SCHOOL BUILDING COSTS IN UTAH

An Analysis of the Fixed Charges, Maintenance, and Operation Expenses of School Buildings in Utah During 1921 - 1926.

by

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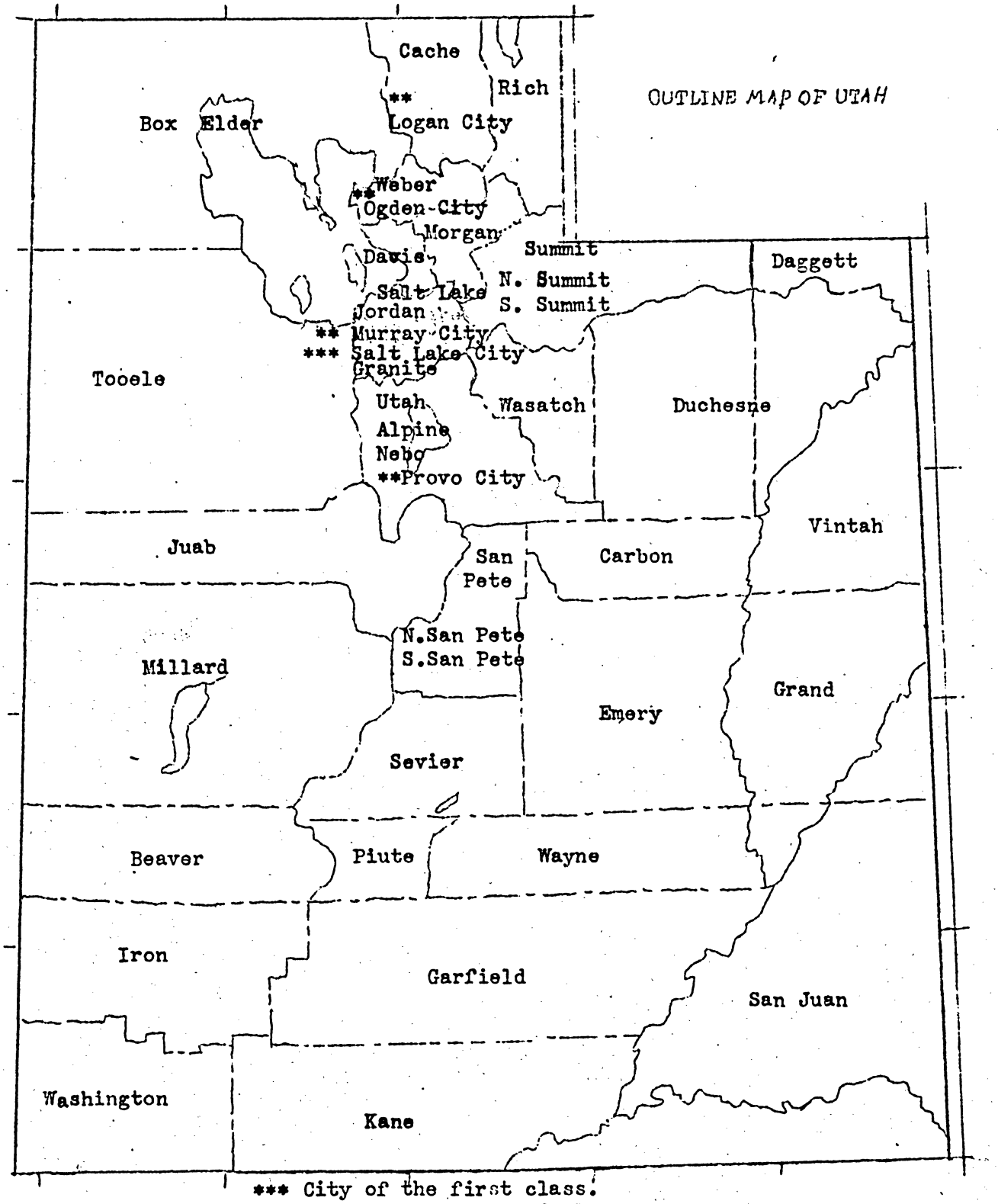
Cut I represents a modern type high school building situated in a small mining town in Utah. This is one of four buildings operated in the Park City School District. It is constructed of a dark well-burned brick. The trimmings and architecture are plain. The interior finish is modest with almost a fire-proof structure throughout. This school building is representative of the newer structures being used.

High School Park City, Utah

I



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Consolidated districts of the first class.

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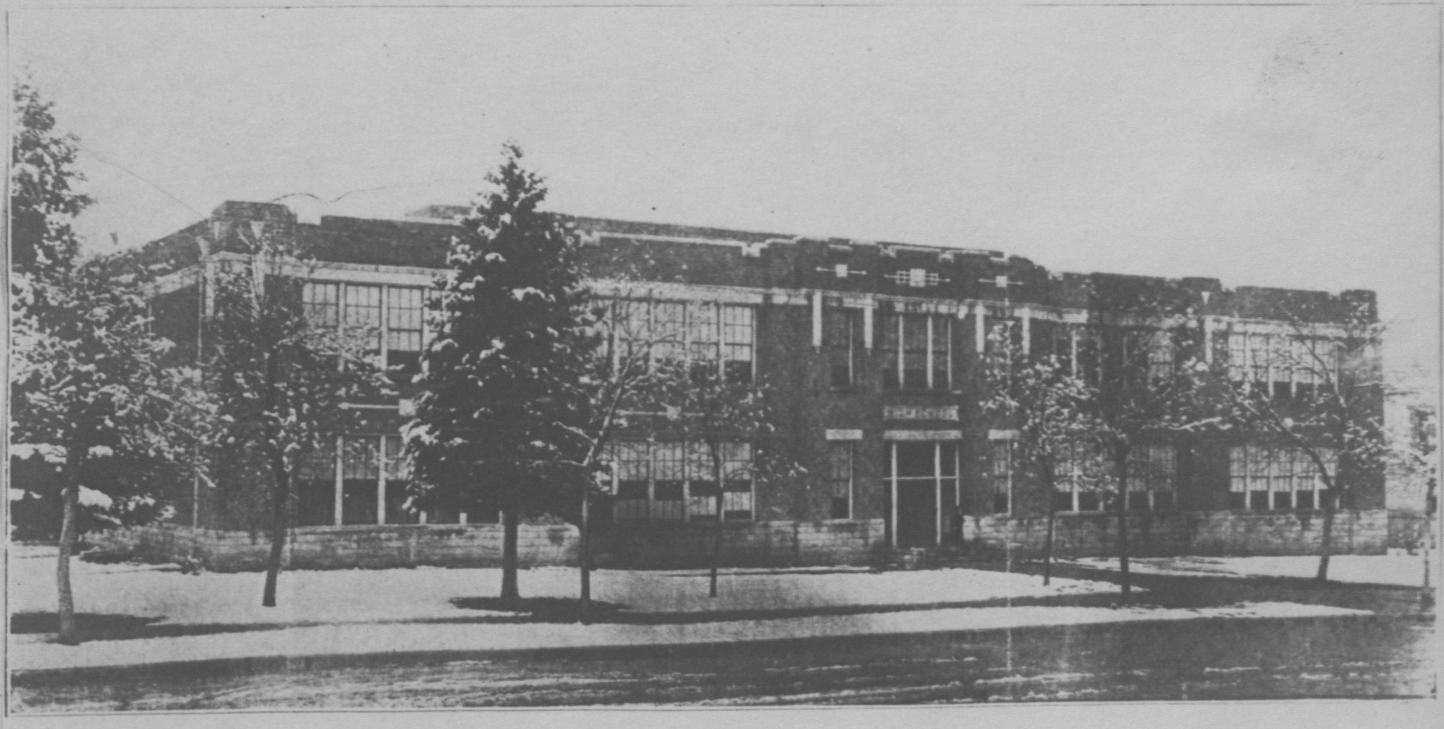
Cut II shows four school buildings; two of the newer type, and two of the older type. The two high school buildings are in agricultural sections and are constructed of dark well-burned brick. The exterior trimmings and architecture are plain; interiors are finished. These buildings are substantial and as nearly fire-proof as is advisable. The two elementary buildings are constructed of native brick with ordinary lumber inside finishings. The Green River building is veneered with cement to preserve the soft brick from alkali erosion. These are representative buildings in four districts which are studied in the expenditure analysis.

High School Nephi, Ut.



Manti High School Building

Elem. Green River, Ut.

Elem. School Moab, Ut.

Chapter I

Introduction

A need for business methods in managing school buildings in Utah school districts stimulated a desire to make an investigation of the expense of maintaining and operating the school buildings in that state.

Administrators, generally, are keenly interested in the yearly running expenses of school buildings. During the earlier period of school experience, little thought was given to this phase of educational expenses. Schools opened and continued until the revenue became exhausted, which automatically closed the school doors. This unsystematic program of controlling and handling school funds had long since failed in the business world. It was obvious that cost accounting and careful record keeping had caused business firms to become thrifty and prosperous with the final result that similar practices are being adopted by progressive boards of education.

Approximately forty to fifty percent of the Total Utah school revenue is expended in maintenance, operation, and fixed charges of school buildings. So great an outlay of public school funds demanded careful analysis and prudent expenditures. Comparisons were made with the expenditures of other similar districts. The analysis was not made to avoid spending money, but to determine when and to what advantage funds for maintenance and operation can be used. "I have no compliments to give to any board of education who passes it out that so much money has been saved during the year. My conception of the law is that tax money paid for schools should be spent for the schools". (Hayes, Judge H. M., Utah Educational Review, May, 1926, p.38).

The expense items of school buildings as herein classified, for Utah buildings are common to other localities, and the investigation is made with this thought in mind. An effort, therefore, has been made to contribute to school board members and superintendents, in general, in making comparative studies of school building expenditures, which may lead to the elimination of unnecessary expense.

The terms "running" and "managing" are used with a degree of latitude, and must so be interpreted. They are used interchangeably as a substitute for the longer terms, maintenance, operation, and fixed charges used in the title.

The Purpose of the Study

This investigation was projected to determine the specific items of expense for which school funds have been expended in connection with the maintenance, operation, and fixed charges of the school buildings in Utah.

The study was begun to determine:

1. The proportion of the building funds that have been used for each of the following items: repairs on buildings, janitors' salaries, janitors' supplies, fuel, light, and water, rent, insurance, and other fixed charges on school buildings.

2. The consistency, or fluctuation, of building expense items of each school district in Utah during 1921 to 1926.

3. The relationship existing between the city school systems and the consolidated county districts

in Utah in regard to the running expenses of school buildings.

4. The effect of the location of the district on the building running expenses.

5. The comparison of managing expenses, in terms of cost per pupil enrolled, of the cheaply constructed building with the higher priced building.

6. The difference, in cost per pupil enrolled, of the one-room building expenses and the four, six, ten, and twenty-room buildings.

7. The difference, in cost per pupil enrolled, in maintaining and operating the secondary buildings and the elementary buildings.

8. The effect of climate on the managing expenses of school buildings in Utah.

9. The cost per pupil enrolled for janitors' salaries and janitors' supplies, and its effect on the upkeep of Utah school buildings.

10. The kinds, and the uniformity of the financial records and reports kept by certain representative Utah school districts: Carbon, Nebo, Alpine, Granite, and Wasatch.

Review of Literature

In the perusal of the literature on the operation and maintenance expenses of school buildings, one is impressed with the fact that many writers are emphasizing about the same point. The building expense question is as old as the public school, and during the life of this problem able administrators have contributed, liberally, through the press and convention lectures to more economical methods of maintaining and operating school buildings.

