight in anticipating the increase of needs incident to the growth of population. Many of the school sites are so small as to make it impossible to locate the buildings the requisite distance from the street, or to provide playground facilities for the children.

Size of school grounds. In a city no larger and no more crowded than Salt Lake City a school site ought to contain not less than 200 square feet for each child. This rule will require about five acres for a site which may reasonably be expected sometime to accommodate 1000 to 1200 pupils. In order to provide for possible increases in attendance and enlargement of buildings, every new school site provided ought to contain, if possible, not less than five acres. The very minimum which should be regarded permissible even in a large city is 100 square feet of a playground space for each child. Even the city of London has made this amount the legal minimum.

The figures of Table 39 show how far many of the Salt Lake City school grounds fall below the minimum. The figures given are based on the entire area of the school site, inclusive of the ground on which the building is located. If the area of the building had been deducted the figures would have been in most cases very greatly reduced.

TABLE NO. 39.
SIZE OF PRESENT SCHOOL SITES.

Group I. Less than 100 sq. ft. per child.

School.	Enrollment.	Sq. ft. per child.
Emerson	1,090	40
Grant	783	69
Fremont	302	74
Oquirrh	724	75
Longfellow	352	77
Lafayette	853	84
Lowell	615	88
Franklin	615	93
Wasatch	780	95
Hamilton	710	96

Total enrollment in this group, 6824.

Group II. 100 to 130 sq. ft. per child.

School.	Enrollment.	Sq. ft. per child.
Webster	719	102
Sumner	756	108
Lincoln	450	112
Forest	560	129
Jefferson	760	129
Poplar Grove.....	417	130

Total enrollment of Group II, 3662.

Group III. 170 to 200 sq. ft. per child.

School.	Enrollment.	Sq. ft. per child.
Jackson	802	171
Riverside	820	189
Irving	291	189
Monroe	320	200

Total enrollment of Group III, 2233.

TABLE NO. 39, CONTINUED.

Group IV. Above 200 sq. ft. per child.

School.	Enrollment.	Sq. ft. per child.
Washington	721	223
Onequa	436	256
Ensign	421	517
East High	1,299	385
Bonneville	105	403
Hawthorne	538	404
Bryant	300	412
West High	870	500
Whittier	750	522
Twelfth	96	567
Training	362	1,037

Total enrollment of Group IV, 5668.

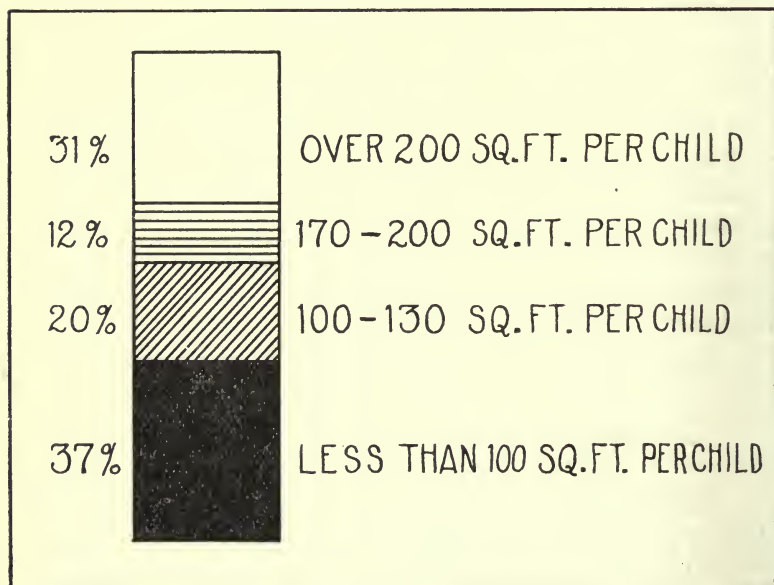


FIG. 37. SHOWING PERCENTAGE OF CHILDREN HAVING PLAYGROUNDS OF VARIOUS SIZES.

The preceding diagram shows the percentage distribution of children among the sites of these four sizes:

It is a pleasure to note that the last three buildings erected, Whittier, Hawthorne, and East High, all have ample grounds. This is also true of the two now being built in the vicinity of East High School, but it is not true of Jefferson, which was erected only five years ago.

Nowhere else in the school system is forethought more important than in the selection of well-located and ample sites, in anticipation of future needs. Blessings or tragedy hangs upon the choice. Some of the cramped sites listed above could not now be enlarged except at prohibitive cost. In the case of others, additions are still feasible and ought to be made at the earliest possible moment.

Waste of space in buildings. Some or all of the class rooms or halls in nearly every building have an excess of floor space, and the ceilings of practically all the buildings are from $1\frac{1}{2}$ to $2\frac{1}{2}$ feet higher than the standard. This is true to a certain extent even in the new buildings, barring possibly the East High and the Hawthorne school. The best size for a class room is 22x28 feet, with a 12 foot ceiling. The greatest size permissible is 24x30 feet, with a 13 foot ceiling. Class rooms of 30x33 or 30x30, with a ceiling of 14 feet, are almost the rule in Salt Lake City. Measurements of the floor area of all the class rooms in the city, which were made by the teachers at the request of the survey, gave the facts set forth in Figure 38, reproduced on the following page.

The intent of such construction was doubtless that of giving children and teachers ample room for carrying on their work. The result, however, is a building which in many respects is far from satisfactory for the work of the school. A class room needlessly large is more costly to heat, and usually not as well lighted. The children in the rear seats have to strain their eyes to see what is written on the blackboard, and the teacher has to strain her voice to make it fill the room. Order is more difficult to maintain. Moreover, the large

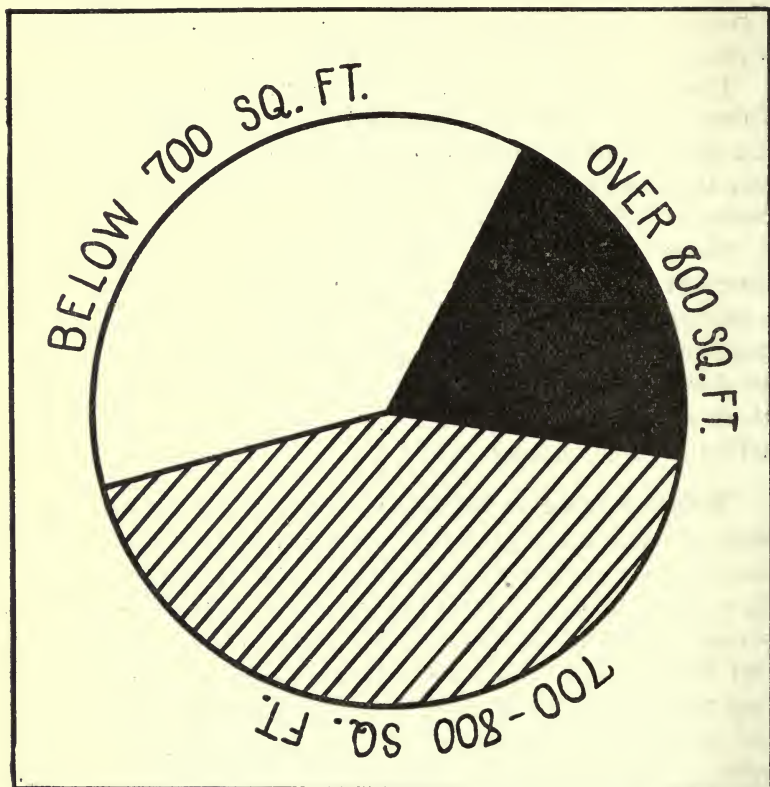


FIG. 38. SHOWING PERCENTAGE OF SCHOOL ROOMS HAVING VARIOUS AREAS.

room offers a constant temptation to enlarge classes beyond the point where good teaching is possible.

The result of such excess. The cost of such excess space is no mean item. A room 30x30 has nearly 50 per cent more floor space than the standard room of 22x28, and one of 27x30 has an excess floor area of about 25 per cent. A room 30x30, with a 14 foot ceiling, has 70 per cent excess of cubical contents as compared with one which is 22x28x12; or an excess of 56 per cent as compared with one 24x28x12. The cost of a school room is almost (though not quite) in proportion to its

cubical contents, and the cost of building 400 school rooms having an average excess of 30 per cent in cubical contents above the standard has certainly involved a waste of more than a half million dollars.

The practical outcome of extravagance in space is likely to be the omission of much-needed special rooms and equipment, and we are now in better position to understand why, in the schools of Salt Lake City, the domestic science work is usually relegated to some dingy corner which is unfit for regular class purposes; why manual training must so often be carried on by artificial light; why there are no assembly rooms; why toilet arrangements are so inadequate and cheap; why there is not a single bath or a single nurse's room in the primary or grammar schools; why approximately 2000 children are compelled to attend school in dark cellars. Reasonable economy in school planning would have supplied most if not all of these unfortunate omissions.

Much space is also wasted in halls. Instead of the standard width of 12 to 14 feet, a width of 16 to 24 feet is found in a majority of the buildings. The Washington and Lowell schools have each two halls approximately 24x100 feet. The wasted space would have given each school four or five additional class rooms, or a commodious assembly room.

Lighting. Following is a statement of the cardinal laws of school lighting, and of the departures therefrom in the schools of Salt Lake City.

1. **The light should enter from one side of the class room only, and at the pupils' left.**

If it enters from two sides there are sure to be annoying cross-lights in certain parts of the room, and if there are windows in the rear the teacher is compelled to face a direct light. This is trying to the nerves and injurious to the health.

The following table shows existing conditions in the Salt Lake City school buildings.

TABLE NO. 40.

THE LIGHTING OF SALT LAKE CITY SCHOOL ROOMS.

Lighted from left only, 96 rooms (Standard method).

Lighted from left and rear,	250 rooms	} All incorrectly lighted.
Lighted from right and rear,	3 rooms	
Lighted from left and right,	3 rooms	
Lighted from right only,	2 rooms	
Lighted from rear only,	1 room	
Lighted on three sides	46 rooms	
Lighted partly from front,	39 rooms	
More than half of light from rear,	120 rooms	

From this table it is seen that less than 22 per cent of the rooms are lighted from the proper direction, and over 88 per cent are improperly lighted. Even the buildings erected four to five years ago (Jefferson, Poplar Grove, and the new parts of Riverside and Wasatch) have a large proportion of their rooms lighted from two sides. 68.2 per cent of all the teachers in the city are compelled to face light entering from the rear windows. In 27.3 per cent of the rooms, more than half the light enters from the rear. Questioned as to the effects on health resulting from facing the light, 77 teachers stated that ill effects had been experienced, and 15 of these stated that the health had been seriously injured in this way.

It must not be inferred that the 22 per cent of rooms having light on the left only are properly lighted. As a matter of fact, hardly any of them are. Some of them are lighted from the north or south, some have too little window space, others have windows placed too far forward.

2. **The building should be so oriented that the windows of each class room are on the east or west side, not the north or south.** Rooms lighted from the north are too dark on cloudy days and are less healthful than rooms which receive

direct sunlight a part of the day. If the room is lighted from the south, however, the direct sunlight enters during the entire school day and, falling on the desks of pupils, is annoying and injurious to the eyes. In such cases the shades are likely to be drawn until the light admitted is too small in amount, and badly distributed. A possible exception in favor of south lighting may be made in the case of kindergarten rooms, but in no other class rooms.

In Salt Lake City no rational attention seems to have been given to the matter of orientation, previous to the last three or four buildings erected. If anything, south lighting seems to have been preferred. The Washington and Lowell schools were evidently planned with the idea of giving the sun direct access to as many rooms as possible throughout the day. On the other hand, there are dozens of rooms in the city which never get a ray of direct sunlight, and some of these rooms are in damp basements.

The only way to secure the proper orientation of class rooms is to construct long narrow school buildings, running north and south. Those of Salt Lake City are predominantly of the square type, with eight to twelve corner rooms lighted on one side and rear and a number of side rooms in between the corner rooms. The side rooms are lighted in about equal number from the north, east, south, or west.

3. The window space should be between 20 per cent and 25 per cent of the floor space.

The following tabular statement shows the number of rooms having various percentages of window space as compared with floor space.

19 have less than 10 per cent	}	Below standard.
54 have between 10 and 15 per cent		
154 have between 15 and 20 per cent		
139 have between 20 and 25 per cent		Standard
72 have 25 per cent or more	}	Above standard.

The following drawing shows the same facts graphically.

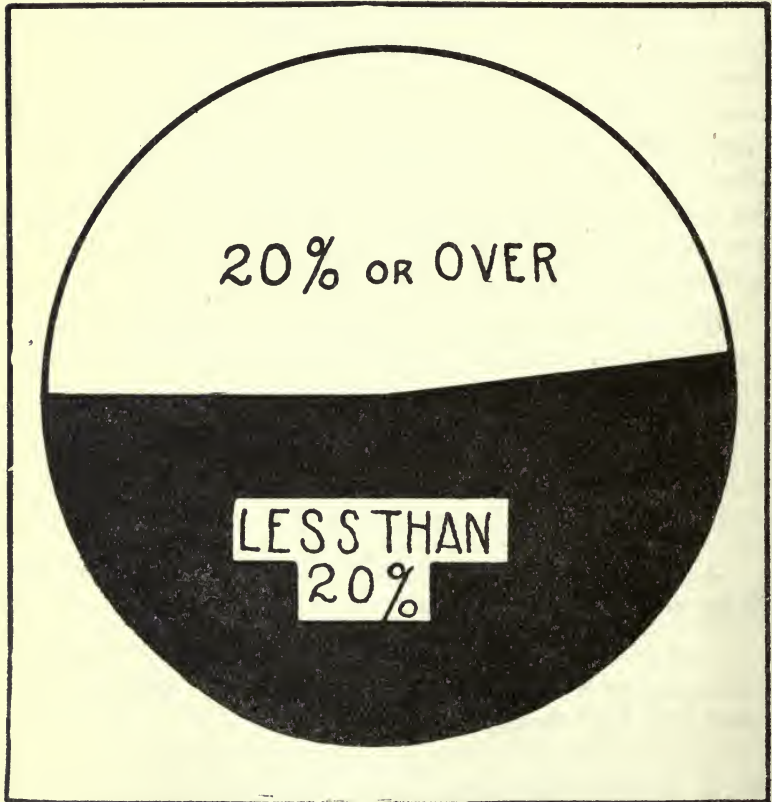


FIG. 39. SHOWING PROPORTION OF CLASSROOMS HAVING SUFFICIENT AND INSUFFICIENT WINDOW AREA IN PROPORTION TO FLOOR SPACE.

While these figures show that a number of rooms are seriously deficient in lighting area, it is seen that nearly half are generously supplied with windows. Taken alone, however, these figures are misleading. A room may have more than the standard amount of window space and still be badly lighted, owing to such factors as the improper location of windows, north orientation, unsuitable colors for walls and ceiling, the improper use of window shades, or the presence of trees, buildings, or other light obstructions near the windows. These are the critical factors in the school lighting of Salt Lake City, and in by far the larger proportion of rooms they more than offset the advantages of liberal window space. No fewer than 146 of the 440 rooms, or 33 per cent, have trees, walls, or other light obstructions within 50 feet of the windows and as high as the tops of the windows. This is also true for 72 of the 154 rooms which have a window area below standard.

4. **The windows should not extend lower than $3\frac{1}{2}$ feet from the floor, and they should reach within a few inches of the ceiling. They should begin within 18 inches of the rear end of the left wall, and approach no closer than 7 or 8 feet to the front of the room.**

The purpose of these rules is to control the direction from which the light shall come. The only light which does any good is that which strikes the pupil's book, and at an angle not too acute. Light which strikes the pupil's eyes directly is not only of no value, but actually prevents clear vision.

In this city the bottom of the windows is usually about the right height from the floor, but there is often too much dead wall space above the top. A far worse fault, however, and a more common one, is the improper distribution of windows along the side of the room. Even in the few rooms which are lighted entirely from the left there is ordinarily too much dead wall space behind the back window, and too little in front of the front window. That is, the window area as a whole is placed too far forward. Architects are prone to do this in order to secure symmetry, but it should in no case be

permitted. Even the last buildings built in Salt Lake City have this fault in practically every room. In many rooms the lighting would be better if the front window were kept permanently shaded.

6. **The windows should be separated by mullions not much more than eight inches wide.** This is to prevent troublesome wedges of shadow caused by the dead space between the windows. The rule is broken in nearly every school room of the city. Often the wall space between the windows is three to five feet wide, and the pupils who sit in the shadows thus produced are greatly handicapped.

7. **The color of the walls should be a light buff or a very light green, and that of the ceiling should be white or an extremely light cream.**

The reason for this rule is obvious. Dark walls and ceilings absorb the light instead of reflecting it upon the desks. A very light buff reflects nearly twice as much light as a medium shade of green.

The wall and ceiling colors prevailing in Salt Lake City are several shades too dark. Many a room which would be otherwise reasonably light and inviting is given a dark, dismal, and cheerless aspect. This effect is often enhanced by blackened streaks of dirt and smoke which have come from the inlet ducts of the ventilating system. Five minutes in some of these worst rooms is positively depressing.

A serious mistake has been made in adopting a uniform color scheme for all the schools. Badly lighted rooms should have walls and ceiling practically white. Many of the basement rooms and others which are objectionable as regards lighting could have their light almost doubled by proper color treatment. It is strongly urged that practically all the rooms in the city, except in the latest schools, be re-tinted at once, and under the direction of someone who understands the needs of a class room.

8. **Window shades, when used at all, should be translucent, and their use should be regulated by definite rules to be followed by all the teachers.**

Shades are necessary for south windows, but should ordinarily not be permitted in rooms depending solely on north light; nor are they seriously needed on east or west windows. If present they are often drawn over windows which ought to be left unobstructed, hence the need for rules to regulate their use.

In this city the shades are uniformly bad, all being opaque, single, and fastened at the top of the window. They can not be drawn, even part way, without cutting off the best light of the room, namely, that which comes from the upper part of

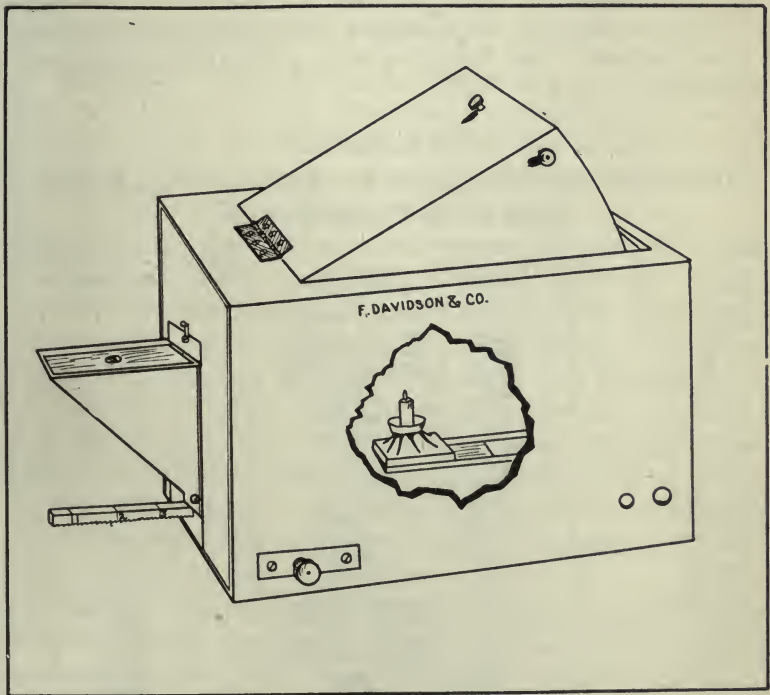


FIG. 40. THE "BISHOP HARMAN" PHOTOMETER, USED IN THE EXAMINATION OF THE LIGHTING OF SCHOOL ROOMS.

the window. What is worse, the teachers gave no evidence of having had any instruction in regard to the proper use of shades. In many rooms which would be too dark under the best conditions, and where no excuse exists for cutting off any of the light at any time, shades were found drawn clear to the bottom of the windows. In one room, about 16x30 feet in size, having only two windows and those directly behind the backs of the pupils, one window was found entirely darkened on a cloudy day.

Light tests. Though the facts set forth above ought to be convincing, we are able to add to those the results of light tests in 32 rooms. A "Bishop Harman" photometer was used. It is a photometer of recent English make, and is well adapted for the purpose. The following table gives the results of the tests made.

TABLE NO. 41.
SHOWING RESULTS OF LIGHT TESTS ON DARKEST
DESK OF 32 CLASSROOMS.

Name of School	No. of Room	Time of day	Weather conditions	Light in foot candles (min. permissible is 9 feet candles)
Lincoln	6	11:15	partly cloudy	5.5
Lincoln	7	11:20	partly cloudy	4.5
Lincoln	1	11:25	partly cloudy	2.
Lincoln	5	11:30	partly cloudy	3.5
Riverside	1	2:30	cloudy	3.
Webster	5	3:00	cloudy	2.5
Webster	C	3:10	cloudy	8.
Grant	9	2:00	cloudy	2.
Grant	5	2:10	cloudy	2.5
Longfellow	2	2:00	cloudy	2.5
Longfellow	5	2:10	cloudy	4.
Longfellow	7	2:15	cloudy	1.5
Longfellow	12	2:20	cloudy	2.
Franklin	3	3:00	cloudy	1.5
Franklin	1	3:10	cloudy	2.
Franklin	2	3:15	cloudy	1.5
Franklin	4	3:20	cloudy	2.
Poplar Grove ..	3	3:30	partly cloudy	6.
Bryant	3	11:30	partly cloudy	4.5
Bryant	5	11:40	partly cloudy	4.
Bryant	7	11:45	partly cloudy	4.5
Lowell	3	11:00	clear	3.5
Monroe	29	3:40	clear	5.
Monroe	As'ly	3:45	clear	1.
Monroe	36	3:50	clear	1.5
Lafayette	10	3:15	clear	2.5
Lafayette	1	3:20	clear	3.
Lafayette	20	3:25	clear	4.
Lafayette	22	3:30	clear	3.5
Jackson ..No? basem	t	10:00	clear	2.
Fremont ..	No?	11:00	clear	3.5

The above tests were nearly all made while classes were in session. Window shades were left as they were found. The rooms selected for the tests are among the darkest in the city, but they do not include anything like all of those which are very badly lighted. About 10 per cent of the schoolrooms in the city use artificial light a part of the time, and seven rooms all the time. The method of artificial lighting is unsatisfactory. The lights are not numerous enough and they are usually not properly distributed. Often they are placed so that the light strikes the pupil directly in the face. The light shades are also unsatisfactory. If the walls and ceilings were of a lighter color it would perhaps be preferable to use the indirect system where artificial lighting is necessary.

Heating: While the heating plants in general use would seem to be well suited to the climate and the type of school buildings, there are individual rooms in many buildings which, according to the statements of principals and teachers, are not properly heated. The following are some of the chief complaints voiced: Not enough heat (Monroe, Franklin, Lincoln, Fremont and West High); heat not well distributed (Hamilton, Irving, Lowell and Sumner): heat especially unsatisfactory in basement (Franklin). Other complaints came from Bonneville, Jackson, Longfellow, Twelfth and East High.

Complaints based on the every-day experience of principals and teachers do not, of course, give us the facts about the system which a heating engineer would want to know, but they do indicate in a general way whether faults exist. Only extended observation and tests by a qualified expert would give the remedy in each case.

The best test of whether a heating plant is working satisfactorily is the simple one of making temperature records in each room of a building at successive hours of the school day. During the months of November and December, 1914, and January, 1915, the school nurses of Salt Lake City recorded thermometer readings in nearly all the rooms below the high Schools. The temperature of each room that had a ther-

mometer was recorded three different times, once in November, once in December, and again in January. In all, 1157 records were made. These were placed at the disposal of the survey staff by the board of health, and their results are summarized in the following table :

TABLE NO. 42.

TEMPERATURES FOUND IN CLASSROOMS.

Readings below 60 degrees.....	14 or 1 per cent
Readings either 60 or 61 degrees.....	25 or 2 per cent
Readings either 62 or 63 degrees.....	56 or 4.8 per cent
Readings either 64 or 65 degrees.....	109 or 9 per cent
Readings either 66 or 67 degrees.....	160 or 13 per cent
(Standard) readings either 68 or 69 degrees	343 or 29 per cent
Readings either 70 or 71 degrees.....	248 or 21 per cent
Readings either 72 or 73 degrees.....	113 or 9 per cent
Readings either 74 or 75 degrees.....	61 or 5 per cent
Readings either 76 or 77 degrees.....	14 or 1 per cent
Readings either 78 or 79 degrees.....	7 or .6 per cent
Readings either 80 or above.....	7 or .6 per cent

If we call 68 to 69 degrees standard, it is seen that only 29 per cent of the records are entirely satisfactory. If we define standard as everything in the range from 66 degrees to 71 degrees, inclusive, we have 63 per cent of the records satisfactory. Even on this liberal basis, considerably more than a third of the rooms were improperly heated at the time the records were taken, and what was true on those days doubtless holds for most of the other days of the school year. Members of the survey staff repeatedly entered school rooms which had the stifling temperature of 75 to 80 degrees. Judging from the records, we may conclude that more than 1,200 children (more exactly 7.2 per cent of the number attending) are daily subjected to suffocating temperatures above 74 degrees. It is little wonder that 20 per cent are subject to

frequent colds, or that more than 8 per cent have chronic nose or throat trouble. (See Figure 43, page 280.)

It is evident from the above facts that either the thermostats need some attention or else the method of their supervision by janitors; probably both. Professional training of janitors and strict supervision of their work by the school principals would doubtless increase materially the effectiveness of the heating systems.

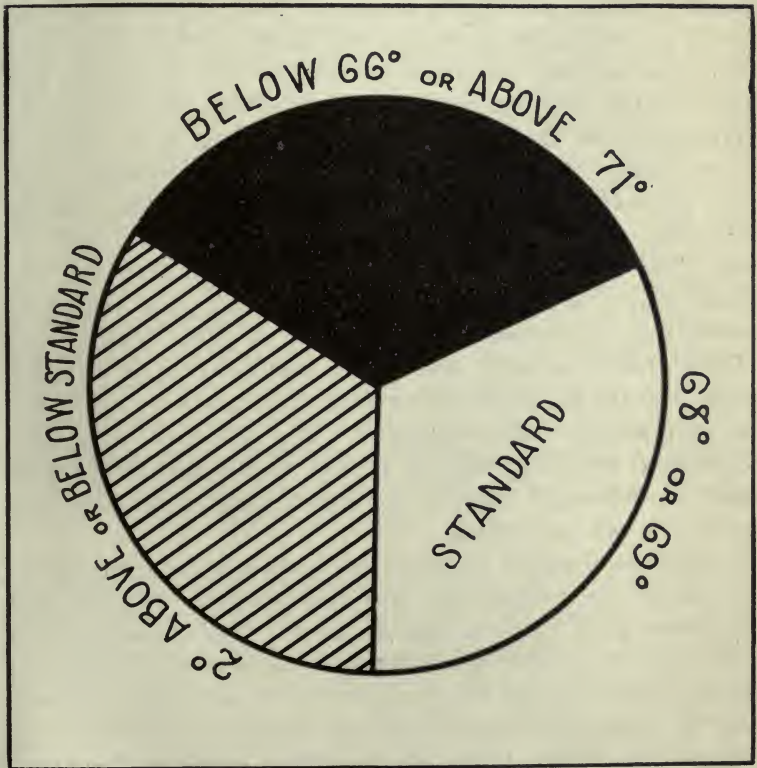


FIG. 41. SHOWING FREQUENCY OF DIFFERENT TEMPERATURES IN CLASSROOMS.

Ventilation. The plenum system, aspiration, and natural ventilation are almost equally employed. The East High School has the exhaust system. Those depending entirely on natural ventilation are Bonneville, Irving, Jordan, Forest and Whittier Annexes, Lake Breeze, Twelfth, and West High (main building).

Although time was not available for making tests, the fact was evident that the ventilation of many of the schools could not be satisfactory. This is of course necessarily true of those buildings having only natural ventilation, and it is probably true of many of the others. There is no satisfactory system of ventilation for school buildings which does not employ some mechanical means of driving the air in as it is needed. The gravity system is satisfactory only when the temperature of the air outside the building is at least as low as thirty degrees. When the weather is warmer than this no gravity system ever devised will afford the desired circulation of air. Each child should be furnished with at least 2,000 cubic feet of air per hour (the standard for high school pupils is 2,500 cubic feet per hour), and this is of course just as necessary in warm as in cold weather. In weather which is much above freezing, however, a building which depends on the gravity system will have very much less than the amount of air renewal. The efficiency of natural ventilation, which is doubtful at best, is also greatly reduced when the difference between the indoor and the outdoor temperature is not very great.

Mechanical means are therefore necessary for accelerating the rate of air circulation. For this purpose either plenum or exhaust fans, or both, may be used. The exhaust system alone is never satisfactory, because of the impossibility of completely controlling the source of supply of fresh air. Leakage into the room occurs at doors and windows, and sometimes through the walls. Often air is sucked into the classrooms from basements, toilets or other unwholesome quarters. Plenum fans are the only means of controlling the source of fresh air.

Other factors in ventilation. However, the installation of a plenum system does not of itself guarantee satisfactory ventilation. Other factors of great importance are size and location of both inlet and outlet ducts, location of main intake, size of fan, number, size, and location of aspiration flues, etc. The most common mistake is that of making the inlet and outlet duct for each room so small that an adequate supply of air cannot be furnished without being driven in at too high a speed, causing a draft. If the ducts are not properly located there is no guarantee against short-circuiting or other failure of air circulation. If the main intake is located near the ground, or near a dusty street or playground, the air driven in is likely to be impure or dusty. The same result takes place if the fan room is not clean, or if it is not separated from the boiler room. If aspiration flues are employed these must be sufficiently numerous, and they must be properly located, high, and well heated to insure adequate circulation of air.

All of the above are common faults in the ventilation of school buildings in Salt Lake City. In some buildings it is doubtful whether the mechanical system in use is very much more effective than natural ventilation would be. Complaints from teachers and principals come from buildings with various types of ventilation. Among these are Franklin, Fremont, Wasatch, Hamilton, Jackson, Washington, Onequa, Oquirrh, Sumner and West High.

Poor ventilation common. That imperfect ventilation is rather widespread is also indicated by 1,090 records taken by the nurses, who, when making the temperature records also reported on the satisfactoriness of ventilation in each room. This was done in November, December and again in January, for almost every schoolroom in the city. These records are based on the general impression made by the air of the rooms upon the nurses, and, while these are doubtless less trustworthy than tests would have furnished, they give at least a rough

idea as to the quality of ventilation. These records show the ventilation as less than satisfactory in 42 per cent of the rooms, and bad in 8.2 per cent.

Ventilation "good"	638, or 58.5 per cent
Ventilation "fair"	362, or 33.2 per cent
Ventilation "poor"	90, or 8.3 per cent

The choice and control of a ventilating system is of course bound up with the question of heating. In respect to neither heating nor ventilation it is not possible here to set forth in detail the methods which should be followed. Nor should this be necessary. A superintendent of buildings, himself an engineer, familiar with the latest developments in this line, and clothed with the proper authority, could be depended upon both to correct the faults of the heating and ventilating systems in use (as far as correction is possible) and to furnish expert advice in the planning of future buildings. It cannot be too strongly emphasized that these are matters for the expert. No board of education is competent to decide questions either of heating or ventilation, and experience also proves that it is far from safe to leave the decision as to the system and details of arrangement entirely to the architect.

It is recommended that in future buildings, and wherever possible in old buildings, air-washers be installed. The discolored walls of very many rooms show that dirty air is being forced into the buildings. Air-washers are not expensive, and they prevent the breathing of much injurious dust. The prevalence of smoke in the atmosphere of Salt Lake City during certain months of the year renders their use more than ordinarily urgent in this city.

It is also recommended that adequate arrangements be made for the humidification of the schoolroom air. At present no special effort is made in this line. Without proper humidifying apparatus the humidity of the air in the schoolroom is certain to be often as low as 25 to 30 per cent, which is as dry as the air of Sahara Desert. Excessive dryness of the

air causes nervousness and restlessness, and gives rise to nose and throat troubles. Even plants have a hard struggle to live in such an atmosphere.

Basement and hall classrooms. In Salt Lake City there are seventy-four basement rooms used as regular classrooms, besides a few others which are used for special class purposes. Halls are also utilized for classes to the equivalent of forty-six classrooms. If the attendance in these basement and hall groups averages 30, which is probably a low estimate, it is seen that there are not far from 2,220 children who have no proper accommodation. This is more than 10 per cent of the entire enrollment.

While it may be possible to defend the use of a few of the best basement rooms, such as those at the Wasatch school, there is no questioning the fact that most of these underground rooms are utterly unfit for use. By far the majority of them are dark, gloomy, damp, and ill-ventilated. According to statements made by teachers and principals a number of them are also improperly heated. Some are so dark that artificial lighting is necessary, even on clear days. The amount of light on the darkest desk of some of these rooms was found by actual measurement to be less than one-fifth the minimum which should ever be permitted.

It is unnecessary to argue the unfitness of such dismal and unhealthful cellar rooms for school purposes. A city which requires children to attend school in such quarters incurs a grave responsibility. The children enrolled in the basement rooms are largely in the first and second grades and the kindergarten, the very children who are most susceptible to injury from unwholesome physical environment. One may well wonder, too, whether such an environment does not have its subtle mental effects, and whether it tends to provoke on the part of children just entering school the right outlook upon, and the desired attitude toward, things educational.

These should be abandoned. Steps should be taken without delay to abandon the use of nearly all of the basement

rooms. Many of them could be made over into baths, nurse's rooms, toilets, etc. Some, however, are hardly fit even for these purposes. In future buildings no basement rooms should be provided which could by any possibility be used for classes, except, under the right conditions, rooms for manual training or domestic science. We would emphasize the phrase "under right conditions." Most of the basement rooms now in use are unfit even for manual or domestic work. Most are so thoroughly bad that it is hard to say which should be abandoned first, but those of the following schools are among the worst: Jackson, Lincoln, Franklin, Sumner, Oquirrh, Lowell and Washington. Other cases, however, are almost as urgent.

As already stated, forty-six class groups recite in hallways. The use of halls for class purposes is hardly less objectionable than that of basements. Halls are less subject to dampness, but their lighting, heating and ventilation are often as bad or worse. The danger from dust is much greater, and the noise is likely to be disturbing. On the whole, however, halls are to be preferred to basements when it is necessary to choose between two such undesirable evils.

Better than either is the portable school house. If provided in sufficient numbers to take the place of basements, though, these would seriously reduce the ground area available for play, but in themselves they are far from bad. When the ceiling is painted white they are well lighted, and their ventilation can be made fairly satisfactory by means of the jacketed stove. Those now in use have ceilings too dark and a poor type of stove. Portables are likely to be uncomfortably warm in warm weather, and the floors are usually cold in winter. With all of their faults, however, they are a great improvement over basement and hall rooms.

School desks. The main requirements of school seating are: (1) that the seat should be the right height to permit the feet to rest easily on the floor; (2) that the desk should be high enough to render stooping unnecessary, and low enough

that the arms will not be unduly elevated; and (3) that the seat project under the edge of the desk at two inches. There are other minor requirements, but these are the most essential.

The first two rules cannot be followed unless each room contains adjustable desks to the extent of about 30 per cent of the entire number, or at least three sizes of ordinary desks. It is never possible to fit all the children of a given room in seats of one size, because in practically every class the largest children are from eight inches to sixteen inches taller than the smallest.

Of 440 rooms from which data were secured in this city, 284, or 86 per cent, have no adjustable desks, and only 10 per cent have 10 or over. Even where adjustable desks have been supplied they are not always adjusted with the proper frequency and care. In 13 out of 45 rooms with adjustable desks the desks had not been adjusted since last December. At least twice a year should be the rule. In one case the principal was not even aware that certain desks were adjustable, and when his attention was called to the fact he was evidently surprised. The adjusting of desks seems to be left largely to the janitors, who, of course, know little or nothing about the requirements of school seating and are prone to neglect the matter. Many of the rooms lacking adjustable desks are equipped with desks of only one size.

Whether the third rule is followed, namely that the seat should project at least two inches under the desk, depends entirely on the authority responsible for putting down the seats. It is of course as easy to set them correctly as incorrectly. Failure to follow the rule on this point inevitably causes round shoulders and cramped lungs. And yet, in Salt Lake City, the rule is uniformly and consistently broken. In more than 200 rooms visited by the writer there was hardly a desk correctly set.

It is necessary to make one other criticism of the desks. Many of these look so old and worn that the attractiveness

of the room is severely marred. The worst of these, unless they can be replaced by desks of a better type, ought to be re-finished.

In various respects most of the desks now in use belong to an obsolete type. In the future purchase of desks it is urged that careful study be made of some of the modern types which are more satisfactory from the hygienic point of view. Though it should go without saying, it needs to be emphasized that cheapness in school desks is not the main desideratum.

Blackboards. The blackboard space in practically all the schools is generous. The composition blackboard is the type in general use. This gives fairly satisfactory results if kept in repair, and if the room is not too damp. Except in the damp basement rooms, most of those seen were in reasonably good condition. The slate blackboard is to be preferred, but in setting it much care is necessary in order to prevent uneven joints. It is also more costly.

Blackboards should reach within 26 inches of the floor in the primary grades, and within 30 inches in the grammar grades. They were found from 4 to 6 inches too high in 52 classrooms, and from 7 to 12 inches too high in 22 classrooms.

Cloak rooms. Unsightly rows of coats and hats disfigure the halls of all the schools. In future buildings cloak rooms should be provided, one for each classroom. The best location for it is directly behind the teacher's desk. The cloak room should have no door entering from the hall, but should be connected with the classroom by two doors, one on either side of the teacher's desk. This arrangement permits suitable control of the room by the teacher, and minimizes the danger of pilfering and other annoyances. The cloak room should of course be well lighted and ventilated. Ventilation can be managed by having a part of the air of the classroom circulate (through perforated doors) into the cloak room on its way to the outlet ducts.

Special rooms. In order to be regarded as strictly modern, a city school building should ordinarily have the follow-

ing specially-planned rooms: An assembly room, a library, a rest room, a kindergarten room, a nurse's room, shower baths with dressing booths, and rooms for manual training, sewing, and cooking. An art room is also desirable. Proper provision should be made for these in the original plans, as the ordinary classroom can seldom be worked over satisfactorily into a special room.

The kindergarten room (or rooms) should of course be on the first floor and should be extremely well lighted. A south exposure, though objectionable for other classrooms, is well adapted for kindergartens. The kindergarten (preferably also the first grade) should have its own toilet.

The rooms to be used for cooking should of course be planned for the special equipment needed and should be bright and attractive. To use for this purpose a room which is dark, dingy, and ill-ventilated is subversive of the very purposes for which domestic science is taught.

The manual training rooms should be located where the noise will not disturb classes, and should always be well lighted. These should have a store room of liberal dimensions.

The library need not be large, but it should be exceptionally well lighted and attractively furnished.

The art room should be given a north exposure, in order to avoid direct sunlight, but it must have a large amount of lighting surface.

The nurse's room should be on the first floor, and need not be large. It should have abundant light, running water, and a built-in cabinet for the storing of first-aid material and other equipment.