The American School Board Journal contains many articles dealing specifically with the managing of building expenses. Superintendent Laughlin has an article on financing the medium high school. In this article attention is given to the distribution of the budget, when and how to make the budget. The responsibility of the budget is placed on the superintendent, with the advice and counsel of the board of education. The author points out ways and means to avoid waste in the school building expenditures. (Laughlin, Supt. E.V. American School Board Journal, March, 1925, p.36).

The National Education Association Committee on Schoolhouse Planning present some valuable and interesting information on detecting waste in the schoolhouse plan. (N.E.A. Bulletin, 1920, p.518, Frank Cooper, chairman).

The Utah survey staff mentions building waste in Utah. The staff points out waste in the managing expenses of school buildings which applies to school districts in general. This information is expecially valuable to the district anticipating a building program. (Utah Survey, 1926, p.391). Another article similar in content on the New School Buildings in San Diego, California, points out the need for economy in erecting new buildings, and in the running of school buildings. (American School Board Journal, September, 1925, p.64).

H. E. Ramsey, Maintenance Engineer, Detroit, Michigan, presents a series of articles valuable to administrators. In the discussion he points out the precaution taken by the industrial world to protect life, and calls attention to the fact that school children are not so well protected. Many pupils are

subjected to hazard and accident through neglect on the part of school officials to keep the school buildings in proper repair. (American School Board Journal, January, 1926, p.88).

The great limiting factor in a survey of the building costs is the inability to measure depreciation. To budget for depreciation a measuring device is needed to determine how much the building has wasted, and in what parts. G. C. Shambaugh has written on depreciation, in which business methods are applied to school building depreciation. He points out that depreciation in the field of industry has long been recognized, while in the educational field it is ignored. In pointing out the need for measuring school buildings, he infers board members become the victims of insurance companies because they do not know the value of the buildings. "It", he says, "would be impossible for a business house to succeed by such careless methods." (American School Board Journal, November, 1925, p.65).

J. C. Almack thinks it is the business of the administrator to keep buildings in repair. The general factors of the maintenance problem may be

distinguished: first, the financial methods which have to do with charging off depreciation, the raising of money for upkeep, and the disposal of old worn-out buildings; second, the constructional angle, deciding what replacement and repairs to make, and the deciding who shall make the repairs and when. (American School Board Journal, July, 1925, Vol. 71, p.45).

Causes for depreciation may be listed under five general heads. These causes apply to buildings of all grades and qualities. The degree of depreciation is determined by such agencies as climate, construction, material, and use. First, "wear and tear" is the result of school, meetings, and social activities. The moment the building is opened the wear commences, but can be retarded by repairs and replacement. Second, physical decay which is unavoidable. This wear is caused from without, primarily by weather actions, frosts, winds, and moisture. Paint and repair retards this process, but does not stop it entirely. Third, deferred repairs mean waste, because a small neglect means a great necessity. Buildings reach a point where repairs are a waste, but a lack of funds prevents the erection of a new one, consequently repairs must go

on to the extent of making it livable. Fourth, inadequacy is a result of the community outgrowing the building, and a larger one is needed. Fifth, obsolescence which means out of date or unfit for modern purposes. (American School Board Journal, July, 1925, Vol. 71, p.45).

The care of buildings and parts that wear are listed in the following tables:

	well cared for	poorly cared for
1. Excellent material and work	50 years	40 years
2. Average material and work	30 years	25 years
3. Inferior material and work	20 years	15 years

The rank in which repairs and replacements are needed:

Outside paint	1
Roof	2
Entrances	3
Outside doors	4
Foundations	5
Corridor walls	6
Windows exterior	7
Corridor floors	8
Siding	9
Stairways	10

(Almack,J.C. American School Board Journal, July, 1925, Vol. 71, p.46).

W. R. Briggs has a book of approximately four hundred pages, dealing with the physical features of schoolhouse construction. Reasons are given for unsatisfactory buildings being erected and accepted. The book has a direct bearing on building economy, because the author discusses substantial construction which prescribes minimum running expenses such as: heat, light, and repairs. (Modern American School Buildings, John Wiley & Sons, New York, publishers).

Janitorial duties and their effect on building expense and wear is ably treated by Dr. C. E. Reeves. (An Analysis of Janitor Service in Elementary Schools, 1925. Contributions to Education, No. 167, Columbia University).

Strayer, Engelhardt, and others, have a book that contains a series of building problems in which the reader is permitted to think out the proposition. These problems are concerned with the building program, predicting school population and the operation of the school plant. (Problems in Educational Administration. Problems #44 - 53, pp. 319-369).

Engelhardt and Engelhardt devote Chapter III in their new book to business management in education.

In this discussion such topics are treated as: bookkeeping, cost accounting, payrolls, minutes of board meetings, operation of buildings, purchases, storage, and distribution of supplies. Briefly, the chapter points out what the efficient business administration in a school system should provide. (Public School Business Administration, Chapter III, p.34).

Other things equal, better teaching will result from a well constructed and well operated school building. May Ayers, J. F. Williams and T. D. Wood have compiled a book dealing with the physical features of school buildings as they affect the school life of the child which in turn is a question of building economy. This book deals with light, heat and ventilation of the public school buildings. (Healthful Schools, Houghton, Mifflin Company, 1918).

L. John Nuttall, Jr., points out the procedure for budget making for county unit districts. In this article the possibilities and limitations of the workings of the budget are stressed. The problems of the county unit system are discussed, and

the findings of the Utah study are given. (American School Board Journal, April, 1926, p.57).

The literature reviewed covers the field from the raising of the revenue and the preparation of the budget to the determination of the needs of the school buildings and the actual expenditures made thereon. Methods and devices are mentioned for the most thrifty, successful ways of raising school revenue, and for the most economical expenditures of such revenues. In order to successfully get and wisely use school money, the resources of the school community must be considered, the buildings carefully rated, and repaired to best advantage. In making the review of literature, articles have been selected which seem to cover each phase of the question of school building costs.

Data and Method of Procedure

Forty school districts (thirty-five consolidated county districts of the first class, four city systems of the second class, and one city system of the first class) are included in the study. During

the mid-year (1924) of the five-year period, Utah school districts maintained and operated seven hundred thirty-five school buildings. (Table I). The data collected and presented were obtained by personal investigation at the Utah State Department of Education, and the following Utah school districts: Carbon, Alpine, Nebo, Granite, and Wasatch.

Building managing expenses were classified as follows:

1. Repairs on buildings;
2. Janitors' salaries;
3. Janitors' supplies;
4. Fuel, light and water;
5. Insurance, rent and other fixed charges.

The organization of material is as follows:

1. The forty Utah school districts were arranged in order of the total, and cost per pupil enrolled for each of the expense items connected with the running of school buildings for one year (1924-25).

2. The same school districts in Utah have been arranged in order of the cost per pupil enrolled, over five years (1921-1926).

3. Certain representative school districts were selected for a more detailed analysis. Some fifteen representative schools from the five representative districts were isolated for a detailed analysis. Said districts and schools, and their buildings, probably are a fair sample of different parts of the State. In the choice of these school buildings, climate, population, industry, size and age of the buildings, geographical location, and school organization determined the selection.

4. Data and material have been organized under three major heads: Maintenance, operation, and fixed charges. Data were organized for the specific schools and districts with regard to the year. The financial records and reports, yielding these data, covered in some cases two years, some three, some four, and some five.

The sources of the data were:

1. Records and reports of the Utah State Department of Education.

2. Records and reports of the following school districts: Carbon, Alpine, Nebo, Granite, and Wasatch.

3. Utah district superintendents and school board clerks.

Limitations

Many difficulties were encountered in the search for accurate accounts on expense items. For example: Expenditures are detailed, while expense accounts are general; a repair to a furnace is classified in the account "repairs on buildings", rent and insurance are grouped in the same account instead of two separate accounts, and in no one instance is there a separate account for repairs on roof, windows, doors, flooring, or walls. Thus, it would be impossible to compute the cost and evaluate the kinds of material for specific buildings and climates. However, since this is a study primarily designed to investigate school expenditures, with a helpful view toward elimination of waste, this limitation in accounting may be considered a virtue rather than a fault, because an itemized expenditure of every detail in school expenses would entail an army of clerks, making the clerical expense exceed the value of the results they tabulated.

This research is given rather to general than to specific local conditions. It is thought the facts herein specified will furnish a source of comparative expenditures, and will point out certain underlying

principles that should prove helpful to school officials. It will give the administrator the relative amounts of the general expense items which are common to all school districts, and will, therefore, assist in intelligent budget procedure.

Utah school district accounts are audited every two years (School Laws of Utah, 1923, Chapter XXVIII, p.77). The accounts of the selected representative districts included in this investigation have been audited by different auditing firms, and have resulted in different classification of the same items. Articles listed as supplies in one district are listed as equipment in another. This condition makes it impossible to get the exact classification of the data needed for a study of this sort.

Another limiting factor in the computation of maintenance expenses of school buildings is the fact that no definite information is available as to the extent Utah school buildings are kept in repair. In comparing building costs, it is important to know how well the buildings are kept in repair. Some of these buildings give evidence of good care, while others are badly in need of repairs.

Cut III portrays three school buildings. The high school building is in the Cache County Consolidated district in the extreme northern part of the State; the two elementary buildings are in the extreme southern part in Washington district. These are newer type buildings made of high grade building material. The localities where these buildings are situated represent the extremes of climatic conditions in Utah. One of our problems in analyzing the data is the determination of the effect of climatic conditions on the cost of maintenance and operation of school buildings.

High School Smithfield, Ut.

Elem. School Toquerville, Ut.

Recently built 6 room school building - Toquerville, Utah

Elem. School Hurricane, Utah.

Chapter II

CLIMATE, HISTORY, AND SCHOOL ORGANIZATION OF UTAH AS THEY AFFECT SCHOOL BUILDING COSTS

A. Climate and History.

School buildings are subject to the general laws of the universe. The sun blisters the paint and dries the roofs, frost cracks the moisture in brick and cement, and the rains and winds batter the surfaces of edifices as effectively as they efface the stone surface of the rugged mountain peaks. Therefore, any account of the upkeep of structures would be incomplete without a mention of the climatic conditions surrounding those structures.

Utah lies in that belt of the United States that is subject to extremes in temperature. Her winters, except in the extreme southweatern corner of the State, experience temperatures that drop to ten degrees below zero for the duration of a month, and a moderate season would register from ten degrees above to five degrees below; while in the northern part many winters

the temperature drops to twenty degrees below zero.

The mountainous districts, particularly Park City, Carbon, Cache, Nebo, North Summit, South Summit, Wasatch, Daggett, Wayne, Uintah, and Duchesne, always have extremely cold weather for from three to six months of the year, while a few have frost and snow the entire school term. In an area whose elevation ranges from four thousand feet to seven thousand feet, surrounded by mountains ranging from nine thousand feet to twelve thousand feet above sea level, it is not surprising to witness such cold temperatures. Such changing temperatures are bound to have a deteriorating effect on all exposed surfaces, hence adding to the upkeep, and at the same time greatly increasing the quantity of fuel used.

Moisture-laden winds must travel over the Sierra Nevada range of mountains on their eastward course from the Pacific ocean, and by the time they reach Utah much of their rain has been deposited. The arid west experiences long dry spells accompanied by extreme heat which has an effect on exposed objects. When an occasional rain does visit the parched land, which is like a debauched drinker, it sets in with such violence

to satiate the soil's thirst that it is very destructive. The rain pours through the atmosphere and whips against the cliffs and buildings, and in one or two hours has drenched out as much moisture as a less rigorous climate would do in that many days.