The assembly room is the most important part of the building. Its inclusion in all new buildings is one of the most important steps toward the "wider use of the school plant." Nothing else about the building so operates to bring the school and the home together. The total valuation of the school buildings and grounds of Salt Lake City is given as \$3,041,343. This investment is productive only six hours a

day for 200 days of the year; or a total of 1,200 hours per year. Everything that promotes increased use of the school plant ought to be encouraged, and the assembly room certainly belongs in this category. Some of the most important considerations in its planning are size, easy accessibility, and safety from fire.

Special schoolrooms in this city are usually conspicuous for their absence. Only a small minority of the buildings are provided with an assembly room. Rooms used for cooking, sewing, manual training, and library are seldom adapted to the purpose, and are often rooms which are too dark, damp, or inaccessible to be used for regular classes. The buildings constructed in the last two or three years are improvements in this respect, but there is still not a nurse's room in the city, and not a bath in the grades below the high school. Nor do all of the recent buildings contain an assembly room.

Special rooms of the above types are to be regarded as necessities, not as luxuries. They should be included in future school buildings as a mere matter of course. The argument that they cost a good deal of money has no weight. School facilities which poorer cities can and do afford are surely not too costly for Salt Lake City. As already shown this city has wasted enough money in uneconomical building plans to have supplied most of the special rooms needed.

Open-air schools. Salt Lake City is one of the few cities of its size in the country without an open-air school. The impression seems to prevail that they are unnecessary here because of the excellence of the climate. There is absolutely no ground for such a view. Recent and wide-spread investigations justify the conclusion that in the schools of any climate there are numerous children with latent tuberculosis, and many others who are predisposed to it. The disease is rapidly coming to be looked upon as a "children's disease," one which is acquired by a large proportion of children everywhere. There is reason to believe that a majority of the cases which do not become "manifest" until adult life have existed in latent form since childhood.

The proportion of school children with manifest tuberculosis is of course relatively small, usually not more than a half of one per cent of the total enrollment. Even at this rate the share of Salt Lake City would be 100. There is little doubt that careful medical examination of all the school children would disclose enough tuberculous children to fill three or four open-air classes. California, with a climate fully as unfavorable to tuberculosis as that of Salt Lake City, has its open-air schools in every city of any considerable size.

Many children who are not actually tuberculous would benefit greatly from such classes. This includes all who are ill-nourished, subject to colds or bronchitis, or who are otherwise lacking in physical resistance. Facts have already been presented which indicate that probably not far from two thousand children in this city are physically a good deal below normal. There is little doubt that the condition of most of these could be improved by the right kind of school adaptations in their favor. For hundreds of them, at least, the open-air class is the one remedy needed. No building to be erected in the future should be without one or more open-air classrooms.

School baths. The value of school baths deserves especial emphasis. Two shower rooms, one for boys and one for girls, should be found in every new building. They are especially necessary in certain parts of the city, and if possible they should yet be installed in such schools as the Fremont, Jackson, Lincoln and Riverside. Basement rooms which are now unfortunately used as regular classrooms could be fitted up for this purpose, at moderate expense.

School baths promote the health of the children, aid in instilling life-long habits of personal hygiene, and greatly improve the atmosphere of the schoolroom. The members of the survey staff visited many school rooms which were filled with sickening odors from unclean bodies. Even in the poorer countries of Western Europe, where school economy is

more necessary than in this country, baths are included in all new school buildings.

Admirable suggestions for planning school baths are to be found in Dresslar's **American Schoolhouses** published by the U. S. Bureau of Education, and in **School Hygiene** by the same author (Macmillan.) Important considerations are good light, impervious floor, dressing booths, individual showers for the older girls, drainage, heating apparatus for controlling the temperature of the water, etc.

Toilets. Only in the new high school are the toilets fully up to the standard requirements. In others of the recently built schools they are not bad. In most of the older buildings, however, they are far from satisfactory, and the worst are unfit for use. Wooden partitions between urinals, corroding metal urinal troughs with low backs, toilet seats of only one size, inadequate number of seats and urinals, improper flushing, location in dark and ill-ventilated quarters, inaccessibility, inadequate supply of paper,—these are common faults, some of which are found in almost every building, and in certain schools all. The worst toilets should be remodeled at once.

One of the least excusable faults is an inadequate number of seats and urinals. There should be one seat for fifteen boys and one for twenty-five girls; and there should be one urinal stall for twenty boys. One school, the Sumner, has less than a half the standard number of seats for boys, while several others have much less than half the required number.

The following table shows the number of boys per seat, the number of boys per urinal, the number of girls per seat, and the ratio of window area to floor space in both the boys' and the girls' toilets for each school in the city. The second figure in each double column shows the **percentage of sufficiency** of the item in question.

What this table reveals. Some of the most striking facts shown in the above table are as follows:

1. Less than 25 per cent sufficiency of urinals at Emerson and Irving;

2. Less than 45 per cent sufficiency of urinals at Bonneville, Franklin, Hamilton, Jefferson, Sumner, Lincoln, Washington and Webster;

3. Less than 50 per cent sufficiency of seats for boys' at Sumner;

4. Less than 20 per cent sufficiency of seats for girls at Monroe;

5. Less than 50 per cent sufficiency of seats for girls at Sumner and Forest;

6. Equal proportion of seats for the two sexes in six schools;

7. Astonishing variation from school to school in the apportionment of seats and urinals, ranging, for example, from one seat for nine girls at Longfellow to one for eighty girls at Monroe; from one seat for eleven boys at Longfellow to one for 54 boys at Sumner; from one urinal for seventeen boys at Longfellow to one for ninety at Emerson and one for ninety-five at Irving.

8. Similar lack of standards as regards the lighting of toilets, the ratio of window to floor space ranging from 4-5 down to 1-59.

Surely the above facts show chaos compounded. The laws of chance would have given about as correct proportions. The need for some educational oversight of the building department is certainly evident.

At least ten toilets have less than half the standard amount of window area, and the lighting of toilets is often less satisfactory than the ratios given in the table would suggest. In many cases the windows are partly below ground, often the panes are not fully transparent, or the light is obstructed in some other way. Generally the seats are arranged in double rows, in which case the row facing away from the

windows is almost sure to be poorly lighted. Only one row of seats should be permitted. Toilet rooms should always be made large enough to permit the observance of this rule.

The method of dispensing toilet paper is very unsatisfactory. Ordinarily there is only one dispenser for a toilet room, none being placed in the individual stalls. The dispenser used is the familiar lock-box variety, which works so slowly that in the rush periods at recess pupils can not possibly be properly supplied.

In one school boys were seen to go to the stalls without paper rather than stand in line to wait their turn. In another toilet the dispenser was empty and no paper was to be found. The object of the single-dispenser plan was said to be economy! Surely one of the wealthiest cities of its class in the United States ought not find itself driven to such disgusting economy. Economy is a good thing in its place, but children ought to be encouraged or even explicitly instructed to avoid economy of this kind. What possible connections can be established between such a type of building supervision and the hygiene instruction in the schools?

Drinking fountains. It is a pleasure to find inviting, bubbling fountains at all the schools. In sixteen (half) of the schools, however, there are no fountains inside the building. It is recommended that half the fountains, at least, should be placed inside. More attention should also be given to the ratio

TABLE NO. 44.

DRINKING FOUNTAINS PROVIDED.

Less than 25 children per fountain, 2 schools;
 Between 25 and 50 children per fountain, 3 schools;
 Between 50 and 75 children per fountain, 11 schools;
 Between 75 and 100 children per fountain, 9 schools;
 Between 100 and 125 children per fountain, 3 schools;
 Between 125 and 150 children per fountain, 0 schools;
 Over 150 children per fountain, 2 schools.

of fountains to school children. The table just given shows this to be very uneven. Some of the schools having more fountains than necessary, others too few. Probably one fountain for about 75 to 100 children is the correct proportion.

Roller towels. In schools where the common drinking cup has long been banished it is surprising to find the common roller towel everywhere in evidence. No school is without it. Many of those seen were unspeakably dirty, as of course roller towels are expected to be. One of the principals testified that he had recently acquired pink-eye from drying his hands on one and then rubbing his eye with the finger. It has been often enough demonstrated that the roller towel is a frequent means of spreading contagious disease. It should of course be banished forthwith in favor of sanitary paper napkins.

Janitor service. The janitor service, though perhaps on the whole not greatly inferior to that of the average city, is in a number of schools not satisfactory. A majority of the principals questioned testified, however, that the janitors are conscientious in their efforts to do the work as it should be done. The fault, where any exists, appears to be chiefly in the lack of persistent and intelligent supervision, especially the latter.

Feather dusters are used exclusively in three of the buildings (Emerson, Longfellow, and Wasatch), and in part in sixteen others. The feather duster is a criminal offender and should not be tolerated.

Still worse, dry sweeping is regularly practiced in both classrooms and halls of seven buildings, namely, Ensign, Forest, Onequa, Oquirrh, Poplar Grove, Sumner and West High. In certain other buildings sweeping compound is used in the halls, but not the classrooms. It would appear that many of the janitors use the sweeping compound only intermittently, as four out of eleven were found sweeping without it. When questioned, each gave the same reply, namely, that the supply had just been exhausted! In all these cases choking clouds of dust were being raised. Another prevailing practice to be

strongly condemned is that of sweeping the halls while the school is in session. All the class rooms are swept daily except in the West High School.

There are no vacuum cleaners in the schools. This method of removing dirt and dust is wonderfully satisfactory in school buildings when the cleaning plant is properly installed. Careful attention, however, must be paid to size and location of ducts, power of fans, etc. It is strongly urged that vacuum cleaners be given a thorough trial in buildings erected in the future.

The floors of most, but not all, of the buildings have been oiled, though in some cases not for many months or even years. The use of floor oils should be required in all buildings, regardless of protests on the part of a few teachers. The oil should be applied lightly at least twice a year. The floor should first be thoroughly cleaned, and the oil which does not penetrate the wood should be carefully mopped up. If these precautions are taken the oiled floor will not look unsightly and it will not soil the clothing. Oiling the floors is imperative in the interests of health.

Over and over again it has been experimentally demonstrated that it decreases the number of floating dust particles and of bacteria to one-fifth or one-tenth that found in untreated rooms.

This is illustrated in the following tests made by Dr. Lambert in an English school:

TABLE NO. 45.
EFFECT OF TREATING FLOORS WITH OIL.

Plates exposed	Colonies of bacteria	
	Floors treated by oil	Floors not treated
5 minutes in still air	0	7
30 minutes in still air	2	12
5 minutes during sweeping	38	456
5 minutes just after sweeping	11	79
5 minutes beginning 10 minutes after sweeping	6	62
5 minutes beginning 15 minutes after sweeping	1	31

Need for greater cleanliness. Unquestionably much of the nasal catarrh and throat trouble found among the children (See Figure 43) is accounted for by the antiquated methods of school housekeeping in vogue in this city. Every effort should be made to keep the school building as neat as a well-kept home and as clean as a hospital. This should be the aim, even though it is not always possible to attain it fully.

More could be done in this direction if the school grounds were always well drained, properly graded, and in part graveled. More attention should be paid to having children clean their shoes before entering the building, and for this purpose door mats and scrapers should be more liberally provided. On rainy days the members of the survey staff saw many school buildings in which the floors of class rooms were covered with mud.

It was not possible to gather extensive data regarding the competency of janitors in the management of the heating and ventilating apparatus. The temperature records given on p. 236 show that some fault exists here, but exactly how much of this is to be charged against the janitors, and how much to the imperfection of heating plants, we do not know. The matter is recommended for further investigation by the school authorities. The same may be said in regard to the imperfections of ventilation.

Next to the principal, the janitor is the most important officer in the school building. The duties are so varied that it is not easy to find persons who have all the needed qualifications. Janitors should combine the neat housewife's ideals of cleanliness with a fair knowledge of mechanics. The right moral and temperamental qualifications are no less important. It is evident that it is impossible to give too much care to the choice of janitors. After the selection has been made, efficiency should be the only ground for retention.

Efficiency of janitors can be greatly increased by supervision and training. Professional study, including lectures and required reading, should be arranged at least every second year for the entire janitorial force.

Fire protection. Only the newest buildings are fire proof. The stairs are usually wooden, the furnace rooms are not always fire proof, and the fire escapes are in a few cases either lacking or inadequate. One of the outside doors was found locked during school hours at two buildings. Only a few of the schools have panic bolts for the outside doors. The fire drills, five of which were witnessed, were reasonably good, but not always as orderly as could be desired. The time for clearing the building ranged from a minute and twenty seconds to two minutes and five seconds.

Serious fire tragedies have occurred in school buildings no worse than the majority of those in Salt Lake City, and it is recommended that precautions be taken on all the points enumerated above. Panic bolts should be immediately provided for all outside doors, and fire drills should be subjected to more uniform control. Future buildings should be made more nearly fire-proof.

Quality of construction and costs. The limited time for the survey did not permit a careful study of these questions. Costs vary so much in different parts of the country that only a searching investigation would have made possible any criticism on this point. The quality of construction appears to have been, on the whole, very substantial,—unfortunately so, considering the primitive type of architecture in all but the most recent buildings. All but those erected in the last four or five years are so faulty in plan that it is a pity they are not now rickety enough to demand replacement. It is depressing to think that some of these will last a quarter of a century yet and that many thousands of children will have to suffer from their defects. The planning of school building should be looked upon, indeed, as a solemn undertaking. It is a task which calls not only for the highest class of professional skill, but also for a readiness to regard every other interest as secondary to the welfare of children.

Repairs. The annual budget for the maintenance and re-

pairs of the school buildings, which for the past six years has averaged about \$55,000 a year, seems rather large, when we consider the present condition of the buildings. The question raised is whether the money expended for this purpose has always been devoted to the kind of repairs most urgent. Many new floors have recently been laid, at considerable expense, in buildings where alterations of rooms and improved toilet facilities were much more needed. These old floors would have had to be very bad indeed to justify their renewal at the expense of other needed improvements.

Good floors are important, but it may be well to emphasize the fact that in disposing of a repair budget there seems to be a natural tendency to give preference to the kind of repair work which is simplest, which requires the least planning and the least supervision, and which carries with it the least educational significance. Floor renewal falls in this class. Fundamental alterations, the reconstruction of toilets, changes in lighting, etc., all require better school-engineering knowledge, more forethought in the planning, and more expert supervision.

As a matter of fact it requires more thought to distribute to the best advantage \$50,000 for repairs than to plan a new school building costing \$100,000. It is evident, however, that the matter has not been viewed in this light in Salt Lake City in the past.

Summary and recommendations. 1. About half of the school sites are of inadequate size. Approximately 10,500 children attend schools where the available playground space amounts to less than 100 sq. ft. per child. Several of these sites could yet be enlarged, and it is recommended that steps be taken to this end. Future needs in this line should be anticipated.

2. The architectural plans in all but the most recent buildings, and to a certain extent these also, have involved very great waste of building space, amounting in many of the buildings to 40 per cent in terms of cubical contents.

3. There are no baths, no cloak rooms, no nurses' rooms, and few assembly rooms in the city. The quarters for domestic science and manual training are in many cases unsatisfactory. It is suggested that most of these conveniences could be provided in future buildings by proper economy of space.

4. It is recommended that most of the 74 basement rooms be abandoned at the earliest possible moment, and that basement rooms be avoided in future buildings. The same recommendation holds for the 46 hall classrooms.

5. There are relatively few classrooms in the city which conform to all the standards of lighting. In more than half the lighting is very objectionable. It is recommended that the walls and ceilings be re-tinted; that light obstructions be removed where possible; that translucent, double-roller window shades be substituted for those now in use; and that in future buildings the following standards be observed:

- (a). Avoidance of north or south lighting;
- (b). All rooms to be lighted from left only;
- (c). Ratio of window area to floor area, 20-25 per cent;
- (d). Six to eight feet of dead space in front of first window.

6. Temperature records collected at three different times in the school year show that out of 1157 records, 71 per cent are unsatisfactory, and that 16 per cent are as much as 5 degrees too high or too low. Other facts indicate that the ventilating systems in use are also often at fault. It is recommended that the heating and ventilating apparatus be thoroughly gone over with a view to the correction of as many defects as possible.

7. Adjustable desks are present in sufficient number in only 10 per cent of the classrooms. In the future only adjustable desks should be purchased. Practically all desks are incorrectly set. The arrangement should be changed from "zero distance" to "minus distance" throughout the city.

8. The blackboards are generally in good repair, but a large number are placed too high from the floor.

9. The janitor work should be improved and more carefully supervised. Dry-sweeping and dry-dusting should be eliminated. The school principals should be given larger control over the selection and work of the janitors.

10. Several of the toilets need improvements, and a few should be entirely replaced. The fixtures are often of an unsatisfactory type, seats and urinals are often insufficient in number, and the method of dispensing toilet paper is very objectionable. The lighting should be improved where possible.

11. The roller towel and common soap should go.

12. Drinking fountains should be more carefully apportioned according to the number of children, and half of them should be placed inside the buildings.

13. Showers for both boys and girls should find a place in all new buildings.

14. Open-air classes should be provided for tuberculous and pre-tuberculous children.

15. The worst of the present buildings should be abandoned as early as possible.

16. A new building, somewhat centrally located, should be provided for the sub-normal children, to take the place of the present Twelfth School.

17. Special forethought should be given to the repair budget, in order to insure that it be used to better advantage.

18. The superintendent of buildings and the janitor force should be made responsible to the superintendent of schools.

19. It is especially urged that in all matters pertaining to heating, lighting, ventilation, and school planning generally, the services of a qualified full-time expert be secured and retained.

CHAPTER XI. HEALTH SUPERVISION.

(Terman.)

Standards for comparison. Before offering a criticism of the health supervision in the Salt Lake City schools it will be well to set forth the standards which have been generally agreed upon by the best authorities as constituting the essentials for this phase of school work. While a few good school systems are at present lacking in some of the following items, the effort is being made in all progressive cities to incorporate as many of them as possible, and many school systems have the equivalent of them all. The standards set forth are meant to indicate the requirements in cities of from 75,000 to 150,000 population.

Officers and assistants. One full-time medical director; one half-time assistant physician for each 10,000 children in the grades; one full-time female physician for each 800 to 1200 high school girls; one full-time male physician for each 800 to 1200 high school boys; a nurse for every 2000 pupils in the grades; one half-time dentist, and one half-time specialist in diseases of the eye, ear, nose and throat, for each 10,000 pupils.

Scope and nature of work. The work should include the following:

(1) Frequent inspection of all the children by school nurses for the control of transmissible diseases, with proper regulations for exclusions;

(2) A thorough medical examination of each child at least every second school year, for the purpose of detecting chronic defects as well as acute disorders;

(3) Annual tests of vision and hearing, either by nurses or teachers;

(4) Persistent follow-up work by nurses, in order that parents may be convinced of the necessity of having their children's defects attended to;

(5) Free medical and dental treatment in a central clinic, for the children of poor or indigent, by a regularly employed school physician and dentist, this to be supplemented by co-operation with local dental and medical societies and with hospitals and dispensaries;

(6) Sanitary inspection of school buildings by nurses and physicians;

(7) Medical examination of candidates for teaching positions;

(8) Open-air schools for tuberculous or anaemic children;

(9) School lunches for the ill-nourished, furnished gratis to those who can not afford to pay;

(10) The education of the home in matters of child hygiene by means of parent teacher associations, distribution of health leaflets, etc; and

(11) Publicity work for enlisting the co-operation of the general public.

In order to give proper scope to the work, and in order to insure effective co-operation among its various branches, it is usually advisable to have it under the control of the board of education rather than the board of health.

Costs. Director, \$3000; full-time assistant physicians or dentists, \$1800 to \$2200; half-time physicians or dentists, \$1000 to \$1200; head nurse, \$100 per month; regular nurses, \$75 to \$90 per month. Total cost, between 75 cents and \$1.00 for each school child, or \$15,000 to \$20,000 for a city the size of Salt Lake City. To this should be added the outlay for equipping a central clinic, and for the nurse's room which should be provided in each new school building.

In judging the school health work of this city it is necessary to keep the above standards rather fully in mind. No other function which the school has assumed in recent years exceeds health supervision in importance; and yet, partly be-

cause of its newness, it is often carried on with little vision of the larger purposes it ought to serve. Even cities which are otherwise commendably progressive in school matters sometimes rest content with half-way measures in health supervision, not realizing their inadequacy. This is especially true in localities which are geographically isolated, and where there is only limited opportunity to observe the work of other cities and to learn from their experience.

Stages in the development of health service. The growth of school health work in the cities of the United States, and other countries as well, is marked by certain well-defined stages. It always begins in an effort of the board of health to prevent the spread of transmissible diseases in the schools, to eradicate parasites, and to improve the sanitary conditions of the buildings. The work indicated represents the first stage of health supervision, and is usually called "medical inspection." Because of the obvious duty of the public to counteract the increased danger of contagion, incident to compulsory attendance of all classes of children in the same school, this was the logical and natural first point of attack.

After this phase of the work has been gotten well in hand, and when the medical inspectors have had more opportunity to observe and study the physical needs of the children, they are brought to a keener realization of the large number of children who have one or more serious physical defects other than a contagious disease. Among the defects, often neglected or unnoticed even by intelligent parents and teachers, are adenoids, enlarged tonsils, visual defects, partial deafness, defective teeth, malnutrition, physical deformities, heart trouble, diseased glands, incipient tuberculosis, etc. While only about 2 or 3 per cent. of the school children of a city need to be excluded in any one year because of a contagious disease, about 60 to 75 per cent. are always found to have one or more serious physical defects of the chronic type.

The second stage in development. When such conditions are understood and appreciated the nature and purpose of

medical inspection must be differently conceived. In addition to the frequent and hasty inspections for contagion, thorough physical examinations are then instituted, including examinations of heart, lungs, nutrition, teeth, eyes, ears, and throat. Assistant physicians and school nurses, in rather large number, become necessary in order to meet the extension and increased thoroughness of the work. Since many parents fail to realize the seriousness of the defects discovered, and disregard the notices sent out by the medical director, it becomes necessary to organize a vigorous follow-up service. In this the well trained and tactful nurse has proved herself indispensable. Because some parents are too poor to pay for the medical or dental treatment recommended, free clinics must be organized and the co-operation of local medical and dental associations, charity organizations, hospitals, and dispensaries must be enlisted. This may be called the second stage in the development of school health work.

The third stage. This is represented by a shift of the emphasis to preventive work. The attempt to bring about the cure of defects after they have become well established is praiseworthy, but the task is difficult, and the results are often partial and unsatisfactory. It is far more rational to exercise such constant and close supervision over the health and physical development of the school children that defects will be prevented, or else remedied before they have become a menace to healthy growth. The acceptance of this point of view necessitates:

- (1) Increased thoroughness of the examinations in the lower grades;
- (2) Extension of free medical and dental treatment;
- (3) The establishment of open-air schools for anaemic and pre-tuberculous children;
- (4) School feeding;
- (5) School baths;
- (6) Special schools for the cure of speech defects;
- (7) Medical supervision of physical training and athletics;

- (8) Modifications in the program and discipline of the school in order to guard against fatigue and to prevent injury to neuropathic children;
- (9) Special classes for the mentally subnormal;
- (10) Increased attention to standards of heating, lighting, and ventilation;
- (11) Improvement of janitorial service;
- (12) More practical and effective hygiene teaching;
- (13) Enlarged playground facilities and play supervision;
- (14) Systematic enlightenment of the teachers in matters of health;
- (15) Organized publicity and extension work, designed to improve the hygienic standards of the home.

School health work of this inclusive and preventive nature goes far beyond what has usually been called "medical inspection" and may be fitly termed **health and development supervision**. Its aim is to organize all the forces and departments of the school, not only for the prevention of disease, but also for the more positive cultivation of physical efficiency.

Health supervision becomes an educational service. It is at once evident that health work of this broad scope, interwoven as it is with the everyday educational activities of the school, can not be carried on as an incident in the public health work, or as a side issue from the office of the board of health. It must have a full-time and responsible head who is not only well trained in preventive medicine generally and child hygiene in particular, but who has also the educational viewpoint and the ability and authority to aid in shaping the activities of the school so as better to accord with the child's physical needs. Accordingly it is found necessary in nearly all cases, before health supervision can enter fully into the third stage above described, for the board of education to assume responsibility for the work and to finance and control it. In the first stage the work can be perfectly handled by the board of health, and, though somewhat less satisfactorily, in the second stage also.

Very much depends, however, on the personal equation of the man behind the work. Better results will of course be secured by a first-class director employed by the board of health than by a second or third rate director working under the authority of the board of education.

Nature of the school health work in Salt Lake City. In the light of the above discussion we are now in position to judge the school health work in Salt Lake City with reference to widely accepted and impersonal standards. The leading features of the system are as follows:

1. The work is carried on under the authority of the city board of health, and under the general direction of the health commissioner. It is more immediately under the direction of one of the board of health's assistant physicians, who devotes to it a large share of his time.

2. There are six nurses, including a head nurse, all of whom give most of their time to school work as long as the schools are in session.

3. The efforts of the above corps of officers are at present devoted mainly to the prevention and control of contagious diseases. Recently, also, a good deal has been done to bring about the treatment of adenoids, diseased tonsils, and the more serious cases of eye defects.

4. Each school is visited from two to four times a week by a nurse, who spends on an average from one to two minutes in each class room, walking down each aisle and inspecting the faces and arms of the children for signs of contagious disease. In some of the schools the hair is also inspected for pediculosis.

More careful examinations are made of children who show symptoms of contagious disease, and exclusions are ordered in the cases which seem to require it. At the same time, permits are issued for the re-admission of children who have been previously excluded and are in condition to return to school. Such children are allowed to report to the nurse at the school which they regularly attend, instead of being compelled to

journey down town to the office of the health commissioner for this purpose. Before leaving the building the nurse makes note of any unsanitary conditions which seem to demand attention. Most of her remaining time is taken up with home visitation, and in making arrangements for the free medical treatment of the children of the poor.

5. When a child has been excluded by the nurse, as described in the last paragraph, a visit is made to the child's home by one of the assistant physicians for the purpose of making a diagnosis of the case. Most of these visits are made by one physician.

6. There is no medical examination, periodically or otherwise, of the entire school population, and there are few individual instances of medical examination except in cases of suspected contagious disease.

7. Neither a medical nor a dental clinic has yet been established.

8. High school pupils do not have the advantage of medical examinations or advice, and there is no medical supervision of athletics. However, a commendable beginning has been made in this line by the supervisor of physical education, who examines high school boys for defects of vision, hearing, heart, and posture.

9. There are no bathing facilities in the grades below the high school.

10. Little has been done toward providing school meals for ill-nourished children.

11. In contrast with nearly all other cities of its size in the United States, Salt Lake City has not yet established an open-air school.

12. The cost of the above work can not be ascertained exactly, because all who are engaged in it give a portion of their time to other duties. The six nurses are paid \$5080 per year and the assistant physician who has direct charge of the work is paid \$1500 per year. The cost of the school work may be estimated as between \$5000 and \$6000 per year, which is a

little over 25 cents per pupil enrolled, or about one-third to one-fourth the cost of an adequate system of health supervision.

13. In addition to the work carried on by the board of health, the board of education also employs an emergency physician to answer calls from the schools. Although the title of this physician is "medical inspector of schools," the office is at present a rather nominal one, as the duties are light and the pay proportional to the number of calls made. Another function of this branch of the school medical service is to provide for the medical examinations of candidates for teaching positions, and to require, when it is deemed advisable, medical examinations of teachers in service. For this purpose a "board of medical examiners for teachers" has been selected, consisting of thirteen physicians with the physician by the board of education as chairman.

Stage in development represented. Comparing now the scope of service attempted with the recognized standards already set forth, it is immediately obvious that school health work in Salt Lake City has not progressed far beyond what we have described as the "first stage" of development. Transmissible diseases are admirably controlled, sanitary inspection of the buildings is carried on, a few examinations for chronic defects are made, the nurses are doing as much follow-up work as time will permit, but the 60 or 75 per cent. of children who have chronic defects receive little attention as compared with the relatively small proportion who acquire a contagious disease. The larger and more important fields of work which fall within the "second stage" and "third stage" already described have been little developed. The importance of this wider field will be set forth presently.

It is a pleasure to add, however, that whatever work is attempted is apparently well done. The records show unmistakably that contagious diseases have been significantly reduced in the last two or three years. Parasites have been largely eradicated, and all the teachers questioned bore witness to the fact that the work of the nurses had brought ex-

cellent results in the improvement of health conditions and in the promotion of cleanliness. That the follow-up work has been fruitful in spite of the large number of pupils assigned to each nurse (3000 to 3500) is indicated by the fact that 10 per cent. of the pupils enrolled have had adenoids or tonsils removed, and that 3.4 per cent. have had such an operation within the last year.

Results from the present service. Important evidence as to the efficiency of the nurses in controlling contagious diseases was secured in the following manner. It will be remembered that in making the routine inspections at a school the nurse excludes pupils who show symptoms of contagious disease, after which the assistant physician visits the child's home and makes a diagnosis. In each such case the office record shows what disease the nurse "suspected" and what the physician actually found.

All these individual records for the school year 1914-15 were turned over to a member of the survey staff and were summarized. The results show that 60 per cent. of the suspicions were fully confirmed by the diagnosis of the physician, that in 23 per cent. of the cases in which the suspicion was not confirmed, there existed a condition of disease or defect which called for medical attention, and that in only 17 per cent. of the cases was there no need of a physician. On an average, therefore, five out of six cases reported by the nurses are found to need immediate medical care. This is certainly a splendid record. The contagious diseases discovered in the schools during the last year include, among others, the following:

- Chicken pox, 41 cases.
- Impetigo, 11 cases.
- Mumps, 57 cases.
- Pink-eye, 43 cases.
- Scabies (itch), 22 cases.
- Whooping cough, 38 cases.
- Small pox, 3 cases.

Scarlet fever, 2 cases.

Diphtheria, 2 cases.

Measles, 2 cases.

Ringworm, 7 cases.

In all probability each case discovered in the first stages in the schools means the prevention of several additional cases.

Effectiveness of the school nurse. These findings regarding the ability of school nurses to detect contagious diseases in the early stages are fully in accord with the experience of other cities. No better evidence could be desired that this phase of the work can be adequately taken care of by school nurses. To employ expensive physicians for the routine inspections would be a waste of money. Even the best medical authorities (such as Dr. R. C. Cabot of Harvard, for example) admit that the well trained school nurse acquires a degree of skill in recognizing the early symptoms of contagious disease which is not excelled by the average practicing physician. One explanation is the large amount of experience secured by the nurse in a relatively short period of time. She is likely, indeed, to meet more cases of whooping cough or measles in the early stages in a single month than the practicing physician would ordinarily meet in the course of ten years.

Another function well performed by the school nurses of Salt Lake City is that of vaccinating children against small pox. Utah has no compulsory vaccination law and a majority of the school children have not been vaccinated, although no data were available to show the exact number of unvaccinated. Prompt action is therefore necessary when a case has been discovered in the schools. To meet the situation the nurses are allowed to perform, free of charge, vaccinations of school children who have been exposed to the disease. The practice is somewhat exceptional in the cities of the United States, largely because of the conservatism of many physicians who oppose it. There is absolutely no ground, however, for such opposition. Vaccinations are just as effective when performed gratis by the nurses as when performed by the physician at

the rate of \$2.00 per child. That they are also fully as safe is demonstrated by the fact that in the two years 1913 and 1914, 1331 vaccinations were performed by the school nurses of Salt Lake City without serious complications in a single case. The practice should by all means be continued.

Expansions planned by the health commissioner. The fact that the health work has thus far progressed little beyond the first stage is not offered as a criticism of those in charge of it. Because of possible misunderstanding and opposition, both on the part of the conservative element of the medical profession and of the public, it is often not the best policy to try to inaugurate at one stroke an ideal system of school health supervision. In a gradual expansion the wisdom of each step proves itself, and smoothes the way for still further progress.

This has marked the development of the department in Salt Lake City. First one nurse was appointed, then a second, and two years ago the number was increased to six. An effort will be made to add two more next year, and ultimately others until there shall be one nurse for about 2000 children. Arrangements have been made for opening a dental clinic at the central office in the immediate future. Temporarily the dental work will be done without expense to the city by members of the local dental association. This will finally result, without doubt, in the employment of a regular school dentist. A similar arrangement is contemplated which will make possible the opening of a medical clinic.

It is evident, therefore, that where the system is new, as is the case here, it should be judged less by what it has already accomplished than by the limits which are set for future accomplishments. Judged by this standard the system of Salt Lake City merits a great deal of praise. The authorities in charge are fully cognizant of the work to be done, and appear to have the determination and the tact to bring about the desired expansions. The point of view is strictly in harmony with modern tendencies in child hygiene.

Health conditions of Salt Lake City school children. In

order to indicate some of the unsolved or only partly solved health problems among the school children, the following two questionnaires were sent to each teacher in the city. It will be noted that the data called for in the first questionnaire were secured by the teacher asking the questions of the children, and that the second questionnaire was filled out by the teachers on the basis of their own observation.

While, of course, absolute accuracy can not be claimed for data gathered in this way, it is probable that in most cases they represent the facts fairly closely. Dr. E. B. Hoag, who has used similar question lists with more than 100,000 school children in California and Minnesota, has always found that the results thus obtained do not differ materially from those secured by his actual medical examinations. Indeed, when the data from these question lists are compared with the statistics resulting from the medical examinations which have been given to millions of school children in hundreds of cities of the United States, Germany, France, England, Japan, Australia, and other countries, the amount of agreement is found to be remarkable.

TABLE NO. 46.
HEALTH QUESTIONNAIRE I.
(One to each teacher.)

Name of school Grade
Room Name of teacher
Total number pupils

(DIRECTIONS) Ask the children the following questions and record the results. It is important to ask the questions with the proper degree of seriousness, and to urge the pupils to answer as correctly as possible.

1. How many have headache often (two or three times a month)?
2. How many have earache often (two or three times a month)?
3. How many sometimes have running of the ears?
4. How many have had hearing tested sometime?
5. How many have had hearing tested in this school year?
.....
6. How many have sore throat or colds often (two or three times a month)?
7. How many have had adenoids or tonsils removed?
8. How many have had adenoids or tonsils taken out in the last year?
9. How many often have pain or watering of eyes?
10. How many can not easily read the writing on the blackboard?
11. How many find that the print often seems to blur, or run together, or look double?
12. How many have had the eyes tested sometime?
13. How many have had the eyes tested in the last year?
.....
14. How many have gone to a dentist sometime?
15. How many have gone to a dentist in the last year?
.....
16. How many have a tooth brush?
17. How many have used a tooth brush in the last twenty-four hours?
18. How many have toothache often (two or three times a month)?
19. How many eat breakfast every day?
20. How many eat lunch every day?

TABLE NO. 47.
HEALTH QUESTIONNAIRE II.
(One to each teacher.)

Name of school Grade Room
Name of teacher Number of pupils

(To be filled out without asking children. Accuracy important).

1. Number of pupils who have frequent or chronic difficulty in breathing through the nose
2. Number who have frequent or chronic nasal discharge
3. Number who have nasal or thick voice
4. Number who show symptoms of imperfect hearing
5. Number who stutter or stammer
6. Number who show symptoms of eye defects (redness or watering of the eyes, squinting, frowning, cross-eye, holding book too near, miscalling well known words, etc.)
7. Number who wear glasses regularly
8. Number who have some marked peculiarity, such as irritability, muscular twitchings, nervousness, excessive timidity, tendency to cry without cause, tendency to worry, moroseness, moral abnormality, etc.
9. Number who show marked lack of mental alertness
10. Number who are noticeably lacking in play activity
11. Number who are delicate or frequently ill
12. Number whose posture is habitually faulty

Summarizing the data on health conditions among the children, obtained from the questionnaires sent out, we get the following significant information:

Headaches. More than 26 per cent. of the children (4409) have headaches often. This is about the usual percentage found. Dr Hoag's figures for several other cities range from 20 to 25 per cent. Headache is an indication that something is wrong, and when the trouble is chronic we are always justified in suspecting eye-strain, nervousness, constipation, or some kind of digestive disturbance. It is often associated with poor nutrition and general weakness.

Ears and Hearing. 7.5 per cent. of the children, (1243) have earache often, 5.5 per cent. (942) have had at sometime running of the ears, and 5.1 per cent. (883) have marked symptoms of imperfect hearing. Dr. Hoag's figures from other cities give 10 per cent. for earache, 3 per cent. for running of the ears, and about 4 per cent. for imperfect hearing. Earache often means an infection of the middle ear, and the discharge which sometimes follows the earache means that the pus has broken through the drum. The result is likely to be impaired hearing for life. In any school system, anywhere, tests of hearing will show that from 3 per cent. to 5 per cent. of the children have seriously defective hearing in one of both ears, and that at least 1 per cent. have not over one-fourth normal hearing.

In Salt Lake City only 13.6 per cent. of the children have ever had the hearing tested, and only 2.6 per cent. within the last year. Each child ought to have a hearing test every year. They can be given by the teachers, under proper supervision, and the time required for such tests is negligible. Annual tests of hearing are required by law in several states.

Usually a fourth of one per cent are found to be so nearly deaf as to warrant their removal to special classes. At this rate the number in Salt Lake City who need such attention is not far from 50, or enough for two or three special classes.

Eyes and vision. 22 per cent of the children testify that the print sometimes blurs, 23 per cent that the eyes sometimes pain, and 11.1 per cent are said by the teachers to show symptoms of subnormal vision. 33 per cent have sometime had the eyes tested, 7.7 per cent within the last year. These results agree closely with the figures in other cities. It is safe to say that in any city at least 15 per cent of the children have imperfect vision and that at least 10 per cent ought to wear glasses. In this city only 2.7 per cent of the children enrolled have glasses, which means that three-fourths of the cases of defective vision have been neglected (probably 1460).

In order to check up the data secured from the teachers, the McCallie vision test was given by Mr. Williams, of the survey staff, to 510 children. As shown in the following chart, 15 per cent of these children had defective vision, while only 3.5 per cent of those tested were wearing glasses.

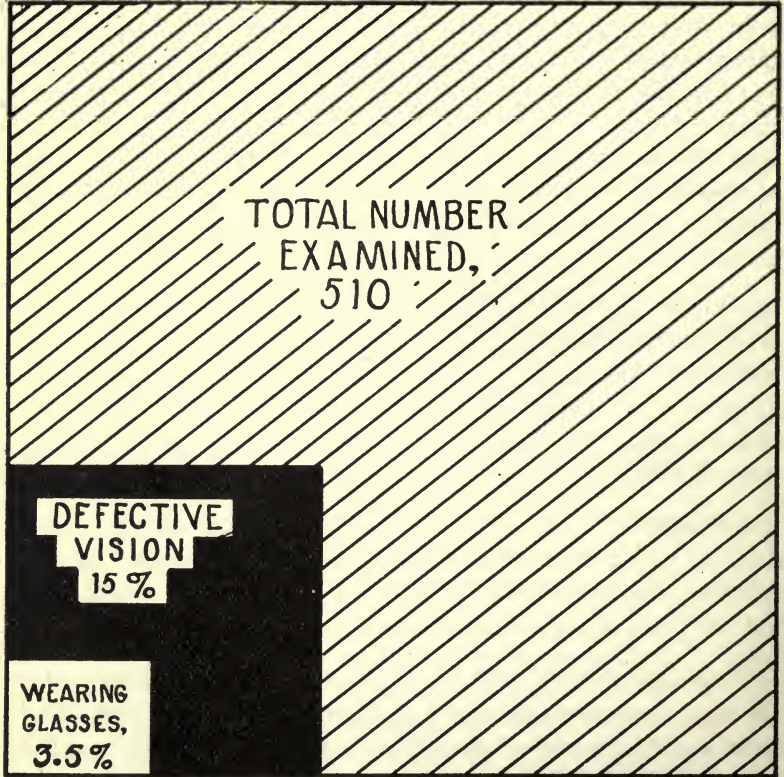


FIG. 42. SHOWING THE RESULTS OF THE EXAMINATION OF CHILDREN'S EYES IN SALT LAKE CITY.