Any destructive character that the winds of the Great Basin may possess, can be charged to the mineral content of the element and not to the force. Following a dry season, the winds carry clouds of dust, swept up from the alkali soil characteristic of that section. The caustic nature of alkali accelerates deterioration against all objects in its path. All districts of Utah can charge considerable destruction to this mineral deposit, but it is very noticeable in San Juan, Grand, Uintah, Emery, and Millard districts.

In connection with the discussion on the geography of Utah, the following is noticeable:

"The portion of Utah known as the great basis, has an elevation of four thousand feet to five thousand feet, and is surrounded and intersected by mountain ranges, the highest peaks of the Humboldt Range near its center being more than five thousand feet, and of the Wasatch on the east about seven thousand feet above the level of the basin". (Bancroft, H.H. History of

Utah, Chapter XIV, p.321).

The following paragraph from a noted English writer describes the climate of Utah:

"Climatically, also, it is remarkable. While a large part of its area is fully four thousand feet above sea level, and therefore partakes of an inland plateau character, its mountains tower to over twelve thousand feet into the clear blue, where the coldest temperatures are found, and yet on the south-eastern and southwestern deserts the same kind of climate and temperature may be found as reign in the Mohave and Colorado deserts of Southern California." (James, G. W. Utah, the Land of Blossoming Valleys, p.IX - X).

Any educational problem concerning school conditions in Utah dates back to the attitude of the founders of the State. For substantiation of this statement, noted historians are quoted.

"During the first years that followed their migration, while yet engaged in building houses, fencing lands, planting crops, and tending herds, the Mormons provided liberally for the cause of education. In the third general epistle of the twelve dated the 12th of

April, 1850, it is stated that an appropriation of five thousand dollars per annum, for a period of twenty years, had been made for a state university (under the supervision and control of a chancellor, twelve regents, a secretary, and treasurer. Frontier Guardian, June 12, 1850), in Salt Lake City, branches to be established throughout the territory as they were needed. In the curriculum the Keltic and Teutonic languages were to rank side by side with the Romanic, and all living languages spoken by men were to be included". (Bancroft, H. H. History of Utah, Chapter XIV, p.321).

"In 1850, by vote of congress, twenty thousand dollars were appropriated for a statehouse, and the sum of five thousand dollars was appropriated for the foundation of a library in Salt Lake City. (Ibid, p. 321).

"It has been well said that the intelligence and progressiveness of a community or state may be determined by its interest in the education of its youth. If this be a truism, then Utah can claim to be in the front rank of the intelligent and progressive. Few states have formulated so thorough and advanced educational program, which the officials are conscientiously seeking to carry out.

"It should not be forgotten that besides the public

schools and the University, and the various Mormon academies and colleges, there are church schools throughout the state conducted by Catholics,Episcopalians, Methodists, Presbyterians and Congregationalists. All these are doing the educational work required of them.

"Thus is Utah caring for the instruction of its young. Whatever may have been the condition of education in the earlier years, and the wrong impression the outside world gained about it, there can be no ques ion of Utah's progressiveness today, for United States Commissioner of Education Claxton declares that there is less illiteracy in Utah now (1921) than in any other state in the Union." (James, G. W. Utah, the Land of Blossoming Valleys, p.154).

"While all these exertions are making for the physical development of a new empire among the mountains, the mental elevation of the people by education has by no means been lost sight of. Liberal appropriations of land and money have been made for the establishment of an university, the grounds for which are laid out and inclosed, being situated on one of the erraces of the mountain overlooking the city.

A normal school designed for the education of those who desire to become teachers, is already in successful operation. Schoolhouses have been built in most of the districts, both in the city and country, which are attended by old as well as young, and every effort is made to advance the mental improvement of the people." (Stansbury, Howard. Exploration and Survey of the Valley of the Great Salt Lake of Utah , 1849-1850, Chapter VII, p.143).

"Utah ranks thirty-second among the forty-eight states in ability to support schools, and ranks third in effort to support them". (Utah Survey, 1926, p.398).

The foregoing quotations from eminent historians regarding early education in Utah, and the geography of the State, have a direct bearing on the present educational condition of the State and the running expenses of her school buildings. Data in Chapter VI bear out this conclusion. Utah is one of the newer states, and to make an analysis of the school problem would necessitate a quotation on her earlier educational program as it affects the present condition with regard to number and kinds of school buildings in use.

The problem of geography and location has a very

marked effect on the maintenance and operation of school buildings in Utah. Such quotations are used only as they convey a relationship to the running expenses of school buildings in Utah, and as are substantiated by data collected and interpreted in this study.

B. School Organization.

"The State organization for elementary and secondary education is exceptionally compact and simple. Local districts are of three types and each has its board of education and superintendent; there is one city of the first class; there are four cities of the second class, and thirty-five county districts of the first class. The forty local administrative units are directed by the State board of education and the superintendent of public instruction. These, with the University of Utah and the Agricultural College of Utah, comprise the State system of public education. The forty school districts in the State enroll 134,694 children." (Utah Survey, 1926, p.9).

The school laws of Utah provide for a State board of education, State superintendent of public instruction, his assistants, district boards of education,

and local superintendents and assistants.

"The State board of education shall consist of the State superintendent of public instruction, the president of the University of Utah, the president of the Agricultural College of Utah, and six other persons appointed by the governor by and with the consent of the senate, two each biennium and for six-year terms; except that the first appointments under this chapter shall be classified by the governor as to the length of terms, so as to provide for such future biennial appointments. Appointments to fill vacancies shall be for the unexpired terms. In making such appointments the governor is to be influenced only by consideration of merit and fitness, and the appointments shall be made without reference to residence, occupation, party affiliation, religion or sex. The governor may remove any member so appointed for immorality, malfeasance in office, incompetency, or continued neglect of duties. The general control and supervision of the public school system is vested in the State board of education, which board shall adopt rules and regulations to eliminate and prevent all unnecessary duplication of work or instruction in any branch or division of the public school system and it

shall require the governing boards of such branches and divisions of the public school system to put the same into operation. The State board of education shall also promote the establishment of libraries and gymnasiums throughout the State, and shall have power to appoint a secretary, who shall work under the direction of the State superintendent of public instruction. The salary of the secretary shall be fixed by the State board of education and approved by the State board of examiners. The board shall have the power to call to its assistance expert help to promote libraries and gymnasiums whenever needed". (Utah School Laws, Chapter I, Sec. 4505).

The State superintendent of public instruction in Utah is elected at the regular State election, to serve a term of four years. He shall reside and hold his office at the seat of government. Before entering upon his duties, he must furnish a five thousand dollar bond, with not less than two sureties, to be approved, recorded, and filed as provided by law. (Utah School Laws, Chapter II, Sec. 4517).

It is the duty of the superintendent to advise with local superintendents and with school boards

upon all matters pertaining to school affairs. He shall upon request furnish in written form all decisions on school law. This decision is final, or shall be held correct until set aside by court or by later legislation. (Utah School Laws, Chapter II, Ser. 4520).

It is further prescribed (Utah School Laws, Chapter II, Sec. 4517, Biennial Report, 1926, p.14) that the superintendent of State shall appoint such help as is needed to conduct and direct the public school system. On his staff are found an assistant superintendent, high school inspector, grammar grade supervisor, primary grade supervisor, director for vocational work (a man for the boys and a woman for the girls), an agricultural supervisor, a director of rehabilitation and library work, and an office force. (Biennial Report for Utah, 1926, p. 14).

The State superintendent of public instruction, the principal of the State normal school, and five district superintendents to be appointed by the State board of education, shall meet and prescribe a State course of study for schools not included in city school systems, and shall furnish free of cost copies to each school district within the State. (Utah School

Laws, Chapter IV, Sec. 4531).

For the selection of text books a commission is appointed, consisting of the State Superintendent of public instruction, the president of the State University, the president of the Agricultural College of Utah, and five citizens of the State to be appointed by the governor, three of whom must be superintendents of schools. (Utah School Laws, Chapter VII, Sec. 4555).

Utah law provides for the consolidated type of school districts. In each consolidated district the schools are free to all children between the ages of six and eighteen years. All school property and schools are under the direction of the local board of education. (Utah School Laws, Chapter X, Sec. 4597 - 4598).

"The board of education of each county school district of the first class shall consist of five members, one member to be elected from and by each of said precincts. The board of county commissioners in which such county school district is located shall, during the month of October, 1921, and every five years thereafter, divide the district into five representative school precincts, and thereafter members of the board of education shall be elected in accordance with such

redistricting." (Utah School Laws, Chapter X, Sec. 4599).

Board members are elected the first Wednesday in December, beginning in 1908, in the odd number districts for a two-year period, and at the same time the three even numbered districts elected three members for a four-year term. On the first Wednesday in December, 1910, and every four years thereafter, there shall be elected one member from each odd precinct for a four-year term. On the first Wednesday in December, 1912, and every four years thereafter, one member from each even numbered precinct shall be elected. (Utah School Laws, Chapter X, Sec. 4600). It is here noted that election of board members is adulterated with political influences, and as a result the maintenance and upkeep of buildings may suffer from political obligations. At any rate, it has a direct influence on building expense.

"At the first meeting of the board in June, 1911, and biennially thereafter, a superintendent of schools shall be elected by the board who at least shall be the holder of a life diploma of grammar school grade and who shall subscribe the constitutional oath of office,

and shall enter upon his duties on the first day of July thereafter." (Utah School Laws, Chapter X, Sec. 4607).

The consolidated district superintendent appointed by the local board may select and recommend to the board for appointment such clerical, office, and supervisory help as he thinks necessary.

"There shall be elected in cities of the first class on the first Wednesday of December, 1897, two members of the board from each municipal ward, one for the term of one year, and one for the term of three years; and in 1898, and biennially thereafter, on the first Wednesday of December, one member from each municipal ward for the term of four years". (Utah School Laws, Chapter XI, Sec. 4663).

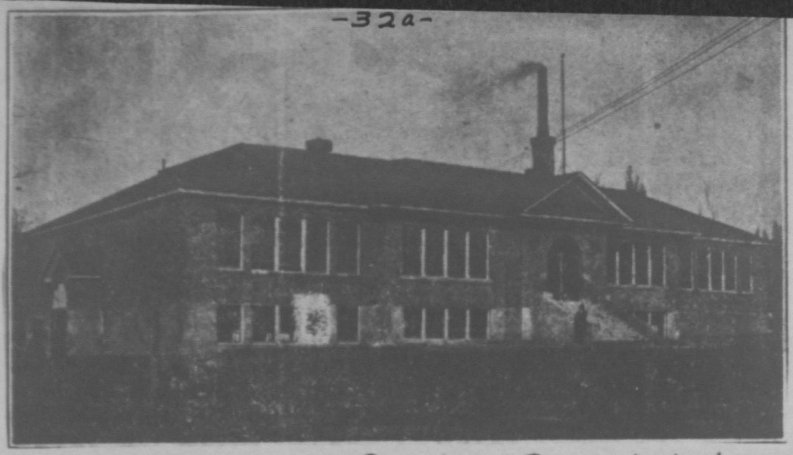
"There shall be elected in cities of the second class, on the first Wednesday of December, 1916, one member of the board of education from the first municipal ward for a term of one year; one member from the second municipal ward for a term of one year; one member from the third municipal ward for a term of three years; one member from the fourth municipal ward for a term of four years; one member from the fifth municipal ward

for a term of five years, and thereafter there shall be elected annually on the first Wednesday in December for the term of five years, a member from the ward in which the term of a member expires". (Utah School Laws, Chapter XI, Sec. 4664).