(McCallie vision tests).

Tests of this kind should be given to every child each school year. Like hearing tests, these are required by law in a number of states. They can be given readily by the teachers

after a little instruction. The teachers can not determine the cause of the defective vision, but they can usually determine whether a defect exists. The oculist will do the rest.

Nose and throat troubles. 19.8 per cent have sore throat often, 8.6 per cent have obstructed breathing, 4 per cent have chronic nasal discharge, and 5.7 per cent have a marked nasal voice (indicative of obstructed breathing). It is certain, therefore, that not less than 10 per cent of the children (2000) have neglected defects of nose or throat. The number would be far greater but for the fact that another 10 per cent have had adenoids or tonsils removed. As with other defects, the per cent having nose or throat trouble agrees closely with similar data from other cities.

The injuries produced by such defects are so well recognized that extended discussion here is not necessary. It is sufficient to point out that obstructed breathing nearly always reduces the lung capacity, and retards mental and physical growth. Many a "backward" child can be made over by the removal of breathing obstructions. Neglected adenoids lay the foundation for a number of constitutional weaknesses which may not become apparent until adult life. The trouble often spreads to the ear. Most cases of partial deafness can be traced to neglected throat troubles.

Teeth. Fortunately for our purposes the teeth of 4363 of the school children of the city had recently been examined by dentists from the local dental association. These included all in attendance at the Riverside, Jackson, Whittier, Lowell, Lafayette, Popuar Grove and Wasatch schools. The results were summarized by us for the schools separately, and are shown in the table given on the following page.

What this examination revealed. Some of the most striking facts shown in the above table are as follows:

That with 19 per cent the general condition of the mouth is distinctly "bad", and with 34.1 per cent only "fair."

That the condition of the gums is "bad" with 9.7 per cent, and only "fair" with 17.4 per cent.

TABLE NO. 48.
RESULTS FOR MOUTH EXAMINATION OF 4363
SCHOOL CHILDREN.

SCHOOLS	No. pupils	Condition of Mouth				Condition of Gums			Use Brush ..	Teeth Filled ..	Mal-occlusion	Need cleanings	Teeth with Caries			Average No. of carious teeth per child	Extractions needed	No. of lost crowns
		Excellent ..	Good	Fair	Bad	Good	Fair	Bad					Permanent ..	Temporary ..	Total			
Riverside	753	37	293	123	300	50	238		227	71	242	79	1563	1707	3270	4.34	688	188
Jackson	681	54	320	232	75	0	96		324	122	180	30	1026	1604	2630	3.86	187	427
Whittier	443	36	216	101	88	320	?	63	288	103	128	15	648	924	1572	3.54	115	88
Lowell	543	42	222	188	91	490	0	53	317	182	119	83	1097	794	1891	3.4	190	60
Lafayette	941	30	363	445	103	503	368	70	734	357	371	684	1776	2024	3800	4.40	524	176
Poplar Grove	377	6	98	187	85	122	199	65	101	55	187	96	830	614	1444	3.8	204	125
Wasatch	625	15	306	215	89	388	185	52	475	302	176	99	1001	1004	2005	3.2	78	109
Total	4363	220	1881	1491	831	2913	752	427	2466	1192	1403	1086	7941	8671	16612	3.7	1986	1173
Total per cent		5.	43.1	34.1	19.	66.7	17.4	9.7	56.5	32.1	24.8							

That 32.1 per cent have mal-occlusion.

That the teeth of 24.8 per cent are badly in need of cleaning.

That the 4363 children have a total of 16,612 carious (decaying) teeth, or an average number of 3.7 carious teeth per child.

That 1986 teeth were found needing extraction.

That 43.5 per cent of the children do not use a tooth brush.

The results of the health questionnaire submitted to the teachers by the survey commission brought out the following additional facts:

That 25.1 per cent of the children often have toothache.

That 36.8 per cent have never been to a dentist.

That 64 per cent have not been to a dentist within the last year.

That nearly 19 per cent do not own a tooth brush.

That 50 per cent do not use a tooth brush regularly.

The above facts are in harmony with countless other investigations. It is always found that 75 to 90 per cent of the school children have at least one decaying tooth, and that half the children have ordinarily from three to five. Comparison of the different schools will show that while some schools are better than others, the conditions on the whole are very general.

It is evident, therefore, that a campaign is in order for the improvement of the children's teeth. Nowhere else will the proverbial "ounce of prevention" go farther. Dental caries, of all the common defects, is the most widespread. It is often called "the people's disease." Moreover, it is largely a disease of childhood and youth. If teeth are kept in repair till adult life they do not readily decay. If neglected till the age of 20, they are often beyond salvage. A dollar spent at the right time will save many dollars of dental bills later. The best time to treat toothache is before it occurs. When a tooth has come to the aching point the best time for saving it has gone by.

Since parents often do not appreciate the truth of these facts, and do not realize the great value of sound teeth for health, it is necessary for the school to make frequent dental examinations of all the children, and to urge parents to have defective teeth treated. Where parents can not afford to pay dental bills the work should be done gratis by school dentists. The school dentist is indeed as indispensable as the school doctor. If not all the dental work can be done at once it is well to concentrate on the younger children first, as this is the place where a given amount of preventive work goes the farthest.

General weakness. The study shows that 5.3 per cent of the children are classified by the teachers as "frequently ill," 3.4 per cent as "lacking in physical energy," and 8.5 per cent as "not mentally alert." We are justified in concluding that probably 10 per cent in all, or over 2000 children, are physically much below par. These conditions are not peculiar to Salt Lake City, but have been found everywhere, including such cities as Pasadena, Berkeley, Oakland, Los Angeles, and hundreds of eastern cities. Children of this class, more than any other, need constant health supervision. They are the ones most injured by poor ventilation, bad lighting, lack of opportunity for play, etc. To look after their welfare is far more important than the control of contagious diseases, important as that is.

Mentally or morally exceptional children. 10 per cent of the children are placed by the teachers in this group, which includes children who are exceptionally nervous, irritable, morose, lacking in selfcontrol, prone to morbid worry, or morally abnormal. It is an important function of the department of health supervision to give the teachers instruction and advice in the handling of such children. The child who is misunderstood at home and in the school is in danger of developing mental or moral traits which will make his life miserable or futile.

Speech defects. One and eight-tenths per cent of the chil-

dren are classified as stutterers, which is almost exactly the number found in several extensive investigations elsewhere.

The stuttering child is greatly handicapped in life if he does not recover. Spontaneous recovery often does not occur, and as a result the child's vocational opportunities are greatly limited. At present little is being done in this country for stuttering children. Their treatment offers a free field for quacks and charlatans, whose prey they often become.

The experience of other countries, however, demonstrates that 80 per cent to 85 per cent of cases of stuttering among school children can be cured. Several countries of Europe conduct special classes for their benefit. Records show that cure is usually effected within three to six months. It is hoped that American cities will soon see the wisdom of this example.

Malnutrition. Figures were not obtainable directly on this point, for the reason that teachers are not able to ascertain the facts. In some of the schools, however, the experienced eye can detect large numbers of children who are evidently ill-nourished. It is hardly likely that this is due in many cases to actual insufficiency of food. There are many other causes of malnutrition, such as unwise choice of foods, improper cooking, weakness of the powers of digestion and assimilation, etc. Parental negligence is often to blame. The results of the health questionnaire show that 11.4 per cent of the children do not breakfast regularly, and that 9.1 per cent sometimes miss lunch. The health department has no duty more important than that of identifying the ill-nourished children, and the school department no more urgent duty than that of ameliorating their condition.

School lunches are one means of helping ill-nourished children. Lunches ought to be served in several schools, such as Fremont, Bonneville, Franklin, Lincoln, Jackson and Riverside. Where the children cannot afford to pay the cost of a meal the expense should be borne by the board of education. Much good can also be accomplished by means of health

leaflets issued to parents, setting forth in simple language the most important rules for the care and feeding of children. The school can co-operate further by giving greater emphasis to domestic science, play, personal hygiene, etc.

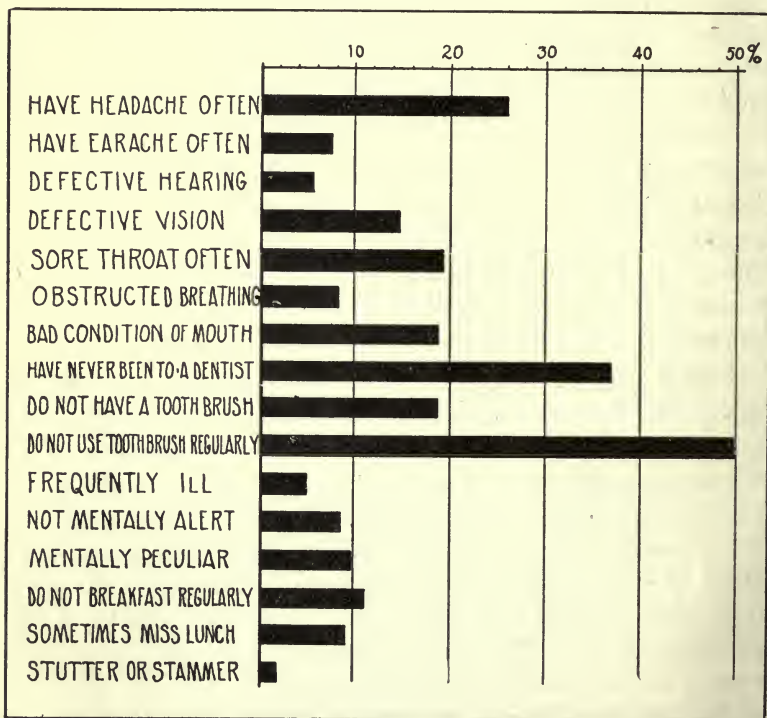


FIG. 43. SHOWING SOME HEALTH CONDITIONS AMONG THE SCHOOL CHILDREN OF SALT LAKE CITY.

Health work should be extended. The foregoing discussion gives an idea of the broad responsibilities of a school health department. The control of contagious disease is but one of its many functions, and by no means the most important. There are at least a half dozen other lines of work fully as important. The old conception, which would limit the func-

tion of the school to the cultivation of the child's mind, is now obsolete. Children should not be taught as though they were disembodied spirits. In thousands of cases defective bodies largely nullify educational efforts. Social responsibility for children's health is no less than for their intellectual development, and it is becoming increasingly clear that the best place to lodge this responsibility for children of school age is with a well organized department of school-health supervision.

Conclusions and recommendations. As a result of this study the following conclusions and recommendations seem warranted.

1. The school health work is excellent as far as it goes. The handling of contagious disease is according to the most approved methods and other valuable work is being done. However, the scope of the department should be enlarged so as to make possible greater attention to conditions of defect other than contagious disease.

2. The needed expansions would include:

- (a) Thorough medical examination of each child at least every second year.
- (b) Annual tests of vision and hearing by the teachers.
- (c) Improvement of conditions of the teeth and mouth.
- (d) Extension of the follow-up service.
- (e) The hygienic supervision of athletics and physical education.
- (f) Systematic instruction of the teachers in matters pertaining to child hygiene.
- (g) The establishment by the board of education of school lunches, school baths, increased play facilities, openair schools and other special classes.

Facts have been presented which show that chronic physical defects exist in great number in the children of the city, and that the health work thus far undertaken has given only minor attention to these.

3. The necessary extensions of the work will require a

number of additional physicians and nurses, and at least two half-time dentists. The annual budget for this work should not be less than \$15,000 and it ought to approximate \$20,000.

4. It is recommended that for the present the work remain under the charge of the department of health, particularly since the board of education would find some difficulty in supporting it on the right scale. There is every reason to believe that the present administration of the board of health will bring about needed expansions as rapidly as possible. It should be borne in mind, however, that a change of administration in the city health department may at any time make it imperative for the board of education to assume control.*

*Further data in support of the recommendations made in this chapter will be found in the following books published by Houghton, Mifflin Co.; *The Hygiene of the School Child*, by Lewis M. Terman; *Health Work in the School*, by Hoag and Terman; *The Teacher's Health*, by Lewis M. Terman.

CHAPTER XII.

PHYSICAL EDUCATION, PLAYGROUND ACTIVITIES,
AND HYGIENE TEACHING.

(Terman.)

I. PHYSICAL EDUCATION.

The physical training work as carried on at present in the grades below the high school is of limited value. The fault lies not so much in the methods employed to attain the end sought as in the fundamentally wrong conception as to what the purpose of a department of physical education should be.

In order to make the criticism clear we may distinguish two types of physical education:

Two types of physical education. The first relies chiefly on indoor calisthenic exercises, marches, drills, etc., and on mild forms of directed play which can be carried on in the classrooms. This type is inevitably formal, makes little appeal to the child's interests, fails to arouse initiative, has no moral or social value, and makes little or no contribution to health, the chief end of physical education. The most that can be said for it is that children occasionally welcome it as a relaxation from more strenuous mental work, and that certain phases of it (dancing, marching, etc.) have an aesthetic value. It is a type which once had wider vogue than at present, though it lingers still in occasional school systems where German ideals of formal drill and discipline have not been replaced by American ideals of personal initiative and individuality.

The second type places the emphasis on vigorous out-door recreation, including spontaneous play, organized group games, and other playground activities. Recreation of this kind appeals to the most fundamental interests of child life, cultivates initiative, affords constant and powerful training in moral behavior, stimulates the development of social as contrasted with non-social or anti-social traits, and promotes health as nothing

else can. This is the kind of physical education which is being fostered so well by the rapidly developing playground movement. It is unquestionably and justifiably destined to supplant everywhere the more formal type of physical training which we have first described.

These two types are not necessarily mutually exclusive, but may, of course, be combined in various proportions. The contrast serves, however, to make clear a fundamental distinction, and is especially serviceable in any evaluation of the physical training given in Salt Lake City.

The type in Salt Lake City. Here the work is molded mainly and purposely after the first type. Practically all of it is carried on indoors, either in the hall-ways or the class rooms. The supervisor and assistant go from room to room, taking each class separately for drills, marches, dances, calisthenic exercises, and indoor games. Teachers are instructed how to carry on these exercises and are expected to give them daily if the special instructor is not present. Many of these exercises, as given both by the special instructors and the regular teachers, were witnessed by all the members of the survey commission. They were found, with the exception of the dancing, uninteresting to the children, formal, void of hygienic value, and barren of the other results for which a department of physical education is supposed to exist. The so-called "indoor games" are for the most part games in name only. They are not only formal and dead but often inane. The following is offered as an average and fair example of the kind of physical education carried on in the grades below the high school.

An average and fair example of the indoor games. Time, 9:30 a. m. Place, regular classroom, somewhat dusty and with windows closed. (Outdoors the air is balmy and the school yard is flooded with sunshine). Class, fourth or fifth grade boys and girls. Purpose of the games was stated as "relaxation from mental strain." (The school has been in session 30 minutes, and the pupils have just gotten well down to work).

Four games are played in succession. The first, which was the best, may be described as a "writing relay." The front pupil in each row is given a piece of chalk. At a given signal this is to be handed back over the right shoulder to the pupil behind, and by that one to the next, and so on until it reaches the last pupil, who then starts it forward over the **left** shoulder. When the chalk has made the round trip, back over the right shoulder and forward over the left, the pupil in the front seat rushes to the blackboard and hastily writes the name of the school. Meanwhile the other pupils in the row move forward one seat, leaving only the rear seat vacant. After hastily scratching the word on the blackboard the pupil rushes to the back seat and passes the chalk forward again over the left shoulder, and when it reaches the one in the first seat the process of writing the word, moving forward, and once more relaying the chalk to the front is repeated. This is kept up until all the pupils of each row have had a chance to scrawl the name of the school on the blackboard. An attempt is then made to judge the writing of the pupils of each row according to merit, but it is found that all of it is equally without merit owing to the haste with which it was done.

The second "game" may be called an "eraser relay." It consisted chiefly of passing an eraser back along the row over one shoulder and forward over the other, with a little turning and shifting of seats during the process. No contest element or other motive was evident, and the main result of the game was to thicken the already dustladen air of the schoolroom with clouds of chalk particles raised by the dropping of erasers.

The third exercise is impossible to describe because it apparently involved no definite procedure, and no logical beginning, middle, or end. It consisted in having children attend, turn, stand, exchange seats; then stand, turn, and sit again, all by staccato command. The rule for exchanging seats was not clear to the observer or to the children, most of whom

got lost and confused in the process. When this had been kept up about two minutes the observer was asked to judge which row had done best, but he was obliged to confess that he had seen nothing which could be judged.

The fourth game was a running relay, from the front to the back of the room and return, involving again the transfer of an eraser at each link of the relay. It is unnecessary to describe it in detail. Like the others, it was a mockery of health-giving exercise and a travesty of real play.

The pupils returned to their regular work, with apparent relief, and for the remaining two hours of the forenoon inhaled at each breath probably ten to twenty times as many injurious dust particles as would have been the case had the exercises been taken out of doors, or not taken at all.

Other exercises seen. The graded course in dancing admits of more favorable comment. The dances were usually pretty, graceful, and much enjoyed by the pupils. It is recommended that this phase of the physical education be retained, but that always, when possible, the dancing be carried out in the open air instead of in the halls, as at present. The desirability of more attention to folk-dancing may be suggested.

Most of the other exercises given in the hall-ways should be abandoned, or if any are retained they should be given out of doors, weather permitting. But nothing can be said in favor of such an exercise as the following, wherever given:

Second grade class, in a basement hall-way dark enough to require artificial lighting; time 10 A. M.; weather outside beautifully clear and warm. The children are arranged in a circle, and following the example of the leader each holds his hands in front of chest, elbows flexed, and repeats in a sing-song tone "one, two, three, four" (turning the hands over one another so as to make one revolution at each count); "one, two, three, four" (this time rotating the hands four times in the reversed direction; "one, two" (bringing the two fists together twice on a horizontal line); "one, two" (striking one fist twice on top of the other); "tra la la, tra la la" (moving

forward a few steps). The purpose of this exercise was stated to be "health", but the observer was somewhat at a loss to see the connection, and the one in charge did not seem able to make it clear.

The above concrete descriptions will serve to illustrate the type of work which was witnessed over and over again in all parts of the city by the members of the survey staff. The examples given are in no way whatever exceptional. It is unnecessary to dwell on the futility of so-called physical training of this type, or to emphasize the absurdity of carrying on the exercises in dusty classrooms and dark basement halls. There may be some excuse for indoor physical training in the schools located near the center of New York City; there is no excuse in Salt Lake City, even though some of the school grounds are of scanty dimensions. It is an open question whether most of the physical training witnessed was not more injurious to the pupils than beneficial.

Character of the yard play. Playground activities are too much neglected. Children on the school grounds were rarely seen to engage in real play during recess periods. Jumping up and down, pushing and shoving, promiscuous chasing, and boisterous horse-play were much more in evidence than play. Just standing around was still more common. Theoretically there exists a curriculum of plays and games for the children of the grades, but it does not seem to be in operation. The indoor exercises of the formal kind have been given the right of way for the reason that they are frankly claimed to have the greater value.

A partial exception should be made in regard to the inter-school games of baseball and basketball, which occur during the last month of the school year. These are fairly numerous, are well-managed, and seem to arouse much interest. Grades five to eight are represented in the games, though of course only a minority of the children in these grades can belong to the teams.