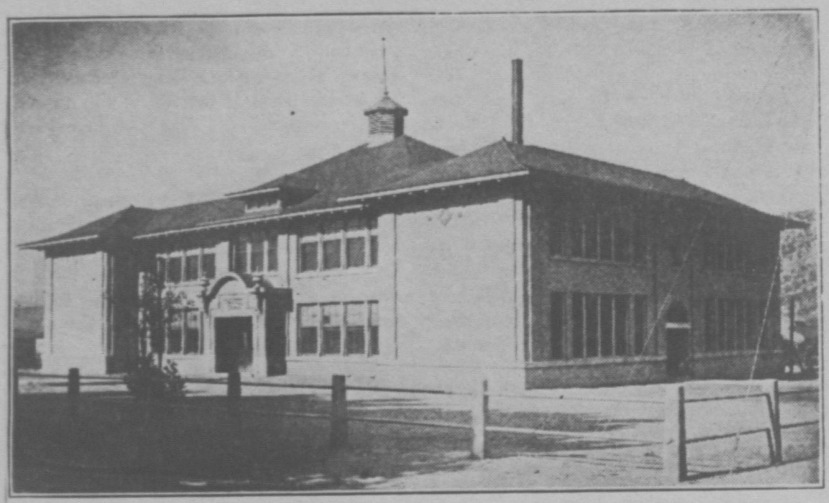
School organization has its effect on the management and upkeep of school buildings. Under present conditions, data show that the quality of janitorial service and the use of the Utah school buildings have a direct bearing on the running expenses. The cost per pupil enrolled is smaller where good janitors are employed and the buildings are carefully used. The Utah school law is quoted to give the specific school organization and the function of the school officers. The whole scheme, from the election and appointment of school officials, directly affects the care and upkeep of the State's school buildings. The central thought is that the organization has in charge the buildings, and that there is a relationship existing between the expenses for care, and the expenses for repair. This presumption is verified by the findings in Chapter VI, which is an analysis of the running expenses of buildings in fifteen representative schools of the State of Utah.

Cut IV includes four buildings. Additions have been made to the two elementary buildings as the school population increased. The original parts were constructed of native material and the additions have been made in keeping therewith.

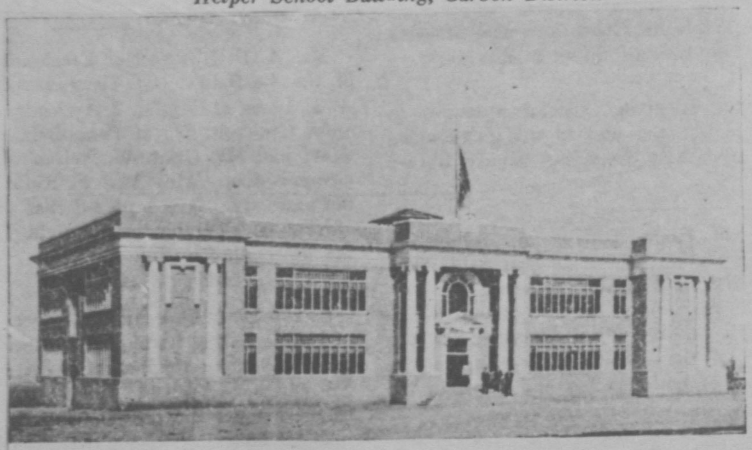
The two high school buildings are later architecture and are typical of other buildings in the State. These give an idea of the kinds of buildings from which the data came that are used in the study. It is significant to know the relation of cost to type of building.



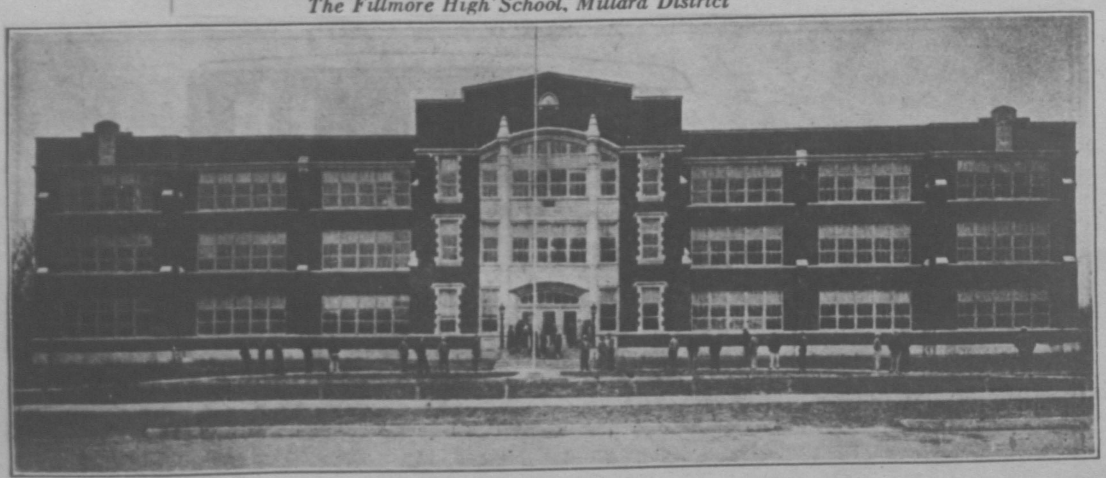
Elem. School Spring Glen, Utah



Helper School Building, Carbon District.



The Fillmore High School, Millard District



WEBER COUNTY HIGH SCHOOL

Chapter III

THE NUMBER AND CLASSIFICATION OF THE UTAH SCHOOL BUILDINGS, AND SCHOOL ORGANIZATION

A. The Number and Kinds of School Buildings.

School buildings owned and rented by the school boards for school purposes in Utah are constructed from three general materials, brick, frame or lumber, and cement. The number of buildings in each district, and the quality of each building is shown in Table I.

(For Table I, see page #34).

Table I

The Number and Kinds of School Buildings in Utah, 1924-25

	Bldgs. Owned			Bldgs. Rented			Total
	Br.	Cem.	Fr.	Br.	Cem.	Fr.	
Alpine	25						25
Beaver	7	1				2	10
Box Elder	33		11	3		2	49
Cache	33						33
Carbon	19	4	2		1	5	31
Daggett	1		1				2
Davis	15		1				16
Duchesne	8		17	1	1	13	40
Emery	14	2	2			1	19
Garfield	3		7			5	15
Grand	3		7				10
Granite	24		1			1	26
Iron	6		6	3		2	17
Jordan	27		4	2			33
Juab	8		1				9
Kane	3		3				6
Millard	18	1	13		1	1	34
Morgan	8		1		1		9
Nebo	26		5				31
N. Sanpete	16						16
N. Summit	3	2	5			1	11
Park City	3	1					4
Piute	4	3	2	1		1	11
Rich	5	1	1				7
San Juan	3	1	10	1		3	18
Sevier	15	6	1		1	4	27
S. Sanpete	11			1			12
S. Summit	4	2	1				7
Tintic	5		2				7
Toolle	17	2	2				21
Uintah	20		20				40
Wasatch	4	5	1				10
Washington	8	1	5	1		2	17
Wayne	2	5	3	1		1	12
Weber	21		1				22
Walt Lake City	35	3	7				45
Ogden	13						13
Provo	6						6
Logan	6			1			7
Murray	5		1				6
Total	487	40	144	15	5	44	735

Utah at the present time is using, in general, three kinds of building material in the erection of her school buildings. Brick is extensively used (Table I). The newer, more modern houses, are of the high-grade brick, plain in architecture (Cut XI), and substantially constructed. The tendency is toward fireproof materials as nearly as possible. Buildings of brick variety in use number 487 (Table I) or approximately sixty-five percent of the school buildings in use. Cement buildings are not popular. With one exception, the cement buildings are small in size, one and two rooms. Findings in Chapter VI indicate upkeep on reinforced concrete is not as great as brick. Frame buildings greatly outnumber cement. There are one hundred forty-four frame school houses owned by the school districts of the State, or an average of three and five-tenths for each school district. This variety of school buildings is greater in number in the larger geographical divisions, and also the same districts that have the greater number of one-room schools. These districts have an abundance of saw timber, either within their boundaries, or near, which makes economical construction material for small houses. There is not a

large frame house in use in Utah at present.

The number of school buildings rented by the school districts in Utah is sixty-eight, or one and one-half for each district. The rented buildings, in general, are situated in the school districts operating the one-room schools. Usually, it is a residence or part of a store building, located in small villages where the school population is limited.

B. The Number and the Types of School Organization.

Embraced in the Utah school program are all types of organization, from the one-room school and the mixed schools, to the highly specialized type designated junior and senior high schools. The specific number of schools, and the specific organization of each is listed under the one-room, the elementary and high school combined, the elementary schools only, the junior high schools only, the senior high schools only, and the four year high schools only.

(For Table II, see page #37)

Table II

The Number and Types of Organization of Schools in Operation In Utah 1924-1925

	One Room	Elem.& H.S.	Elem. only	Jr.H.S. only	Sr.H.S. only	4 Yr. H.S.	Total
Alpine			21			4	25
Beaver	3	2	7	1			10
Box Elder	10		43			1	44
Cache		2	25		2	2	31
Carbon	2	5	21			1	27
Daggett	1	1					1
Davis			13	2		1	16
Duchesne	17	3	34	3			40
Emery	2	2	14			3	19
Garfield	3	1	12			3	16
Grand	7		9	1			10
Granite		1	19			4	24
Iron		1	15	1			17
Jordan	2	3	17	3		3	26
Juab	1	3	4	1		1	9
Kane		2	2	2			6
Millard	8		29			3	32
Morgan		2	7			1	10
Nebo		2	23			3	28
N. Sanpete	2		11	3		2	16
N. Summit	4	1	9			1	11
Park City	1	1	2			1	4
Piute	3	2	6			1	9
Rich		1	3	2		1	7
San Juan	10	3	11	1		1	16
Seviere	1	1	18			3	22
S. Sanpete		2	7			2	11
S. Summitt			6		1		7
Tintic		3	4			1	8
Tooele			18	1		2	21
Uintah	13	5	33	1	1		40
Wasatch	2		9	1		1	11
Washington	6	5	12				17
Wayne	5	1	10				11
Weber			16	6			22
Salt Lake City		1	33	6	5		45
Ogden		4	8		1		13
Provo			4	1	1		6
Logan		6		1			7
Murray		3	3				6
Total	103	69	538	37	11	46	701

Table II shows the types of schools in operation, which has a direct relationship to running expenses. There were one hundred three one-room schools operated in Utah 1924-25. It is found that these schools are in a few specific districts, e.g. Duchesne School District operates seventeen of the total number. About one-half the Utah districts have eliminated the one-room school, and about one-fourth of the districts have two or fewer. (Table II).

Elementary and high schools combined are sixty-nine in number. These schools are housed in the same building, and usually include the first year of the high school, in some cases the second, and rarely the four years. (Table II).

Elementary schools only total five hundred thirty eight, the greatest number of any type, or about seventy-one percent of the total number. One-room schools are included in the elementary school column. The range is from forty-three in Box Elder School District to zero in the Daggett School District, with an average of thirteen and one-half for each school district.

Many types of secondary schools are found in Utah. There are schools of the three-year junior high including

the seventh, eighth, and ninth grades; there are the senior high type including the tenth, eleventh, and twelfth grades. These are organized and function separately. There are also the schools containing all six of the above mentioned grades, which are organized and function in one school building. The traditional four-year type, including the ninth, tenth, eleventh, and twelfth grades, is the predominating high school organization. (Table II).

Forty school districts in Utah contain a total of one hundred three one-room schools. Duchesne School District ranks first with a total of seventeen, while Uintah, Box Elder, San Juan, Millard, and Grand each come in for a share. Nineteen of these districts have no one-room schools, and eleven districts have three or fewer.