On the whole, however, and particularly for the lower

grades, the work of the physical training department needs to be reorganized on a different basis. Its purpose should be not merely relaxation from mental work, but the promotion of health through vigorous outdoor exercise, and the development of such a love of outdoor plays and sports as will function through life as a cheap form of health insurance. We are rapidly coming to understand that plays and games have an educational value along moral and social lines hardly less important than their hygienic value. Individual initiative, the give-and-take spirit, resourcefulness, ready judgment, willingness to subordinate personal to group interests, loyalty, cooperation, and social understanding are all significantly promoted by the right kind of play.

To insure such a rich development of the play life needs to be encouraged and directed. Without direction, play on the average school ground is likely to be desultory, lacking in variety, and almost void of educational significance. It is of course not necessary or desirable that play supervision be carried to the point where spontaneity and initiative are destroyed. It is not argued that children should be driven through games held as set and formal exercises. What is meant is that children should be taught and encouraged to play a large variety of outdoor games, selected with special reference to definite stages of development of the play interests and physical capacities.

Play teachers needed. To this end there should be play leaders on every playground during recesses and, if possible, before and after school hours. In every school there are teachers temperamentally adapted to this kind of work. One energetic full-time assistant, working under the direction of a supervisor of physical education, could furnish these teacher play-leaders the necessary instruction for carrying on the work. Such an assistant could probably be secured for about \$1500. In addition it might be necessary to pay two or three teachers at each school a slight increase of salary for their service as play leaders during intermission, or a somewhat more substantial increase for play supervision after school hours.

Over all these, and as guiding spirit of their work, would be the general supervisor of physical education, whose salary should approximate that which is now paid, and whose duties should include, as now, supervision of physical education in the high schools. Unlimited energy, the play spirit, social tact, and moral leadership are among the essential qualifications for such a position. The director of physical education who is endowed with the proper force of character and with an inspiring personality exerts a direct and wholesome influence on every child in the school system. Under such an organization much could be accomplished, notwithstanding the inadequacy of playground facilities in many parts of the city.

Physical education in the high schools. There are four assistants in physical training in the high schools, one for boys and one for girls in each of the two schools. The women assistants are paid \$800 and \$1000; the men, \$1300 and \$1400. The force is adequate in size, but the lower salaries are not large enough to retain the services of teachers who are properly equipped and suitably endowed for the work.

The military drill. The main criticism of the physical training in the high schools, however, is that the system of compulsory military instruction employed monopolizes the time of the boys to such an extent ($4\frac{1}{2}$ hours a week) that the real work of physical education is necessarily relegated to a minor place. Military training may have, and probably does have, a certain amount of value, but a compulsory system which takes so much of the pupil's time and energy as to reduce other forms of physical training to an extreme minimum is of questionable worth. Military drill cannot compete with games in the cultivation of such desirable traits as initiative, resourcefulness, social co-operation, group loyalty, and love of play. Moreover it is of doubtful value from the hygienic point of view. The severity of the drill (Butt's Manual, designed for use with adult soldiers, is closely followed) would not tax the strength and endurance of the mature soldier who

has been picked on the basis of physical fitness, but it is entirely unsuited to the physical capacity of many of the younger, weaker, and immature high school boys.

Such a system of uniform and vigorous exercise for young and old, weak and strong, mature and immature, defective and sound, transgresses the most fundamental laws of physical training. The weight of the gun which is carried (not far from eight pounds) is entirely too great for the lighter boys, and the necessity of carrying it always on the same shoulder predisposes, in the case of young boys whose bones are still flexible, to spinal curvature and deformity of the chest. The clothing required is not such as should be worn during vigorous exercise, and bathing facilities are not sufficient to enable all to take a bath immediately after the drill. Add to these considerations the fact that the military training is not under the direction of the department of physical education, and is therefore carried on without expert hygienic or medical supervision of any kind, and we have a condition which is positively pernicious and dangerous.

A member of the school system, who has had ample opportunity to learn the facts, informed members of the survey staff that no less than eighteen cases of faintings during or after drill had come to his attention. These had all occurred in the last three years. Faintings and temporary prostrations, however, are not as serious as the more concealed and latent injuries likely to be produced in those who have some organic impairment, such as heart lesion, weak lungs, diseased kidneys, etc.

The military drill of the high schools is open to criticism on still other grounds. The cost of a uniform is not far from \$16, which is fully equal to the average cost of text books for three years. This must be a serious burden to many pupils, and as long as this expenditure is compulsory the high school can hardly be regarded a free school. Many would also question the political and moral justification of military training in the public schools of a democratic and peace-loving nation,

but as this aspect of the question is open to debate it will not be urged in this report.

Better physical training desirable. There are other reasons of sufficient number and cogency to justify the recommendation that the system of military training be dropped, and that the time be given over to more educational lines of physical training, including gymnastics and organized games and sports under the leadership of well trained and well paid instructors.

The present corps of instructors is adequate in number to take care of the proposed enlargement of the physical training work. It is well to emphasize, however, that the high school teacher of physical training should have as large a salary as other members of the high school teaching force. It is harder, in fact, to find a first class teacher in this line than in Latin, mathematics, or history.

It would not be consonant with the aim of this report to describe in detail the particular activities which the department of physical training should carry on in the high schools. All of this can safely be left to the instructors, providing proper care has been exercised in choosing them. In all cases they should have had special training for such work. No greater mistake could be made than to select a young college graduate merely on the strength of his enviable athletic record. The professional training demanded for this work includes courses in personal hygiene, public health, advanced physiology with special emphasis in the physiology of exercise, the theory and practice of physical education, and the psychology and hygiene of adolescence. All the leading universities of the country give such courses, and only candidates with a liberal professional training of this type should be considered. In order to secure and retain such persons, however, it will certainly be necessary to go beyond some of the salaries now paid to the teachers of physical training in the high schools.

II. PLAYGROUND ACTIVITIES.

Small school playgrounds. Owing to short-sightedness in earlier years, Salt Lake City is very poorly supplied with playground space. This condition presents a surprising and painful contrast with the spacious residence lots throughout the city, and with the absence of crowded tenement districts. So serious has been the neglect that the playground facilities are not superior to those of many cities far older and many times as populous. The situation is fully appreciated by the present board of education, and everything possible is being done to provide the newer schools with liberal playgrounds. The task of making good the neglect of former years still remains, however, and presents a serious financial and educational problem.

The table on p. 223 shows the number of square feet per child in the entire site of each school, including the space occupied by the building, and the drawing on p. 224 shows the percentage of children attending school which have playgrounds of various amounts of space per child.

It will be seen from this table that the following schools present the worst conditions in this respect:—Emerson, Grant, Fremont, Oquirrh, Longfellow, Lafayette, Lowell, Franklin, Wasatch, and Hamilton. Webster, Sumner, Lincoln, Forest, Jefferson, and Poplar Grove are only a little better off. In several of these the grounds could still be enlarged by the purchase, at fairly reasonable figures, of adjacent unoccupied or little improved lots.

In the erection of future school buildings in the outlying districts there will be no excuse for failure to provide ample room. Five acres should be considered the minimum for schools which are likely to enroll any considerable number of pupils in the next fifty or one hundred years. In a rapidly growing community such as Salt Lake City the danger is always on the side of short-sighted economy. A mistake of this kind becomes increasingly deplorable as the years go by, until,

after a few generations, the situation is both acute and irremediable. It is a sacred duty to provide not only for the welfare of our own children, but also for the welfare of those who are to follow. A board of education which fails of its duty in this regard will some day merit and probably receive the curses of those whom its negligence has defrauded.

Larger use of playgrounds desirable. Mention has already been made of the unsatisfactory use made of the playgrounds during school hours. This fault seems to have developed mainly in recent years and is one which can be largely remedied by a reorganization of the department of physical education along the lines already proposed.

The use of the playground out of school hours is still more important. At present school grounds valued at approximately a half million dollars are idle and unproductive a large part of the day. The real waste is infinitely greater than the corresponding interest loss on an unproductive financial investment of a commercial kind, for it is a waste of health and of educational opportunity which can not be measured in dollars and cents. The remedy is to open the playgrounds for supervised play after school hours. It would be possible to secure regular teachers for this after-school work by paying a small additional salary, say \$30 per month for two hours each afternoon and half days on Saturday.

On this basis the total expense to the city each school year would not exceed \$6000 for twenty such playground assistants. This is far less than the interest on the value of the grounds for that part of the school year during which they are unused.

Vacation playground activities. A number of playgrounds have been kept open during the summer, and provided with play facilities by the joint action of the board of education and the city park commission. This work should be extended, and should by all means be taken over entirely by the board of education. Its control belongs there as much as does the

control of the school plant during the school year, and the unified control will be much cheaper for the city in the end.

The present division of playground control between the park commission and the board of education has led to an absurd and ridiculous situation. The park commission equips a number of school yards with playground apparatus for use during the summer, but when school begins the apparatus is gathered up by the park commission and stored away for safe keeping until the following summer. The same children are there, and the same play needs are present, but the board of education is now in control, and so, in order to facilitate the bookkeeping of the city departments the apparatus is gathered up and carted off. The only way for the board of education to meet the issue and to perform its obligations to the recreational needs of children is to take over the entire responsibility of the school playgrounds and keep them running twelve months in the year. This will involve some expense for salaries, and will necessitate the purchase of a good deal of playground apparatus, but it is the only solution.

It is not deemed necessary to argue here the general question as to the desirability of ample playgrounds and increased playground supervision. Everyone who is acquainted with recent developments in the playground movement knows that this question has been settled once for all. Almost every city in the country, which is not educationally benighted, has accepted the situation and is making an effort to enlarge and improve its recreational facilities. Any other attitude is not only bad educationally, but bad socially, morally, and economically as well.

III. HYGIENE TEACHING.

The present course of instruction. The course of study in physiology and hygiene is well planned and modern in every respect. The texts, which could hardly have been better chosen, include the following: Gulick's "Good Health" (grades 3 and 4), Gulick's "Town and City" (grades 5 and 6A), Gulick's "The Body and Its Defenses" (grade 6B), and Ritchie's "Primer of Sanitation" (grades 7 and 8). In the first two grades the hygiene instruction properly consists of frequent talks, simple in nature, but definitely planned so as to acquaint the child with a fairly wide range of elementary health laws. Throughout the course, hygiene instruction rightly takes precedence over physiology and anatomy.

The time given to the subject is on the whole hardly adequate. In certain schools, especially is this true. The distribution of time devoted to hygiene among the various schools is represented for the different grades separately in the following chart. The middle line shows the median amount

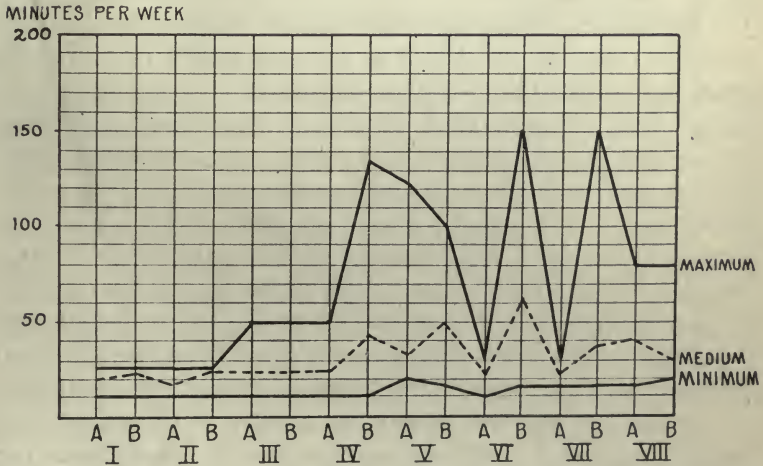


FIG. 44. SHOWING MINUTES PER WEEK DEVOTED TO INSTRUCTION IN PHYSIOLOGY AND HYGIENE.

of time per week for the city as a whole, the lower line the amount for the school giving least, and the upper line the amount for the school giving most time to the subject, in all cases the time including both recitation and study periods.

Practical instruction. Altogether about a dozen hygiene lessons were witnessed in whole or in part by the various members of the survey staff. The instruction ranged from excellent to mediocre, but on the whole was of superior quality. Especially commendable was the effort, frequently observed, to make the hygiene instruction carry over into the everyday habits of the children. The children in one school (and this may have been true in other schools also) had been organized into a clean-up brigade, and were engaged in abating such nuisances and dangers as dirty streets, unclean meat shops, and breeding places for flies and mosquitoes. The Board of Health lends its active support to such work, and stands ready to invoke the authority of the law, if necessary, in order to remedy the evils disclosed by the school pupils. Work of this kind goes beyond mere instruction in hygiene and becomes training for effective citizenship.

Another well-directed effort toward making hygiene instruction practical was found in a school where the teachers, acting under the direction of the principal, require the everyday practice of personal cleanliness as a necessary condition of receiving a passing grade in the subject. In other instances, however, the lessons were bookish and theoretical. That greater emphasis could well be placed on making the hygiene instruction practical is illustrated by such facts as the following: that only 50 per cent of the pupils in the grades use a tooth brush regularly; that 63 per cent have not been to a dentist in the last year and that 36.8 per cent have never been to one; that in several of the schools personal uncleanliness and lack of neatness are common among the children. In many rooms the last is attested by strong and disagreeable odors emanating from the unclean bodies and clothing.

The buildings negative the instruction. In this connec-

tion it is to be regretted that the schools themselves do not set better examples of hygiene. The effectiveness of hygiene instruction is weakened if it is carried on in school buildings where the floors are dirty, where the feather duster still lingers, where walls and ceilings are discolored, where classrooms and halls are dark and dingy, where physical training is unnecessarily carried on indoors, where bathing facilities are totally lacking, where filthy roller towels are in evidence, where toilets are dark, unclean, loud-smelling, and crowded, or where disgusting economies are practiced in the supply of toilet paper. Some of these examples are before the children in every school, and certain schools are guilty of every sin above listed.

It must never be forgotten that the teaching of hygiene and physiology is to be judged solely by its actual influence on the lives of the pupils. However ideal the course of study and the actual instruction, from an academic standpoint, the aim of the work is attained only in so far as practical results are secured. A little more insistence on this point of view, together with the improvement of hygienic practice on the part of the school, will add greatly to the efficiency of the hygiene instruction.

Summary and recommendations. On the basis of the results of this chapter the survey makes the following recommendations as to needs and lines of future development:

1. Physical education as carried on below the high school is based on a fundamental misconception as to the true purpose of such work. In the main it is extremely formal, is carried on chiefly indoors, and has little significance for health. The work should be entirely reorganized and directed along the lines of outdoor play and other recreational activities. The instruction in dancing, however, is good and should be retained, with somewhat more attention to folk-dancing.

2. The playgrounds in about half of the schools are extremely inadequate, and insufficient use is being made of those which exist. It is urged that a number of the present play-

grounds be enlarged, that the school authorities endeavor to anticipate future needs in providing sites for new buildings, that the school playgrounds be equipped with apparatus by the school board, and that they be kept open under paid supervision after school hours, on Saturdays, and during vacations.

3. It is recommended that education through play be more systematically fostered by the department of physical education, and that a sufficient number of well-paid assistants be provided for this purpose.

4. The time for physical education in the high schools is too much monopolized by the system of compulsory military training. It is recommended that the military training either be made elective, and placed under the direction of the department of physical education, or that it be eliminated altogether. The latter is perhaps preferable. As conducted at present the military training involves serious danger to the health of many pupils compelled to take it.

5. The hygiene teaching is on the whole good, though in certain schools hardly enough time is devoted to the subject. In certain schools commendable devices are employed for the purpose of making hygiene teaching effective in the daily lives of children, and it is recommended that this kind of practical hygiene teaching be more generally emphasized.

6. It is suggested that the effectiveness of hygiene instruction could be increased by the correction of bad hygienic examples set by the school itself. Improvements in this line would include enlargement of playgrounds, the elimination of dry sweeping and dry dusting, the installation of baths, enlargement and improvement of toilet facilities, the elimination of roller towels, the use of liquid soap, and, where possible, the correction of defects in lighting, heating and ventilation.

PART IV
Finances

CHAPTER XIII.
THE FINANCIAL PROBLEM.
(Cubberly.)

City costs for maintenance. In the study of costs for city maintenance in Salt Lake City, with special reference to schools, the city will be compared chiefly with the other western cities, and for the reason that only where the costs for service and materials are comparable are total costs comparable.

Comparing all general city costs in Salt Lake City with

TABLE NO. 49.

RANK OF SALT LAKE CITY AMONG SIXTEEN WESTERN
CITIES IN ITEMS OF EXPENDITURE FOR
CITY MAINTENANCE.

ITEMS	Per Capita Cost for			Rank of Salt Lake City in Amount Spent
	Salt Lake City	16 Western Cities		
		Average	Median	
1. General expenses of the city government	\$1.44	\$1.84	\$1.52	10th
2. Police department	1.14	1.74	1.47	15th
3. Fire department .....	.90	1.76	1.61	16th
4. Health and sanitation....	1.43	1.49	1.45	9th
5. Care of streets	1.42	2.09	2.10	16th
6. Charities, hospital and corrections .....	.14	.30	.11	8th
7. Schools	6.71	6.27	5.73	5th
8. Libraries, art galleries and museums .....	.16	.34	.35	16th
9. Parks and playgrounds ....	.42	.59	.51	10th
10. Miscellaneous expenses ...	.12	.92	.23	13th
Total per capita cost	\$ 13.88	\$ 17.34	\$ 15.08	12th
11. Interest on public debt ...	3.29	3.06	2.70	7th
Total per capita rate	\$ 17.17	\$ 20.40	\$ 17.78	13th

the fifteen other western cities first used in Table No. 3, page 12, and used continuously throughout this report, we get the Table No. 49, calculated from the U. S. Census Bureau's last published volume on the Statistics of Cities.

SCHOOL SURVEY REPORT.

From this table we see that the costs for all items of city maintenance in Salt Lake City are low. In other words, it is a very economically administered city. The figure given below shows the distribution of city expenses for annual maintenance, reduced so as to show where each dollar of taxes raised goes.

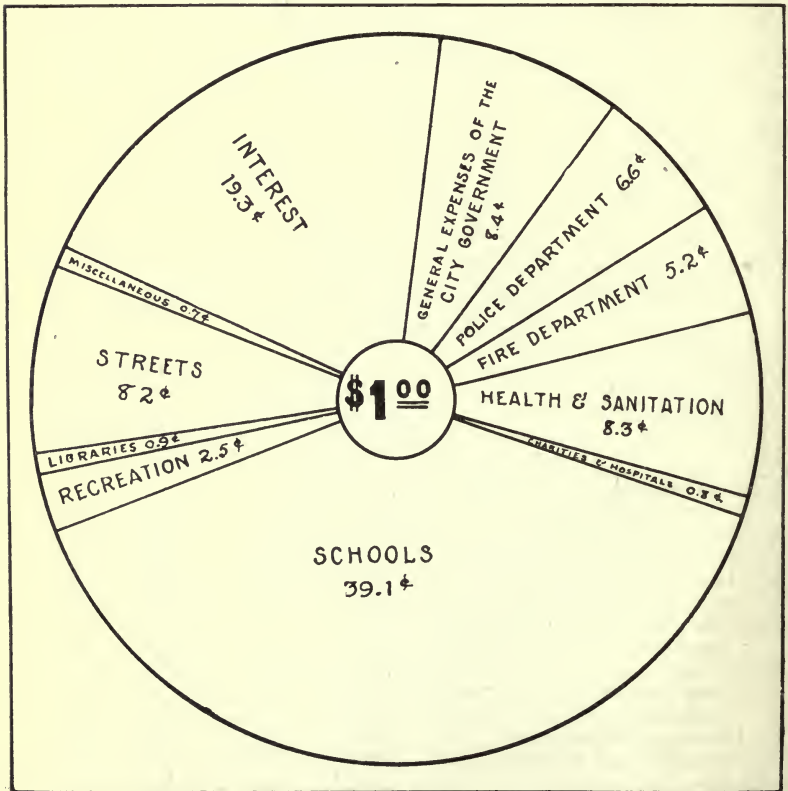


FIG. 45. HOW SALT LAKE CITY SPENDS ITS DOLLAR.