Chapter IV

EQUIPMENT AND REPLACEMENT EXPENDITURES IN UTAH SCHOOL DISTRICTS FOR 1924 - 1925

A definite line of demarcation cannot be drawn between equipment and supplies. The accounts are so complicated and overlapped by local legal situations and by individual interpretations of the nature of the commodities involved, that authorities are unable to decide on the exact difference. It is possible, however, to assume, from what has been written on the matter, a general distinction. Articles that are completely consumed by use are generally classified as supplies. Permanent materials that last from year to year are classified as equipment. The following quotations will substantiate this assumption.

"Every system of school accounting having state wide or wider acceptance makes a distinction between supplies and equipment. The differentiation varies somewhat according to the system of accounting used.

Certain articles classified as supplies in one system will be found listed as equipment in another, and in other systems some items are found classified both as supplies and as equipment. Such differences are sometimes the results of legal factors, creating conditions which may result in a constant handicap to school accounting. " (Engelhardt and Engelhardt, Public School Business Administration, p.333).

"To the term equipment, a sense of permanence is attached. It is presumed that equipment will endure for a period of years and more care is exercised in the use of such articles. For this reason, such articles as tools, china, and glassware used in domestic science, cooking utensils, paint boxes, scissors, tape mea ures, and the like, have been omitted from the lists of supplies. Practical experience has shown that more care is taken of such articles, especially on the part of teachers, when it is known that they are classified as items of equipment rather than as supplies. Guided by economy, we are justified in making this rather arbitrary classification." (Taylor, R.B. Principles of School Supply Management, Bureau of Publications, Teachers College, Columbia University, New York City, 1926).

Utah school districts are listed in order of total expenditures for equipment placed in the schools during 1924-25. (Table IIIa). On the following page, the same districts are listed in order of the cost per pupil enrolled for equipment and replacement. (Table IIIb).

(For Table IIIa, see page #44)
(For Table IIIb, see page #45)

Table III a

The Utah School Districts Ranked in Order of the Total Cost for Equipment and Replacement, 1924 - 1925

District	Rank	Total Cost
Salt Lake City	1	$ 26377.39
Morgan	2	2521.17
Wasatch	3	1929.28
Beaver	4	1772.70
Box Elder	5	1412.66
Grand	6	1159.20
Granite	7	875.51
Davis	8	851.01
Nebo	9	711.67
Wayne	10	678.26
N. Sanpete	11	577.45
Uintah	12	558.82
Ogden City	13	550.00
Piute	14	432.21
N. Summit	15	411.50
Rich	16	367.94
Murray City	17	338.65
Provo City	18	316.36
Washington	19	311.35
Kane	20	305.03
Millard	21	247.64
Emery	22	238.67
Jordan	23	188.30
Weber	24	55.26
Alpine	25	- - -
Cache	26	- - -
Carbon	27	- - -
Daggett	28	- - -
Duchesne	29	- - -
Garfield	30	- - -
Iron	31	- - -
Juab	32	- - -
S. Summit	33	- - -
Park City	34	- - -
San Juan	35	- - -
Sevier	36	- - -
S. Sanpete	37	- - -
Tintic	38	- - -
Tooele	39	- - -
Logan City	40	- - -
Total		$ 43,188.03
Average		1,799.50

Table III b

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Equipment & Replacement, 1924 - 1925

District	Rank	Pupil Cost
Morgan	1	$ 3.34
Grand	2	2.22
Washington	3	1.18
Beaver	4	1.17
Wayne	5	1.09
Salt Lake City	6	.82
Piute	7	.68
Rich	8	.65
N. Summit	9	.55
Kane	10	.49
Box Elder	11	.24
Murray City	12	.24
Davis	13	.23
N. Sanpete	14	.22
Uintah	15	.21
Wasatch	16	.15
Granite	17	.12
Nebo	18	.12
Emery	19	.10
Provo City	20	.08
Millard	21	.06
Ogden City	22	.05
Jordan	23	.03
Weber	24	.01
Alpine	25	- -
Cache	26	- -
Carbon	27	- -
Daggett	28	- -
Duchesne	29	- -
Garfield	30	- -
Iron	31	- -
Juab	32	- -
S. Summit	33	- -
Park City	34	- -
San Juan	35	- -
Sevier	36	- -
S. Sanpete	37	- -
Tintic	38	- -
Tooele	39	- -
Logan City	40	- -

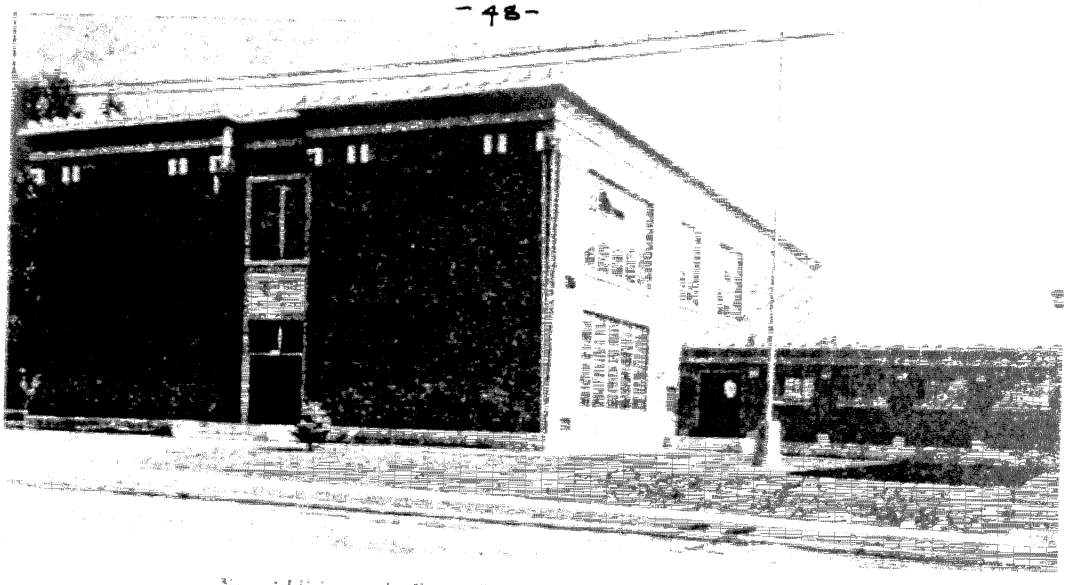
Mean $.35; Median .07; Third Quartile .49;
First Quartile .00; S. D. .67; P. E. .45

Of the twenty-four school districts in Utah showing equipment and replacement expenditures in 1924-25, the Morgan district ranks first with a cost of $3.34 per pupil enrolled. Weber district occupies the last position with a pupil cost of one cent. The first five positions are occupied by rural districts showing a pupil cost above one dollar for equipment in a year. Salt Lake City system is in the sixth place with a pupil cost of $.82. Rural districts, on the whole, are above the city districts in pupil cost for equipment. From inspection of equipment in rural schools and the city schools, included in the above figures, the general condition of the equipment is in keeping with the pupil cost. The four city systems show a relatively low cost of equipment by their rank in the table, while the equipment in use in these districts looks new and polished. The rural districts, on the whole, show a greater pupil cost. The equipment in these rural schools shows wear and defacement. The table indicates this use is expensive, and a waste. The fact that sixteen of the forty districts show no equipment cost is proof of this assertion. It is found in these specific cases that the equipment is used until it is completely and prematurely worn out, and

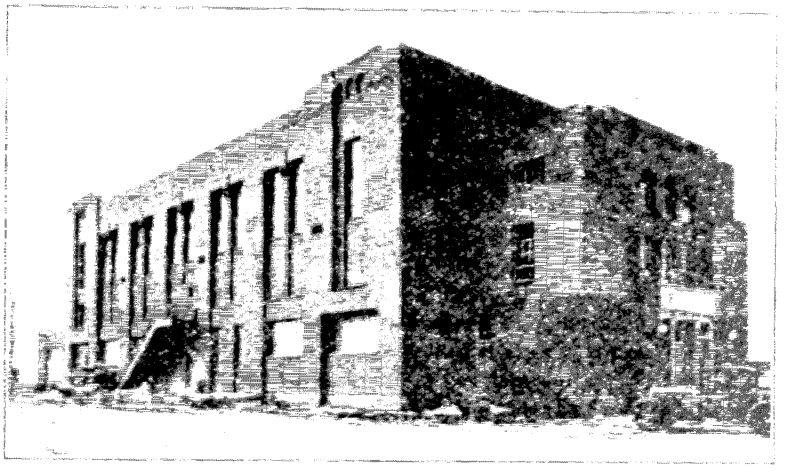
consequently replaced all at one time. It is further noticed that defaced equipment is reflected in the building. The repainting of walls, the replacement of defaced woodwork, repairing of locks, and the replacement of windows come in for a good share of the repair fund. The placing of old equipment in a new building has a direct influence on this school building expense.

Weber district possesses some very fine, modern homes, owned by a class of people who are proud of their premises and the modern equipment in their homes. The table shows this district to have spent only one cent per pupil enrolled for school equipment and replacement in one year.

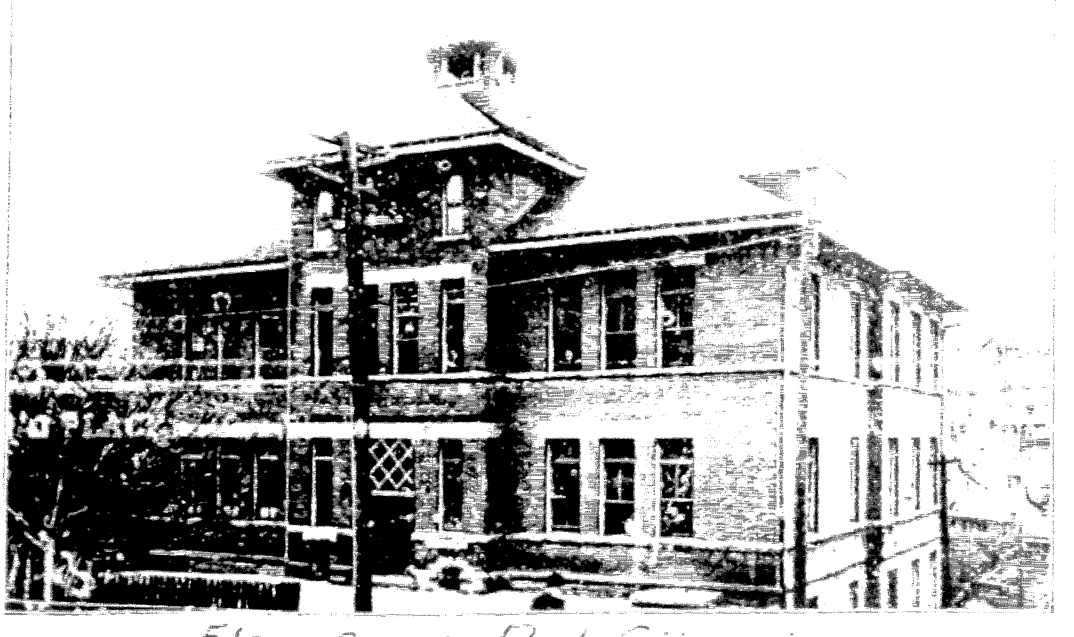
Cut V represents three buildings. The first is an addition to an elementary building, the second is a shop building, and the third is an elementary building of the older type. These are representative of other buildings in the respective districts. These buildings indicate different styles of architecture and are illustrative in connection with the analysis of costs for maintenance and operation.



New Addition to the Forest Elementary School of Salt Lake City



Cyprus Shop and Gymnasium Building. Construction work began August 3, 1927, and the dedicatory exercises will be held on or about February 10, 1928



Elem. School Park City, Utah
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Chapter V

MANAGEMENT EXPENDITURE FOR SCHOOL BUILDINGS IN UTAH IN TOTAL AND THE COST PER PUPIL ENROLLED FOR 1921 - 1926

A. Enrollment and the total and the cost per pupil enrolled for maintenance, operation, and fixed charges of school buildings in Utah, 1924 - 1925

(For Table IV, see page #60)

Table IV

The Utah School Districts Ranked in the Order of Pupil Enrollment, 1924-1925

District	Rank	Enrollment
Salt Lake City	1	31,832
Ogden City	2	9,434
Granite	3	7,189
Box Elder	4	5,781
Nebo	5	5,505
Carbon	6	5,267
Cache	7	5,187
Jordan	8	5,083
Alpine	9	4,545
Seviere	10	3,717
Davis	11	3,612
Millard	12	3,558
Provo City	13	3,536
Weber	14	3,194
Logan City	15	2,775
Duchesne	16	2,645
Uintah	17	2,596
S. Sanpete	18	2,588
N. Sanpete	19	2,534
Emery	20	2,375
Tooele	21	2,237
Washington	22	2,001
Iron	23	1,960
Wasatch	24	1,631
Garfield	25	1,596
Beaver	26	1,525
Murray City	27	1,400
Tintic	28	1,390
Juab	29	1,315
Park City	30	920
Morgan	31	753
N. Summit	32	739
San Juan	33	713
Piute	34	633
Wayne	35	620
Kane	36	614
Rich	37	566
Grand	38	521
S. Summit	39	518
Daggett	40	89
	Total	134,694
	Average per District	3,367

School enrollment by district in Utah for the year 1924-25 has a range of 31,832 in the Salt Lake City system to 89 in the Daggett County Consolidated District. The Salt Lake City system has a total of forty-five school buildings, and Daggett County has two (Table I). The total enrollment for the forty Utah districts is 134,694, with a district average of 3,367. Except the two extremes, the pupil enrollment is rather uniform, i.e., the "step interval" is not great.

a. Maintenance of School Plant

"Under this head should be included all expenditures made for the restoration of any piece of property to its original condition of completeness or efficiency. This includes the repair on buildings and upkeep of grounds and repairs and replacement. . . . Include cost of labor and materials incident to the repair of buildings, including painting and glazing, and to repair of plumbing, lighting, heating, and ventilating equipment". (Engelhardt and Engelhardt, Public School Business Administration, p. 252).

Table V a

The Utah School Districts Ranked in Order of the Total Cost for Repairs on Buildings, 1924-1925

District	Rank	Total Cost
Salt Lake City	1	$ 79,569.78
Box Elder	2	17,605.16
Nebo	3	13,315.90
Ogden	4	13,261.38
Sevier	5	11,370.22
Granite	6	10,573.11
Tooele	7	9,776.25
Jordan	8	9,141.18
N. Sanpete	9	8,926.59
Alpine	10	6,457.57
Cache	11	6,227.92
Davis	12	5,195.73
Juab	13	5,600.68
Millard	14	5,581.34
Carbon	15	4,924.92
Park City	16	4,725.11
Emery	17	4,448.11
Tintic	18	4,042.24
Murray City	19	3,813.81
S. Sanpete	20	3,349.46
Weber	21	2,875.71
Iron	22	2,696.27
Wasatch	23	2,612.49
Logan City	24	2,377.96
Morgan	25	2,051.91
Duchesne	26	1,805.19
Uintah	27	1,775.52
Grand	28	1,523.11
Beaver	29	1,413.92
Washington	30	1,253.01
Piute	31	1,103.22
Rich	32	837.34
Provo City	33	715.70
Garfield	34	622.56
S. Summit	35	613.96
Wayne	36	580.55
San Juan	37	406.35
N. Summit	38	283.44
Kane	39	191.14
Daggett	40	125.96
	Total	$253,771.77
	Average	6,344.29

Table V b

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Repairs on Buildings, 1924-25.

District	Rank	Pupil Cost
Park City	1	$ 5.33
Tooele	2	4.37
Juab	3	4.25
N. Sanpete	4	3.56
Sevier	5	3.06
Box Elder	6	3.04
Grand	7	2.92
Tintic	8	2.90
Murray City	9	2.72
Morgan	10	2.72
Salt Lake City	11	2.49
Nebo	12	2.42
Emery	13	1.87
Jordan	14	1.79
Piute	15	1.74
Davis	16	1.71
Wasatch	17	1.60
Millard	18	1.56
Rich	19	1.48
Granite	20	1.47
Alpine	21	1.42
Daggett	22	1.41
Ogden City	23	1.40
Iron	24	1.37
S. Sanpete	25	1.26
Cache	26	1.20
S. Summit	27	1.19
Beaver	28	.97
Wayne	29	.93
Carbon	30	.91
Weber	31	.90
Logan City	32	.87
Duchesne	33	.68
Uintah	34	.67
Washington	35	.62
San Juan	36	.57
N. Summit	37	.39
Garfield	38	.38
Kane	39	.31
Provo City	40	.20

Mean $1.76; Median $1.48; Third quartile $2.72; first quartile $.97; S. D. $1.28; P. E. $.86.

Repairs on Buildings, 1924-25

Constant repair on buildings is indispensible, for buildings wear inside and out from the moment they are opened for use. (Almack, J. C. American School Board Journal, July, 1925, Vol. 71, p.45). Studies made in this field indicate wear is greater on certain parts of the building, thus the necessity of providing for such upkeep. (Schwartz, H. M. Contributions to Education, Columbia University, No. 240). Forty school districts in Utah have a range of $5.33 per pupil enrolled to $.20. Clearly this indicates some buildings are deteriorating more than others. The quality (Table I) of the structures and location have a direct bearing on the upkeep expense. The Utah school districts paying the highest pupil cost for janitors, and janitors' supplies, have by far the lowest pupil cost on upkeep. Various factors are determinants in repair expenses. In some of the forty cases, janitors are employed the twelve months, while some only serve during the time school is in session. The more expensive janitors are mechanically inclined, and do the repair work which is not

shown in the repair account, but is included in the salary account. The janitor is employed with this agreement with the board, and in some cases he occupies a room in the building where he also serves as watchman.

The range in total cost for repairs on the school buildings in Utah for 1924-25 is $79,569.78 in the Salt Lake City system to $125.96 in the Daggett School district. The Salt Lake City district had forty-five buildings, and the Daggett district two buildings to maintain. (Table I). The first fifteen school districts in rank comprise the larger school districts, and naturally the total expenditures would be greater. The smaller districts comprise the first quartile, and in total expenditures on repairs on buildings they have not used as much money.

The range in the pupil cost for repairs on buildings is $5.33 in the Park City school district to $.20 in the Provo City system. Both these school systems are small (Table I). The Park City school buildings are at a high attitude and subjected to extremes in temperature. The Provo City buildings are in the valley where the temperature is more stable.

The pupil cost in Table V b is for one year. The districts are ranked according to the total and the pupil cost for repairs on buildings.

In terms of cost per pupil enrolled, the mean is $1.76, the median $1.48, the third quartile $2.72, the first quartile $.97, the S. D. $1.28, and the P.E. $.86.

b. Operation of the Plant

"Under this general heading should be included all expenditures for keeping the building open and ready for use. In cases where schools of different types occupy the same building or buildings, the expenses for operating the plants should be apportioned among the different kinds of schools according to the number of square feet of floor space occupied by them.

"Wages of janitors, include salaries paid to janitors, engineers, and watchmen.

"Engineers and janitors supplies include articles which are consumed in using, are not expected to last from year to year, such as brooms, mops, soap,

dusters, floor oil, and other cleaning supplies; electric bulbs, paper cups, and toilet supplies; and other miscellaneous articles necessary for the operation of the school plant.

"Fuel includes all expenditures for coal, wood, and other fuel including freight, cartage, and other expenses incurred in securing the same.

"Water, includes charges for water used in the buildings and on the ground". (Engelhardt and Engelhardt, Public School Business Administration, p.251).

(For Table VI a, see page #58)

(For Table VI b, see page $59)

Table VI a

The Utah School Districts Ranked in Order of the Total Cost for Janitors' Salaries, 1924-25

District	Rank	Total Cost
Salt Lake City	1	$97,940.29
Ogden City	2	24,731.13
Granite	3	21,522.84
Jordan	4	19,788.64
Carbon	5	18,558.71
Box Elder	6	18,158.87
Nebo	7	17,419.35
Cache	8	14,936.15
Alpine	9	13,528.00
Weber	10	11,606.30
Millard	11	10,357.98
Provo City	12	9,727.10
Sevier	13	9,310.75
Tooele	14	9,261.77
Davis	15	9,175.18
Logan City	16	7,788.60
N. Sanpete	17	7,191.00
Tintic	18	6,862.00
Uintah	19	6,722.16
Emery	20	6,218.50
S. Sanpete	21	5,937.47
Iron	22	5,511.25
Murray City	23	4,850.00
N. Summit	24	4,816.50
Beaver	25	4,604.11
Wasatch	26	4,477.35
Juab	27	4,449.37
Duchesne	28	4,315.29
Park City	29	3,912.10
Washington	30	3,624.03
Garfield	31	3,313.91
Morgan	32	3,249.50
Rich	33	2,222.33
S. Summit	34	1,991.25
Grand	35	1,831.39
Piute	36	1,757.48
Kane	37	1,511.25
San Juan	38	1,462.50
Wayne	39	1,275.15
Daggett	40	380.00
	Total	$406,297.55
	Average	10,157.43

Table VI b

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Janitors' Salaries, 1924-1925.

District	Rank	Pupil Cost
N. Summit	1	$6.51
Tintic	2	4.96
Morgan	3	4.31
Daggett	4	4.27
Park City	5	4.25
Tooele	6	4.14
Rich	7	3.92
Jordan	8	3.89
S. Summit	9	3.84
Carbon	10	3.71
Weber	11	3.63
Grand	12	3.51
Murray City	13	3.36
Juab	14	3.38
Nebo	15	3.16
Box Elder	16	3.14
Salt Lake City	17	3.07
Beaver	18	3.01
Alpine	19	2.97
Granite	20	2.91
Millard	21	2.91
Cache	22	2.87
N. Sanpete	23	2.83
Iron	24	2.81
Logan City	25	2.80
Piute	26	2.77
Provo City	27	2.75
Wasatch	28	2.74
Ogden City	29	2.62
Emery	30	2.62
Uintah	31	2.58
Davis	32	2.54
Sevier	33	2.50
Kane	34	2.46
S. Sanpete	35	2.29
Garfield	36	2.07
Wayne	37	2.05
San Juan	38	2.05
Washington	39	1.91
Duchesne	40	1.63

Mean $3.14; Median $2.91; Third quartile $3.71; First quartile $2.62; S. D. $.97; P. E. $.65

1. Janitors' Salaries, 1924-25

The janitor is an important employee of the school. (Reeves, C.E. Contributions to Education, No.167, Columbia University). The cost for janitorial serviees in Utah is the greatest of all the building running expenditures. The costs are figured in total amounts for each district, and included in Table 7a is the per pupil cost for one years janitorial service. An average in pupil cost for forty districts is $3.17. The most remote districts have a smaller pupil cost than either the city schools, or the districts near the cities. (Table VI). From this table is seen the total amount of the expenditures by school district in Utah for janitors' salaries. Salt Lake City spends the most in terms of dollars and cents, but in terms of pupil cost the rank is number seventeen. Ogden City ranks second in total amount, but in terms of pupil cost her rank is twenty-nine. Granite,with a rank of three in total numbers, has fallen to nineteenth place in pupil cost. In reality, Granite is a part of Salt Lake City. The

two school districts occupy the same positions in totals, and in pupil cost. That is, Granite ranks third position below Salt Lake City in both columns which is indicative of conditions governing expenditures for janitors' salaries.