Only in the expenditures for schools and for interest on the bonded debt do the costs for any items in the list reach the average for other western cities. In three items Salt Lake City's costs are the lowest of the list, while in totals the city is thirteenth among the sixteen cities. The larger per capita

expense for schools is only what would be expected in view of the large number of children in the population, as was shown in Table No. 3, page 12.

Costs per capita for schools. An examination of the per capita costs for schools in the twenty-six cities used in previous tables in this report, as well as in the sixteen western cities with which comparison has also been made from time to time, gives us the next table. This shows the total city maintenance costs, the costs per capita for schools, and the percentage of the total city expenses for annual maintenance that go to the support of public education, for each of the two groups of cities.

TABLE NO. 50.

SHOWING PER CAPITA COSTS FOR CITY MAINTENANCE, INCLUDING INTEREST CHARGES, AND PER CAPITA AND PERCENTAGE AMOUNT FOR SCHOOLS.†

I. Western Cities.*

1. San Francisco, Cal.	\$36.09	\$4.27	11.9%
2. Portland, Ore.	17.71	4.73	26.7
3. Tacoma, Wash.	19.99	4.95	24.7
4. Seattle, Wash.	22.15	5.06	24.8
5. Spokane, Wash.	18.87	5.41	29.7
6. Butte, Mont.	18.25	5.71	31.6
7. Denver, Colo.	21.00	5.72	28.6
8. Sacramento, Cal.	17.49	5.72	32.7
9. Oakland, Cal.	17.77	5.74	32.5
10. San Diego, Cal.	22.44	6.01	26.8
11. San Jose, Cal.	14.91	6.26	42.0
12. Salt Lake City, Utah ...	17.17	6.71	39.1
13. Berkeley, Cal.	14.74	7.60	51.3
14. Colorado Springs, Colo.	19.63	7.64	38.9
15. Los Angeles, Cal.	26.17	8.66	31.9
16. Pasadena, Cal.	23.38	10.11	43.3
Average for the group	\$20.48	\$6.27	32.3%
Median for the group..	19.27	5.73	31.8

*Ogden is omitted from this group for the reason that the United States Census Bureau does not publish financial statistics for cities which in 1910 had less than 30,000 inhabitants. Ogden population in 1910 was 25,580.

†Statistics here, as elsewhere, are from the U. S. Census Bureau's last issued annual volume on Statistics of Cities, and compare all cities for the year 1912-13.

TABLE NO. 50, CONTINUED.

II. Cities of the class of Salt Lake City.

CITY	Total Maintenance Cost Per Capita	Cost Per Capita for Schools	Per cent of Total for Schools
1. Reading, Pa.	\$ 9.33	\$ 3.13	33.6%
2. Bridgeport, Conn.	13.24	3.29	24.8
3. Lowell, Mass.	14.72	3.99	27.1
4. Lynn, Mass.	15.63	4.02	25.8
5. Lawrence, Mass.	14.40	4.07	28.2
6. Dayton, Ohio	14.46	4.15	28.7
7. Fall River, Mass.	14.99	4.16	27.8
8. Albany, New York	17.10	4.17	24.4
9. Kansas City, Kan.	13.10	4.22	32.2
10. Troy, New York	18.40	4.24	23.1
11. Youngstown, Ohio	11.86	4.37	36.8
12. New Bedford, Mass.	18.57	4.41	23.8
13. Trenton, N. J.	14.88	4.85	32.6
14. Camden, N. J.	13.83	4.90	35.5
15. Tacoma, Wash.	19.99	4.95	24.8
16. Omaha, Neb.	20.82	4.99	24.0
17. Somerville, Mass.	17.83	5.04	18.4
18. Cambridge, Mass.	22.30	5.14	23.5
19. Grand Rapids, Mich.	13.81	5.21	37.8
20. Duluth, Minn.	17.22	5.24	30.2
21. Spokane, Wash.	18.87	5.41	29.7
22. Yonkers, N. Y.	22.69	6.22	27.4
23. Hartford, Conn.	20.94	6.26	30.0
24. Salt Lake City, Utah....	17.17	6.71	39.1
25. Springfield, Mass.	22.55	7.07	31.3
26. Des Moines, Iowa	16.86	7.26	33.6
Average for the group	\$16.75	\$4.80	29.0%
Median for the group..	16.98	4.88	28.5

Compared with first half of the eastern cities of the above table, Salt Lake City appears high, both in the per capita cost for schools and in the percentage of city funds given to education. With the second part of the eastern cities table, and with the western cities, Salt Lake City occupies nearer an average position.

Why these figures are misleading. These figures, though, are somewhat misleading, notwithstanding they are the ones commonly used in comparing costs. In the first place, most eastern cities pay a much lower salary schedule to women

teachers than is the case in the west, and, as approximately 65 per cent of all expenses are for teachers' salaries, it will be seen that few eastern cities can with fairness be compared with western cities in the matter of per capita school expenditures. An eastern city spending \$4.00 per capita for schools, and paying its elementary school teachers \$40.00 a month, is exactly the same as a middle western city paying its teachers \$60.00 a month and spending \$5.30 per capita, and the same as a western city paying its teachers \$80.00 a month and spending \$6.60 per capita, assuming that each devotes 65 per cent of its maintenance costs to teachers' salaries. For this reason any comparison of eastern with western cities is likely to be very misleading. Accordingly, we shall from this point on compare Salt Lake City only with other western cities, where salaries and other school costs are more comparable.

The figures given in the last table, both for eastern and western cities, are also misleading for the reason that they fail entirely to take account of the percentage of school children in the total population. A community such as Salt Lake City, as was pointed out in Chapter I, must spend more money because of the much larger number of children it contains. A per capita expense of \$6.71 for schools, and 39.1 per cent of the total city maintenance costs for education may at first glance look large, but, as will be shown further on, it really is not so. The large number of school children in the city necessitates a high per capita cost for schools, without the cost per child educated being high at all, while the large percentage of city funds devoted to schools is fictitious for the reason that all city costs for other items are low. If Salt Lake City's expenditures for other items of city expense were at as high a rate as is the case in many western cities, the percentage devoted to education would be reduced to somewhere near 25 to 30 per cent. This would be low, considering the large number of children of school age in the population.

A real basis for comparing school costs. To get a real basis for comparing school costs we must take into considera-

tion the number of children to be educated, and reduce all per capita costs for schools to what it costs per capita for each 1 per cent of the school population. For example, if a city spends \$6.00 per capita for schools, and 12 per cent of its population consists of children between 5 and 15 years of age, * it can be seen that it spends 50 cents for each one per cent of its school population. If another city also spends \$6.00 per capita and has 15 per cent of children, this second city spends but 40 cents for each 1 per cent of its school population. Similarly, a third city having 20 per cent of children spends but 30 cents per capita. Though each city is given, in statistical tables, as spending the same amount per capita of its population for schools, in reality the three cities are spending entirely different amounts. Any real comparison of per capita costs requires that we first reduce our cities to common terms, and see what each is spending for each 1 per cent of its school population. Using the age groups 5 to 15, and reducing all to a 1 per cent basis, we get the next table.

*These two age limits are used in this report because for them we have accurate percentages for all states and cities of the United States, collected by the United State Census Bureau. They correspond to the ages from the kindergarten to the completion of the ninth grade, if the pupil advances normally.

TABLE NO. 51.

COST PER CAPITA FOR SCHOOLS, BASED ON EACH ONE PER CENT OF CHILDREN (FROM 5 TO 15) IN THE TOTAL POPULATION.

CITY	Cost per capita total population for schools	Per cent of population 5 to 15 years of age	Cost for schools for each 1% of children in the population
1. Tacoma, Wash.	\$4.95	15.2%	\$.32
2. Salt Lake City, Utah.....	6.71	18.5	.36
3. San Francisco, Cal.	4.27	11.9	.36
4. Spokane, Wash.	5.41	14.5	.37
5. Butte, Mont.	5.71	15.1	.37
6. Denver, Colo.	5.72	15.2	.37
7. Portland, Ore.	4.73	12.0	.39
8. Seattle, Wash.	5.06	12.5	.40
9. San Diego, Cal.	6.01	13.4	.46
10. Sacramento, Cal.	5.72	12.1	.47
11. Oakland, Cal.	5.74	14.1	.47
12. San Jose, Cal.	6.26	13.8	.48
13. Colorado Springs, Colo.	7.64	16.0	.48
14. Berkeley, Cal.	7.60	14.7	.52
15. Los Angeles, Cal.	8.66	13.0	.67
16. Pasadena, Cal.	10.11	13.6	.74
Average for the group ...			\$.45
Median for the group ....			.43

The last column of this table gives a real basis for comparing school costs in different cities,—that is, what each city is spending per capita for each one per cent of its school children. As parochial and private schools have never flourished in western cities, with the possible exception of San Francisco, the comparison of costs is all the more accurate. Similar comparisons for the twenty-five cities of the first part of Table No. 50 show a range of from 30 cents to 45 cents for eastern cities, but the low salaries paid women teachers there and the large hold of both private and parochial schools make the comparisons less accurate than for western cities. Hartford, Conn., however, shows a per capita expense of 40 cents for each 1 per cent of its children between 5 and 15 years of age; Des Moines, Iowa, 44 cents; and Springfield, Mass., 45 cents.

The median western cost. It will be seen from the last column of the last table given that the average cost for the sixteen western cities is 45 cents, as against Salt Lake City's 36 cents, and that the median western cost is 43 cents. The cities which are caring properly for their children are those which are spending more than these amounts. Averages and medians show only a half-way point between good conditions and poor conditions, and almost never represent a desirable stopping place. Still, to see the position of the different cities in the matter of caring for their children, and to set up a tentative standard for school maintenance, let us take the median of 43 cents as a standard below which a city ought not to go, and apply it to each of the cities of the table. Multiplying the percentage of children of school age in the total population by the median cost of 43 cents for each 1 per cent, we get the next table.

TABLE NO. 52.

MEDIAN AND ACTUAL COST PER CAPITA FOR SCHOOLS
FOR WESTERN CITIES.

CITY	% of population from 5 to 15 years of age	Desirable cost per capita \$,.43 for each 1% of children	Actual cost per capita	Excess or deficit over estimate
1. San Francisco, Cal.	11.9	\$5.12	\$4.27	—\$.85
2. Portland, Ore.	12.0	5.16	4.73	— .43
3. Sacramento, Cal.	12.1	5.20	5.72	+ .52
4. Seattle, Wash.	12.5	5.38	5.06	— .32
5. Los Angeles, Cal.	13.0	5.59	8.66	+ 3.07
6. San Diego, Cal.	13.4	5.76	6.01	+ .25
7. Pasadena, Cal.	13.6	5.84	10.11	+ 4.27
8. San Jose, Cal.	13.8	5.93	6.26	+ .33
9. Oakland, Cal.	14.1	6.06	5.74	— .32
10. Spokane, Wash.	14.5	6.24	5.41	— .83
11. Berkeley, Cal.	14.7	6.32	7.60	+ 1.28
12. Butte, Mont.	15.1	6.49	5.71	— .78
13. Tacoma, Wash.	15.2	6.54	4.95	— 1.59
14. Denver, Colo.	15.2	6.54	5.72	— .82
15. Colorado Springs, Colo. ...	16.0	6.88	7.46	+ .58
16. Salt Lake City, Utah	18.5	7.96	6.71	— 1.25

Where Salt Lake City stands. The second column of figures shows what each city of the table should spend per capita of the total population for the maintenance of its schools, merely to bring that city up to the median point for the sixteen western cities. To bring any city up to the average for western cities would cost slightly more. For Salt Lake City it would raise the desirable per capita cost from \$7.96 to \$8.33.

On the basis of a cost of \$7.96 it is seen that Salt Lake City is spending, on the maintenance of its schools, \$1.25 less per capita of the total population than it should, merely to put the city in a middle position in the matter of annual school maintenance. On a basis of a total population of 110,000, this would mean that the city should raise and expend on maintenance alone \$137,500 more than it now does, merely to care for its present children as well as is done in the median western city. To rank with the better western cities in the matter of public education would mean an additional expenditure for maintenance of approximately \$200,000 a year.

These figures tally well with the statement made in Chapter IV, after considering the increasing number of pupils per teacher, that the city needs now about one hundred additional teachers merely to care properly for its present number of children. The table which follows, showing the amount expended by the different western cities for each child in average daily attendance at school, here based on figures collected and published by the U. S. Commissioner of Education, also confirms the above estimate as to the need for large additional funds to maintain properly the present schools.

TABLE NO. 53.

MAINTENANCE COST PER PUPIL IN AVERAGE DAILY
ATTENDANCE.

CITY	Cost per Pupil in average daily attendance
1. Tacoma, Wash.	\$43.92
2. Salt Lake City, Utah	44.81
3. San Francisco, Cal.	44.86
4. Denver, Colo.	48.07
5. San Jose, Cal.	44.86
6. Portland, Ore.	49.95
7. Oakland, Cal.	52.33
8. Colorado Springs, Colo.	52.65
9. Spokane, Wash.	54.94
10. San Diego, Cal.	59.90
11. Seattle, Wash.	60.50
12. Berkeley, Cal.	62.20
13. Butte, Mont.	63.45
14. Sacramento, Cal.	64.75
15. Los Angeles, Cal.	68.03
16. Pasadena, Cal.	86.87
Average for the group	\$55.23
Median for the group	52.65

From this table it will be seen that Salt Lake City is next to the lowest for all western cities in the amount spent per pupil, and much below both the median and the average for the group. The difference of \$7.84 below the median, for the 18,367 pupils in the schools during 1914-15, would require an increase of \$143,997 merely to bring the city's expenditures up to the middle point of expenses for western cities. To bring the city up to the average western city in expenditures would require \$191,384 increase.

Wealth and tax rates. There still remains to be considered the real wealth of the city, and the tax rate required to produce the median rate of 43 cents for each 1 per cent of the school population in Salt Lake City, and in other western cities. Taking now the actual wealth of each western city, as

shown in Table No. 6, in Chapter I, and the desirable per capita support for schools at the western median figure of 43 cents for each 1 per cent of the school population, we get, by divisions, the next table. This shows the actual wealth in each city upon which each dollar of the tax for schools must be raised, and the rate of tax per \$100 of actual wealth necessary to raise this median sum.

TABLE NO. 54.

TAX RATES, BASED ON ACTUAL WEALTH, NECESSARY
TO PRODUCE ESTIMATED PER CAPITA
SUPPORT FOR SCHOOLS.

CITY	Actual Wealth per capita	Desirable per capita support for schools at \$.43 for each 1% school population	Actual wealth for each dollar of estimated per capita support	Rate of tax on each \$100. of actual wealth nec- essary to produce estimate
1. Butte, Mont.	\$ 795.88	\$6.49	\$122.62	\$.814
2. Denver, Colo.	1126.50	6.54	172.25	.58
3. Colorado Springs, Colo. .	1202.31	6.88	174.75	.572
4. San Jose, Cal.	1081.02	5.93	182.30	.546
5. Tacoma, Wash.	1237.22	6.54	189.17	.527
6. Salt Lake City, Utah	1683.52	7.96	211.50	.473
7. Berkeley, Cal.	1371.13	6.32	216.95	.461
8. Oakland, Cal.	1477.92	6.06	243.88	.41
9. Spokane, Wash.	1666.12	6.24	267.01	.375
10. Seattle, Wash.	1602.77	5.38	297.90	.335
11. Pasadena, Cal.	1791.41	5.84	306.75	.326
12. Los Angeles, Cal.	1930.87	5.59	345.41	.289
13. Sacramento, Cal.	1796.60	5.20	345.50	.289
14. Portland, Ore.	1924.44	5.16	372.95	.269
15. San Diego, Cal.	2596.00	5.76	450.69	.222
16. San Francisco, Cal.	2561.82	5.12	500.35	.20
Average for the group..	\$1630.85	\$6.06	\$281.25	.405
Median for the group..	1634.45	6.00	255.44	.397

It is here that the large per capita wealth of Salt Lake City tells. Were the city as poor as Butte, it would require a tax of over one dollar; had the city as few children as Portland, the tax would be reduced to a trifle over 30 cents. It is very evident that Salt Lake City can afford large families.

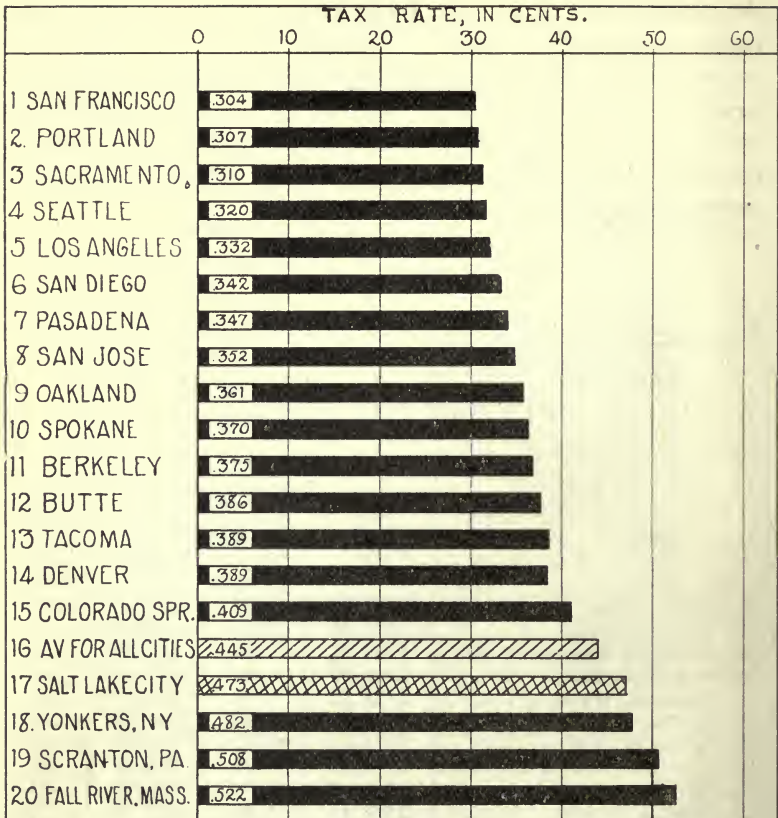


FIG. 46. TAX RATE IN CENTS ON EACH \$100 OF REAL WEALTH WHICH WOULD BE REQUIRED FOR PROPER MAINTENANCE IN SALT LAKE CITY, IF THE PERCENTAGE OF CHILDREN WERE THE SAME AS IN THE OTHER CITIES OF THE TABLE.

Figure 46 shows clearly how the tax rate for schools must increase proportionally to the number of children of school age in the population. The figures and lines of this chart give the rate of tax for school support which would be required, in

Salt Lake City, to provide merely the median rate of 43 cents for each 1 per cent of school population, if the city had the same percentage of children in its population as have the different cities given on the figure. That is, if Salt Lake City had as few children as Portland, which is in many respects a comparable city, the tax required would be but \$.307 on the \$100, instead of \$.473; if it had as many children as Fall River, the tax required would be \$.522.