Daggett occupies position number forty in round numbers, and in pupil cost the district has climbed to fourth position. North Summit, Tintic, and Morgan are districts ranking well down the column in round numbers, but rank one, two and three in pupil cost. Districts with the greatest enrollments, and with the greatest school revenues, are spending more money for janitors, yet the cost per pupil is much less.

The range of forty school districts in total dollars expended for janitors' services is $97,940.29 in Salt Lake School district to $380.00 in the Daggett School district. The range for pupil cost is $6.51 in North Summit district to $1.63 in Duchesne district, both being rural districts.

The forty Utah school districts are ranked according to the total amount expended during 1924-25 for janitors' salaries, and the same districts are ranked

according to the cost per pupil enrolled for the same building expense. In terms of pupil cost, the mean is $3.14, the median $2.91, the third quartile $3.71, the first quartile $2.62, the S. D. $.97, and the P. E. $.65.

c. Operation of the Plant (Cont.)

(For Table VII a, see page #63)
(For Table VII b, see page #64)

Table VII a

The Utah School Districts Ranked in Order of the Total Cost for Janitors' Supplies, 1924-1925

District	Rank	Total Cost
Salt Lake City	1	$ 7,926.95
Ogden City	2	4,117.47
Granite	3	2,691.34
Carbon	4	2,596.34
Jordan	5	2,382.23
Box Elder	6	1,927.76
Nebo	7	1,594.64
Sevier	8	1,433.54
Davis	9	1,139.94
Iron	10	1,079.93
Alpine	11	1,072.11
Emery	12	984.13
Beaver	13	977.56
Uintah	14	939.54
Provo City	15	936.74
Millard	16	910.70
Tooele	17	697.33
Park City	18	637.41
Tintic	19	596.55
Murray	20	562.39
Weber	21	553.66
Garfield	22	500.00
Logan City	23	484.21
N. Sanpete	24	467.72
S. Sanpete	25	453.03
Washington	26	304.70
Morgan	27	285.97
Wasatch	28	265.94
S. Summit	29	259.92
N. Summit	30	246.69
Piute	31	216.12
Juab	32	211.51
Duchesne	33	206.05
Cache	34	169.77
Granite	35	61.89
Rich	36	50.00
San Juan	37	47.25
Daggett	38	39.25
Wayne	39	27.32
Kane	40	17.48
	Total	$40,073.08
	Average	1,001.82

Table VII b

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Janitors' Supplies, 1924-1925.

District	Rank	Pupil Cost
Beaver	1	$ .64
Park City	2	.59
Iron	3	.55
Carbon	4	.51
S. Summit	5	.50
Jordan	6	.46
Ogden City	7	.43
Daggett	8	.43
Tintic	9	.42
Emery	10	.41
Murray City	11	.40
Morgan	12	.38
Sevier	13	.38
Granite	14	.37
Uintah	15	.36
Piute	16	.34
N. Summit	17	.33
Box Elder	18	.33
Tooele	19	.31
Garfield	20	.31
Davis	21	.31
Nebo	22	.28
Provo City	23	.27
Salt Lake City	24	.25
Millard	25	.25
Alpine	26	.21
N. Sanpete	27	.18
S. Sanpete	28	.17
Weber	29	.17
Logan City	30	.17
Wasatch	31	.16
Juab	32	.16
Washington	33	.15
Grand	34	.11
Rich	35	.08
Duchesne	36	.07
San Juan	37	.06
Wayne	38	.04
Cache	39	.03
Kane	40	.02

Mean $.29; Median $.31; Third quartile $.41;
First quartile $.16; S. D. $.17; P. E. $.11

1. Janitors' Supplies, 1924-25

Janitors' supplies are essential to the upkeep and appearance of a school building. (Reeves, C.E. Contributions to Education, No. 167, Columbia University). Here again the districts having the revenues and according to costs per pupil, have the better paid janitors. They are also using the most janitors' supplies. Pupil cost for the city schools is small, while the outlying districts have a very small pupil cost for supplies. Districts with the lowest per pupil cost are geographically located where mud is tracked into the building during the wet weather and dust sifts through during the dry weather. (Table VII).

The school districts in Utah that use the most money for janitors' services, also expend the greatest amount for janitors' supplies. The rank of the upper quartile is almost indentical with the janitors' salary ranking. The positions of the lower quartile are somewhat changed. Carbon district ranks fourth in the total expenditure for janitors' supplies, and

fourth in pupil cost for the same item. From the ranking in pupil cost column, it is evident that some of the districts are not up to par, because there are rural poor, rural well-to-do, and city systems in the upper quartile. Generally, the larger buildings use less per pupil for janitor supplies than the smaller buildings.

Janitors' supplies expense, by school district in forty Utah systems, has a range of $7,926.95 in the Salt Lake City school system to $17.48 in the Kane school district for total amount in dollars. The pupil cost has a range of $.64 in the Beaver school district to $.02 in the Kane school district. Both these are rural school districts.

The cost per pupil enrolled for janitors' supplies in forty Utah school districts for 1924-25, had a mean of $.29, a median of $.31, a third quartile of $.41, a first quartile of $.16, a S. D. of $.17, and a P.E. of $.11.

d. Operation of the Plant (Cont.)

(For Table VIII a, see page #67)
(For Table VIII b, see page #68)

Table VIII a

The Utah School Districts Ranked in Order of the Total for Fuel 1924-25

District	Rank	Total Cost
Salt Lake City	1	$ 31,900.41
Box Elder	2	14,763.78
Jordan	3	11,567.94
Alpine	4	11,221.71
Cache	5	10,524.60
Granite	6	10,445.82
Nebo	7	9,775.35
Millard	8	9,535.28
Weber	9	8,733.18
Carbon	10	8,433.71
Davis	11	7,797.81
Ogden City	12	7,609.43
Sevier	13	6,790.22
Uintah	14	6,762.74
Beaver	15	5,998.79
Emery	16	5,707.55
S. Sanpete	17	5,267.61
Tooele	18	5,237.31
Iron	19	5,014.81
N. Sanpete	20	4,877.46
Provo City	21	4,061.49
Wasatch	22	3,762.06
Duchesne	23	3,277.08
Tintic	24	3,077.35
S. Summit	25	2,991.51
Morgan	26	2,858.65
N. Summit	27	2,838.78
Juab	28	2,689.32
Logan City	29	2,570.19
Park City	30	2,474.33
Piute	31	2,436.54
Rich	32	2,120.60
Grand	33	2,030.38
Murray City	34	1,836.85
Washington	35	1,740.92
Garfield	36	1,586.15
Kane	37	835.16
Wayne	38	609.65
San Juan	39	387.97
Daggett	40	332.00
Total		$232,682.47
Average		5,817.06

Table VIII b

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Fuel, 1924-25

District	Rank	Pupil Cost
S. Summit	1	$ 5.77
Beaver	2	3.93
Morgan	3	3.19
Granite	4	3.89
N. Summit	5	3.87
Piute	6	3.84
Rich	7	3.74
Daggett	8	3.73
Weber	9	2.73
Park City	10	2.68
Millard	11	2.68
Uintah	12	2.60
Iron	13	2.55
Box Elder	14	2.55
Alpine	15	2.46
Tooele	16	2.34
Wasatch	17	2.30
Jordan	18	2.27
Tintic	19	2.21
Davis	20	2.15
Juab	21	2.04
S. Sanpete	22	2.03
Cache	23	2.02
Emery	24	1.98
N. Sanpete	25	1.92
Sevier	26	1.82
Nebo	27	1.77
Carbon	28	1.60
Kane	29	1.56
Granite	30	1.45
Murray City	31	1.31
Duchesne	32	1.31
Provo City	33	1.14
Salt Lake City	34	1.00
Garfield	35	.99
Wayne	36	.98
Logan City	37	.92
Washington	38	.87
Ogden City	39	.81
San Juan	40	.54

Mean $2.25; Median $2.15; Third quartile $2.68;
First quartile $1.31; S. D. $1.13; P. E. $.76

1. Cost for Fuel, 1924 - 1925

Fuel expenditures vary because of the location of fuel fields, elevations, and climatic conditions in Utah. (Bancroft, H. H. History of Utah, Chapter XIV, p.321). Districts having the highest per pupil cost for fuel are located at high altitudes which necessitates constant firing during the entire school term. Here the skill of the janitor is demonstrated in getting the maximum amount of heat from a minimum amount of fuel, and light wear on the furance grates. The analysis shows the larger schools have a lower pupil cost for fuel than the smaller ones. (Table XIIIa).

Expenditures for fuel rank second in the items of school building running costs. The Salt Lake City school system used the greatest amount of fuel. In total $31,900.41 were spent for the year. Daggett school district is found at the opposite end with a total outlay of $332.00. The larger, more wealthy school districts head the list in fuel consumption. Locan City system is in the extreme north part of the state, and represents the cold section, yet the total

cost for fuel is not great. In pupil cost it ranks number thirty-seven of the forty districts with a pupil cost of $.92. Carbon district is the heart of Utah coal fields, and has a pupil cost for fuel of $1.60.

The cost per pupil enrolled for fuel is: Mean $2.25; Median $2.15; Third quartile $2.68; First quartile $1.31; S. D. #1.13; P. E. $.76.

e. Operation of the Plant (Cont.)

(For Table IX a, see page #71)

(For Table IX b, see page #72)

Table IX a

The Utah School Districts Ranked in Order of the Total for Water, 1924-25

District	Rank	Total Cost
Salt Lake City	1	$6,800.70
Jordan	2	3,730.91
Tooele	3	3,089.44
Box Elder	4	1,542.96
Uintah	5	941.15
Alpine	6	893.40
N. Sanpete	7	721.79
Granite	8	650.53
Nebo	9	565.71
Tintic	10	544.36
Carbon	11	441.36
Davis	12	306.10
Cache	13	305.50
Beaver	14	302.95
Juab	15	260.22
Murray City	16	223.80
Iron	17	215.60
Park City	18	195.00
Wasatch	19	178.10
S. Sanpete	20	164.99
S. Summit	21	129.52
Weber	22	123.92
Sevier	23	100.20
Grand	24	66.10
Duchesne	25	61.22
San Juan	26	60.50
Washington	27	57.66
Emery	28	44.50
Piute	29	38.89
Provo City	30	36.70
Garfield	31	33.20
Kane	32	17.50
Millard	33	- - -
Morgan	34	- - -
Rich	35	- - -
Wayne	36	- - -
Ogden City	37	- - -
Logan City	38	- - -
N. Summit	39	- - -
Daggett	40	- - -
	Total	$22,844.48
	Average	571.11

Table IX b

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Water, 1924-25

District	Rank	Pupil Cost
Tooele	1	$ 1.38
Jordan	2	.73
Tintic	3	.39
Uintah	4	.36
N. Sanpete	5	.28
Box Elder	6	.26
S. Summit	7	.25
Salt Lake City	8	.21
Park City	9	.21
Alpine	10	.19
Beaver	11	.19
Murray City	12	.15
Grand	13	.12
Juab	14	.12
Iron	15	.11
Wasatch	16	.11
Nebo	17	.10
Granite	18	.09
Carbon	19	.08
San Juan	20	.08
S. Sanpete	21	.06
Piute	22	.06
Cahhe	23	.05
Weber	24	.04
Kane	25	.03
Sevier	26	.03
Washingtob	27	.02
Garfield	28	.02
Emery	29	.02
Duchesne	30	.02
Davis	31	.01
Provo City	32	.01
Daggett	33	- -
Millard	34	- -
Morgan	35	- -
N. Summit	36	- -
Rich	37	- -
Wayne	38	- -
Ogden City	39	- -
Logan City	40	- -

Mean $.14; Median $.08; Third quartile $.19;
First quartile $.01; S. D. $69; P. E. $.47

1. Cost for Water, 1924-1925

Pupil cost for water furnishes an item of expense that is interesting. There are six districts which have no water expense. Others, where the water problem is solved, show a minimum pupil cost. These districts are fortunate in having an inexhaustable natural supply. Others less favorably situated pay as much for water as for janitors' supplies. Rural distriats find it more expensive in that they are compelled to make cisterms and ditches to supply the school building with water. Water is obtained through a lateral, or hauled in a tank to fill the cistern or elevated tank. Such processes are more costly than the city pipe line that brings water into the school (Table IX).