Need for a larger school tax. A tax rate for schools of \$.473 per \$100 of real valuation is equivalent to a tax rate of \$1.3514 on the present assessed valuation of 35 per cent. This is the same as 13.5 mills, as taxes are usually calculated in Utah. As the money received from state and county sources is worth somewhere near 3.5 mills, the total local tax desirable for proper maintenance is about 10 mills. Under the new state law requiring property to be assessed at its full value, beginning with 1916, the maintenance rate should not be less than 4 mills. The legislature, however, in ordering assessments advanced to full value, has at the same time cut the rate of tax allowed proportionally. This leaves the schools with two mills in place of their present six. That the assessor will treble the assessed valuation of the property in Salt Lake City may be seriously doubted. If valuations are actually increased two and one-half times the result will be as satisfactory as has usually taken place elsewhere.

With a tax rate for maintenance already wholly inadequate, and the new rate reduced in proportion to the expected increase in valuations, just what the schools of Salt Lake City are to do in the immediate future is rather hard to see. It looks as though even more serious cramping and crowding of the schools, and the employment of more cheap and inexperienced teachers, with little or no new development, would be the inevitable result. At the present time the schools of Salt Lake City can hardly claim a high place in any single phase of recent public school development, and largely because the city school authorities have had so little money with which

to develop the system. It has taken all of the money to maintain the traditional type of school and teach the so-called fundamental school subjects. Where the schools will be in a decade more of the present policy of pinching to make both ends meet is not hard to guess. The drawing on the opposite page shows that for years the schools have not kept up their expense for maintenance proportionally with the increase in pupils, and that a material part of the recent increase in expenses has been due to rapidly increasing charges for bond interest and expenditures for buildings and sites. The expenditures for annual maintenance, represented by the space in white, has hardly widened in proportion to the increase in membership in the schools. Under the present tax limit necessary educational increases are difficult, while the desirable new features and additions recommended in this report are not financially possible.

The remedy a legislative one. The trouble, however, does not lie with the people of Salt Lake City. They are willing enough to educate their children properly. Recent editorials in the leading newspapers regarding the schools and their support would lead one to feel that they, the people, are willing to go even further and support the schools even generously. It is the people of Utah, as represented in the state legislature, who stand in the way. This is done by imposing a maintenance tax-limit so small as to make really good schools for the future entirely out of the question. This is neither justice nor sound public policy. Public education is the great means for improving government and advancing intelligence. If any community desires to provide better schools for its children, and is willing and able to do so by local taxation, it is exceedingly short-sighted for the state to stand in its way and prevent its doing so.

That the people of Salt Lake City are able to pay a much larger local school tax for maintenance has been shown. That they must provide from 25 per cent to 50 per cent more schools and teachers than the average western city has also

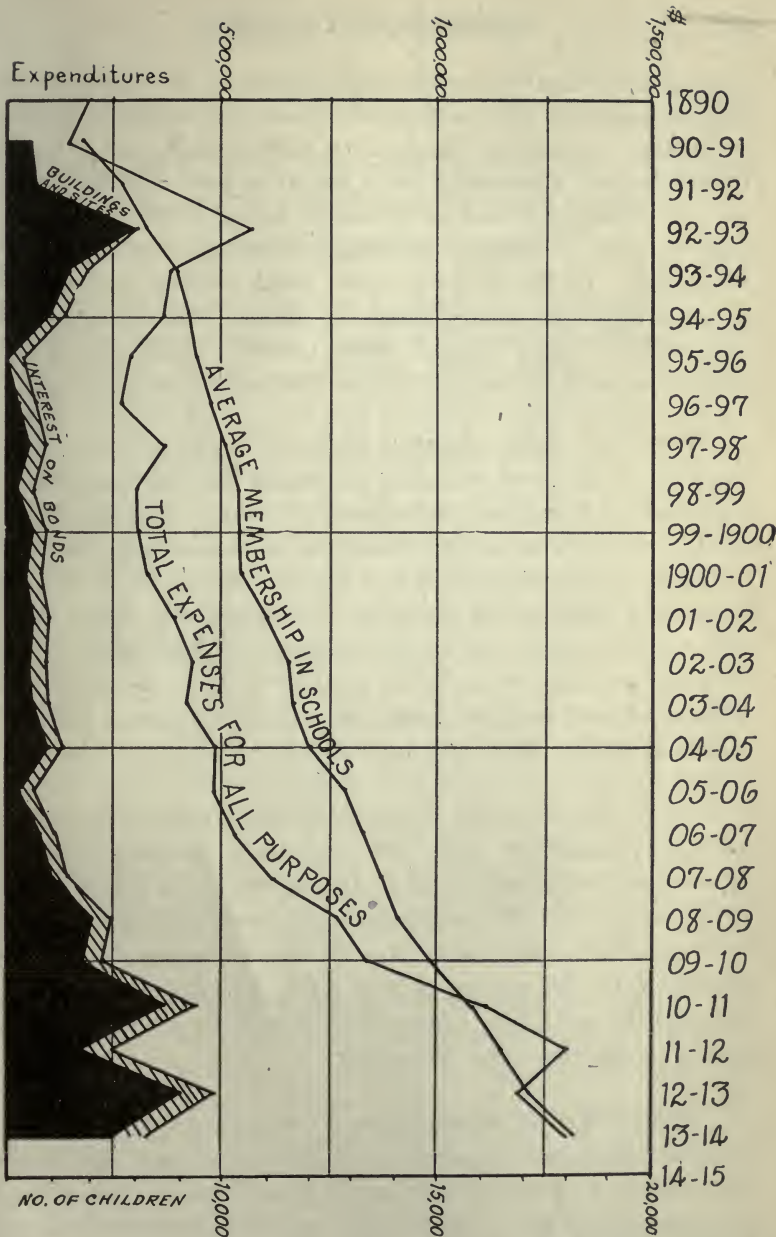


FIG. 47. INCREASE IN EXPENSES AND CHILDREN IN SCHOOLS COMPARED.

been shown. That the people are willing to pay more is confidently believed. Such being the case, the legislature ought to enlarge materially the local tax permitted to be levied. Under the new assessment law a tax of at least 4 mills, clearly for maintenance, should be provided, and if interest and sinking funds are to continue to be paid from this, the rate should be 5 mills. In but few cities are bond interest and sinking funds required to be paid from the annual maintenance rates. It would be better to shift these items to the building tax, leaving the maintenance fund clear for school support.

With the many pressing building needs, both for new buildings to keep up with the growth of the city and for the alteration and gradual replacement of rooms not now fit for use as school rooms, as is pointed out at some length in Chapter X, an annual building tax of $2\frac{1}{2}$ or 3 mills, under the new assessment basis, is not too high. Salt Lake City needs many new school rooms, and so far as possible these ought to be paid for as built. In a city as wealthy as this one the annual interest charge on bonds ought not to be increased where it can be avoided. The city's interest bill is relatively high now.

There can of course be no relief from present conditions until the legislature gives the city larger freedom to spend what it has in its own pockets, and is willing to spend if permitted to do so. The enactment of a new governing school law, embodying the main lines of the law suggested in the Appendix to this report, would solve the difficulty entirely and enable the city's educational system to advance to the place it ought by right to occupy.

Distribution of expenditure. But one question of a financial nature still remains to be considered, and that is are the present expenditures properly proportioned. Tabulating for the same sixteen western cities previously used we get the following table.

TABLE NO. 55.

DISTRIBUTION OF SCHOOL EXPENDITURES IN SALT
LAKE CITY, COMPARED WITH SIXTEEN
OTHER WESTERN CITIES.

ITEMS	Percentage of total spent for each				
	In Salt Lake City	Average City	Median	Highest	Lowest
1. For administration	3.0%	3.3%	3.0%	4.6%	1.8%
2. For supervision	9.9	9.1	9.7	15.3	3.4
3. For teachers' salaries	64.1	67.2	64.8	71.6	60.0
4. For janitors and labor	5.5	5.9	5.5	10.8	4.2
5. For text-books and school supplies	7.9	5.4	4.8	11.9	1.6
6. For fuel, water, power and other supplies	3.4	3.7	3.5	8.0	1.2
7. For maintenance and repair of plant	5.8	6.0	5.7	12.1	3.1
8. For health conservation ...	0.2	0.4	0.2	1.2	.0
9. For miscellaneous	0.2	0.5	1.9	2.7	.0

This table answers the question. Excepting for text-books and supplies, Salt Lake City's distribution of expenditures follows closely the average for the sixteen cities, and is also close to the median. The higher percentage for text-books and supplies comes from the free text-books supplied by the city. In all California cities these are supplied by the state, while in Washington, Oregon, and Montana, the pupils furnish their own books.

Distribution of expenditures for the next two years. For the next two years, until some adequate legislative relief can be obtained, it is important that the board of education devote as large a proportion of its funds as is possible to the first three items of the table. All repairs which the educational department does not certify as absolutely necessary should wait, and all expenses not necessary for instruction should be curtailed. Even then there may not be sufficient funds to maintain the schools during 1916-17 for longer than nine and a

half months, or possibly nine. The people of Salt Lake City as a body scarcely realize how inadequately their schools are supported, or what a handicap they labor under by reason of the restrictions laid upon them by the laws of the state.

APPENDIX A.**A SUGGESTED LAW FOR THE MANAGEMENT OF THE SALT
LAKE CITY SCHOOL DISTRICT.**

The following is a suggestion for a new law for the Salt Lake City school district, based on the needs presented in this report. For the reasons for the different recommendations, made in the following suggested law, the reader is referred back to the different chapters of the report itself.

An Act, Providing for the Organization of Schools in Cities of the First Class.

Be it enacted by the Legislature of the State of Utah:

Section 1. Sections amended. That Sections 1892 to 1961, inclusive, Compiled Laws of Utah, in so far as such relate to the government of schools in cities of the first class, unless otherwise herein provided, are amended to read as follows:

Section 2.—Schools in cities of the first class. Each city of the first class, and all territory which shall hereafter be added thereto, shall constitute one school district, and shall be under the control of a board of education to be elected as herein provided, separate and apart from the counties in which the cities are located. All public schools and property shall be under the direction and control of the board of education for such city, and the schools therein shall be free to all children of the city between the ages of five and twenty-one, and to such other persons as the board of education may decide to admit.

Section 3.—The board of education; how constituted. The board of education in each city of the first class shall consist of five members, to be elected from the city at large, one each year on the first Wednesday in December, and for a five-year term; provided, however, that of boards of education in cities of the first class in existence when this act takes effect, the five members which have the longest remaining time to serve shall constitute the new boards of education, and the five who have the shortest time to serve shall pass out of the office the day this act takes effect; and provided further, that the five members who remain shall forthwith proceed by lot to so provide for the termination of their terms of office that the term of one member shall expire at the close of the year in which this act takes effect, and one other at the close of each year thereafter for the following four years. All elections thereafter shall be for five-year terms ex-

cept in the case of vacancies caused by the death, resignation, or removal of a member from office, in which case elections shall be for the unexpired term. The board of education shall fill, by appointment until the next annual school election, any vacancies occurring in its own membership. All members elected shall qualify previous to, and take their seats at the first regular meeting in January next after their election, and shall serve until their successors are duly elected and qualified. Each member shall be and remain a qualified registered voter of the city; and shall receive no compensation for his services.

Section 4. Conduct of Elections. Elections for members of the board shall be called and conducted, and the canvass of returns shall be made, and the qualification of electors shall be as provided in the general registration and election laws, except as herein provided. There must be at least one polling place in each municipal ward, which may be at a schoolhouse or schoolhouses to be designated by the board of education. It shall not be necessary to file certificates of nomination of candidates, nor to publish a list of nominations. Appointments of judges of election shall be made by the board of education, at any convenient time prior to the day of election. Any form of ballot which is simple and plain and which conveys the intention of the voter may be used. In case a member is to be elected to fill out an unexpired term, as well as one for the full term, the ballots shall specify the term which each person voted for is to serve. The ballot shall be folded, and no designating mark or device of any kind shall appear on the outside thereof, and shall be deposited in the ballot box by the presiding judge of election, in the presence of the voter, on the name of the proposed voter being found on the registry list, and on all challenges to such vote being decided in favor of such voter. Boards of education shall exercise all such powers relative to school elections in their respective cities as are conferred upon the boards of county commissioners in other elections, so far as conformable with this title.

Section 5. Organization of board; executive officers. The members elected as herein provided, before entering upon the discharge of their duties, shall take and subscribe the oath of office. At the first regular meeting in January of each year each board shall reorganize by electing one of their number as president, and one other member as vice president.

Each board shall also appoint a superintendent of schools, a clerk and purchasing agent, a superintendent of buildings, a superintendent of attendance and census, a superintendent of health work, and a treasurer, and may appoint such other officers as the needs of

the schools shall require; **provided however**, that all such officers now employed shall continue to serve for the terms for which they were originally appointed, and thereafter such officers shall be appointed for two-year terms, unless otherwise provided in this act. Any officer appointed by the board may, however, be removed at any time, for cause, by a four-fifths vote of the board. Their salaries shall be as fixed by the board, but a salary once fixed cannot be reduced during the term of office of any officer.

It shall be the duty of the president, or in case of his absence the vice president, to preside at all meetings of the board, to appoint any necessary special committees, and to sign all warrants ordered by the board of education to be drawn upon the treasurer for school moneys. It shall be the chief function of the board of education to hear reports, settle matters of school policy, decide upon extensions and improvements, appropriate funds, and adopt rules and regulations for the government of its executive officers; it shall be the chief function of the executive officers appointed by the board of education to execute the policies decided upon and to work in accordance with the rules and regulations adopted for their government by the board.

Section 6. The superintendent of schools. The board of education shall appoint a superintendent of schools, for a four-year term, who shall be an educator of rank and experience, and who shall be the chief executive officer of the board of education. He shall have supervisory and co-ordinating oversight of the work of all other department officers, shall be notified of and be expected to attend all regular and special meetings of the board of education, or any special committees of the same which may have been created,—except when his position, services, or salary is under consideration,—and shall have the right to speak on any question under consideration, but no right to vote. He shall have the exclusive right to nominate for election the superintendent of buildings, the superintendent of attendance and census, the superintendent of health work, and all assistant superintendents, special supervisors, principals, and regular and special teachers, and shall assign to them their duties. He shall also have exclusive control of the outlining and directing of the instruction in the schools. For incompetency, immorality, or insubordination, he may remove any teacher, principal, or supervisor from office, and shall report his action to the board.

Section 7. The clerk and purchasing agent. The clerk and purchasing agent shall be appointed for two-year terms, and before entering on the duties of his office he shall give a bond running to the board of education, in such sum as the board may require, conditioned on the faithful performances of the duties of his office. It shall be

his duty to attend all meetings of the board and its committees, and to act as the secretary; to keep an accurate journal of its proceedings, and have the care and custody of the seal, records, and papers not otherwise provided for; to countersign all warrants drawn upon the treasurer by order of the board; to keep an accurate account of all moneys paid to the treasurer on account of said board, and from what source received, and all moneys paid on orders drawn on the treasurer by order of said board; and to prepare and submit to the board an annual statement, under oath, of the receipts and disbursements during the year ending June thirtieth, showing:

1. The amount on hand at the date of the last report;
2. The amount of sinking fund and how invested;
3. The moneys paid out, and for what paid;
4. The balance of schools money on hand;
5. The number, date, and amount of every bond issued and redeemed under the authority herein given, and the amount received and paid therefor.

The clerk shall also act as purchasing agent for the board, unless the board should decide to divide the duties and appoint a purchasing agent, and he shall buy, under direction of the board, the superintendent of schools, or the executive officers concerned, all materials and supplies needed by the school department.

Section 8. The treasurer. The treasurer shall give a satisfactory bond running to the board of education, in such amount as the board may require, conditional on the faithful performance of the duties of his office. He shall be the custodian of all moneys belonging to the corporation, and responsible upon his bond for all moneys received by him as treasurer. He shall prepare and submit in writing a monthly report of the receipts and disbursements of his office, and pay out school moneys only upon a warrant signed by the president, or in his absence or disability, by the vice-president, countersigned by the clerk, and shall perform such other duties as the board may require.

Section 9. The superintendent of buildings. The superintendent of buildings shall be a person who has been trained as an engineer, and shall have charge of the maintenance and repair of the school plant, under the direction of the superintendent of schools. All repairs and alterations must first be approved by the superintendent of schools. The superintendent of buildings shall employ all janitors, mechanics, and laborers as needed, and shall direct them as to their duties.

Section 10. The superintendent of attendance and census. The superintendent of attendance and census shall have charge of the

enforcement of all laws relating to the attendance of children at school, the granting of working permits to children from whom such permits are required, and the taking and maintenance of detailed and accurate records as to the age, nationality, whereabouts, physical condition, and attendance or non-attendance at school of every child between the ages of five and sixteen in the city, and shall supply such information in duplicate form to the schools of the city. From the card records on file the annual school census, required of all districts annually in July, shall be compiled and forwarded to the state superintendent of public instruction.

In cities of the first class all children within the compulsory school ages, and not exempted from attendance by law, shall be expected to attend school every day the public schools are in session, and to provide for the proper enforcement of this law all private and parochial schools shall make reports as to children within the compulsory school ages attending their schools, and the public school attendance officers shall in turn enforce the attendance of pupils enrolled in private and parochial schools.

Section 11. The superintendent of health work. Where the health work is efficiently conducted by the board of health, the board of education may permit it to remain under such jurisdiction, but at any time it may co-operate with the board of health in further developing the work, or take over the work in part or in whole. In any case it shall be the duty of the board of education to see that an efficient school health service is provided for the schools of the city, with nurses, physicians, and such specialists as may be needed properly to carry on the work.

Section 12. Annual report. It shall be the duty of the board of education in each city of the first class to see that an annual report, covering the operations of the schools, the finances, and the operations of the different departments or divisions of the school system, with sufficient statistical matter properly to illustrate the progress of the schools, is compiled and printed for distribution among the people of the city. The superintendent of schools shall report on the educational work, progress, and needs of the schools, and the other executive officers shall report through him as to the work of their departments.

Section 13. Annual budget. Each year the board of education in each city of the first class shall cause to be compiled, on or before the first day of May of each year, a detailed budget covering the needs of the schools for the school year commencing on the first day of July next thereafter, in all of their departments. When prepared

this budget shall be submitted to the board of education for its approval. The budget shall show the amounts necessary to carry on the school system as it is, the amounts needed for necessary additions, and the amounts desired for extensions or expansions of the school system. The budget shall also be classified so as to show the needs for each department, and the amounts needed for maintenance of the schools, maintenance and repair of plant, additional sites and buildings or additions to existing sites or buildings, bond interest and sinking fund requirements, and such other items as the board of education may direct.

Section 14. Annual school tax. When the budget has been approved by the board of education, the amounts estimated to be received from state and county school taxes shall first be deducted, and the board of education, through its proper officers, shall forthwith cause the same to be certified to the officers charged with the assessment and collection of taxes for general county purposes in the county in which the city is situated, and such officers, after having extended the valuation of property on the assessment rolls, shall levy such per cent as shall, as nearly as may be, raise the amount required by the board, which levy shall be uniform on all property within the said city as returned on the assessment roll; and the said county officers are hereby authorized and required to place the same on the tax roll. Said taxes shall be collected by the county treasurer as other taxes are collected, but without additional compensation for assessing and collecting, and he shall pay to the treasurer of said board, promptly as collected, who shall hold the same subject to the order of the board of education; provided, that the tax for the support and maintenance of such school system in cities of the first class shall not exceed, for annual maintenance, five mills on the dollar in any one year upon the taxable property of said city, of which at least sixty per cent shall not be used otherwise than for the payment of teachers and supervisory officers; nor three mills on the dollar in any one year for repairs or extensions of the school plant, new sites or buildings, and bond interest and sinking fund or bond redemption requirements.

Section 15. Other powers. Boards of education in cities of the first class shall exercise all rights and powers and be charged with all responsibilities and duties now by law given to boards of education in cities of the first and second class, except in the matter of the examination and certification of teachers as provided for in Sections 1916 to 1926 inclusive of the compiled laws of the state, except in so far as such may have been amended by the provisions of this Act.

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