In Utah the water from all the running streams is appropriated. The rural school districts, therefore, are compelled to own and pay assessments on water stock sufficient to supply the school buildings and grounds. These canal systems are expensive to

maintain and place a burden on the school district according to the amount of stock the district owns.

The Utah school districts are ranked in order of the total expenditure for water, and in the order of cost per pupil enrolled for the same expense item. The range in total amount is $6,800.70 in the Salt Lake City district to zero in the Daggett school district. The pupil cost ranges from $1.38 in the Tooele school district to zero in the lower eight districts.

The cost per pupil enrolled for water in 1924-25 is: Mean $.14; Median $.08; Third quartile $.19; First quartile $.01; S. D. $.69; and P. E. $.47.

f. Operation of the Plant (Cont)

(For Table Xa, see page #75)
(For Table Xb, see page #76)

Table X a

The Utah School Districts Ranked in Order of the Total Cost for Gas and Electricity, 1924 - 1925.

District	Rank	Total Cost
Salt Lake City	1	$ 16,071.96
Ogden City	2	4,397.90
Granite	3	3,306.66
Cache	4	2,449.68
Alpine	5	2,103.06
Provo City	6	1,640.50
Carbon	7	1,536.36
Box Elder	8	1,491.88
Logan City	9	1,261.80
Tooele	10	1,118.56
Nebo	11	1,015.02
Weber	12	957.32
Jordan	13	943.58
S. Sanpete	14	848.04
Davis	15	842.64
Millard	16	819.33
Juab	17	762.20
Beaver	18	585.87
Iron	19	584.63
Sevier	20	513.00
Wasatch	21	421.35
Tintic	22	366.54
Park City	23	343.43
Morgan	24	283.54
Murray City	25	224.14
Grand	26	216.50
Emery	27	168.00
Washington	28	102.93
Garfield	29	100.14
Piute	30	98.00
S. Summit	31	86.42
Kane	32	46.03
Duchesne	33	30.60
Rich	34	30.00
Daggett	35	- - -
N. Sanpete	36	- - -
N. Summit	37	- - -
San Juan	38	- - -
Uintah	39	- - -
Wayne	40	- - -
	Total	$45,767.61
	Average	1,144.19

Table X b

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Gas and Electricity, 1924-1925

District	Rank	Pupil Cost
Juab	1	$ .57
Tooele	2	.50
Salt Lake City	3	.50
Cache	4	.47
Ogden City	5	.46
Provo City	6	.46
Logan City	7	.46
Granite	8	.46
Alpine	9	.46
Grand	10	.41
Beaver	11	.39
Morgan	12	.36
Park City	13	.36
S. Sanpete	14	.33
Weber	15	.30
Iron	16	.29
Carbon	17	.29
Wasatch	18	.26
Tintic	19	.26
Box Elder	20	.25
Millard	21	.23
Davis	22	.23
Jordan	23	.18
Nebo	24	.18
S. Summit	25	.16
Murray City	26	.16
Piute	27	.15
Sevier	28	.14
Kane	29	.07
Emery	30	.07
Garfield	31	.06
Washington	32	.05
Rich	33	.05
Duchesne	34	.01
Daggett	35	- -
N. Sanpete	36	- -
N. Summit	37	- -
San Juan	38	- -
Uintah	39	- -
Wayne	30	- -

Mean $.23; Median $.25; Third quartile $.41; First quartile $.06; S. D. $.17; P. E. $.11

1. Gas and Electricity 1924-1925

Gas and electricity are a small part of the building running expense. Gas is used only in the secondary schools for laboratory purposes. Electricity is common to practically the forty school districts. If not attached to a power line, the school runs a small plant for lights. The newer, more modern buildings operate fans which increases the power consumption. Electric stoves are used in the cooking departments which increases the electric expense. (Table X).

The range for gas and electricity is from $16,071.96 in the Salt Lake City school district to zero in the six lowest ranking distrints. The range in cost per pupil enrolled is from $.57 in the Juab school district to zero in the last six listed districts. In both tables the Utah school districts are ranged according to the cost in total and per pupil enrolled.

In terms of cost per pupil for gas and electricity, the mean is $.23, the median $.25, the third quartile $.41, the first quartile $.06, S.D. $.17, and the P.E. $.11.

g. Fixed Charges

"Fixed charges include the payment of warrants and orders of the preceding year. The fiscal report is to be extended on the payment basis and not on the order basis. Under this heading, therefore, should be included all payments for warrants or orders issued in the preceding school year. Although the supplies or other articles ordered may not have been, or may have been delivered, used, or consumed in the current school year, such payments should be entered under this heading". (Engelhardt and Engelhardt, Public School Business Administration, p.251).

Insurance is a fixed expense item. It should be spread over a period that will make the payment of premiums equally distributed instead of all coming at one time. Insurance is necessary, and therefore should be intelligently made. (Melchoir, W. T. Contributions to Education, Columbia University, No. 168.)

Table XI a

The Utah School Districts Ranked in Order of the Total Cost for School Building Fixed Charges, 1924-1925

District	Rank	Total Cost
Salt Lake City	1	$31,176.10
Ogden City	2	6,057.60
Carbon	3	4,311.96
Iron	4	3,692.75
Washington	5	3,114.91
Emery	6	2,655.10
Alpine	7	2,181.07
Sevier	8	2,029.21
Nebo	9	2,026.48
Uintah	10	1,990.96
Duchesne	11	1,869.40
Box Elder	12	1,674.82
Weber	13	1,672.82
Jordan	14	1,249.84
Millard	15	850.00
Granite	16	841.53
Tintic	17	725.90
N. Sanpete	18	719.90
Piute	19	650.50
Wasatch	20	649.50
Grand	21	544.97
N. Summit	22	509.52
Juab	23	508.67
Garfield	24	495.00
Morgan	25	419.63
Beaver	26	380.00
Provo City	27	323.48
Cache	28	312.05
Kane	29	262.00
Park City	30	235.50
Davis	31	196.35
Wayne	32	176.25
Murray City	33	168.27
S. Sanpete	34	157.68
San Juan	35	150.00
Logan City	36	148.40
Rich	37	99.50
Tooele	38	40.00
S. Summit	39	- - - -
Daggett	40	- - - -
	Total	$75,267.62
	Average	1,881.69

Table XI b

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for School Building Fixed Charges 1924-25

District	Rank	Pupil Cost
Iron	1	$ 1.88
Washington	2	1.55
Emery	3	1.11
Box Elder	4	1.09
Grand	5	1.04
Piute	6	1.02
Salt Lake City	7	.97
Davis	8	.90
Carbon	9	.81
Uintah	10	.76
Duchesne	11	.70
N. Summit	12	.68
Ogden City	13	.64
Cache	14	.60
Morgan	15	.55
Sevier	16	.54
Tintic	17	.52
Weber	18	.52
Alpine	19	.48
Kane	20	.42
Wasatch	21	.39
Juab	22	.38
Nebo	23	.36
Garfield	24	.31
N. Sanpete	25	.28
Wayne	26	.28
Beaver	27	.25
Park City	28	.25
Jordan	29	.24
Millard	30	.23
San Juan	31	.21
Rich	32	.17
Murray City	33	.12
Granite	34	.11
Provo City	35	.09
S. Sanpete	36	.06
Logan City	37	.05
Tooele	38	.01
Daggett	39	- -
S. Summit	40	- -

Mean $.51; Median $.42; Third quartile $.76; First quartile $.23; S. D. $.41; P. E. $.27.

1. Rent, Insurance, and other Fixed Charges, 1924-25

Each of the forty Utah school districts are ranked in order of the total amount, and in cost per pupil enrolled, for rent, insurance and other fixed charges. The rank is similar, i.e. the districts occupy about the same position in total and pupil cost, while in other expenses the first rank in the total column often assumed a position in the lower quartile of pupil cost column. All districts ranging above the one dollar pupil cost are rural consolidated districts of the first class. The Salt Lake City system ranks next to the dollar, or above group, with a pupil cost of ninety-seven cents. The city systems of the second class rank at the bottom of the lower quartile, with a cost of twelve cents to five cents per pupil enrolled in the school.

Forty Utah school districts are ranked in order of the total cost, and of the cost per pupil enrolled for fixed school building charges. The range in the total cost is from $31,176.10 in the Salt Lake City

system to zero in the South Summit and the Daggett school districts. The cost per pupil enrolled for fixed charges ranges from $1.88 in the Iron School district to zero in the two above mentioned districts. The cost per pupil is: Mean $.51; Median $.42; Third quartile $.76; First quartile $.23; S.D. $.41; and P.E. $.27.

B. Cost per Pupil Enrolled and the Yearly Average for the Expenses of Utah School Buildings, 1921-1926

Analysis of total building expenditures, and the recording of such, would entail great columns of figures. In this five-year study, all expenses have been reduced to pupil cost, and classified under three general heads which will suffice to find the specific cost of running expenses. Costs are first figured on the basis of one-year, then the five-year cost is derived and listed as a total pupil cost for the period (1921-1926). Opposite the total is given the yearly average. The expenses

for this period are uniform, though the expenses by year are intermittent, which proves the assumption previously made that repair should be constant.

a. Maintenance of the School Plant

Table XII contains the pupil cost of repairs on the school buildings in Utah by district during five years time, 1921-1926. The districts are listed in the order of rank for the amount expended for each pupil enrolled during each of the years the investigation covers. Listed in the total column is the amount expended over five years for each pupil enrolled in the district during the same period. The yearly average is listed, just opposite the total amount, for each pupil enrolled in the district during one year.

(For Table XII, see page #84)

Table XII

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Repairs on Buildings 1921 - 1926

District	Rank	Total	Yearly Average
N. Summit	1	$ 25.87	$ 5.17
Beaver	2	19.47	3.89
Park City	3	17.40	3.47
S. Summit	4	16.50	3.30
Morgan	5	14.62	2.92
Grand	6	14.03	2.80
Tooele	7	12.95	2.59
Juab	8	11.76	2.35
Nebo	9	11.67	2.33
Box Elder	10	10.46	2.09
Carbon	11	9.82	1.95
Murray City	12	9.47	1.89
Jordan	13	9.44	1.88
N. Sanpete	14	9.03	1.80
Davis	15	8.82	1.77
Sevier	16	8.70	1.74
Salt Lake City	17	8.53	1.70
Alpine	18	8.02	1.60
Tintic	19	7.63	1.52
Piute	20	7.62	1.52
Wasatch	21	7.25	1.45
Weber	22	7.24	1.44
Millard	23	6.76	1.35
Cache	24	6.70	1.34
Rich	25	6.25	1.25
Logan City	26	5.92	1.18
Ogden City	27	5.52	1.10
Emery	28	5.39	1.07
Granite	29	5.21	1.04
Iron	30	4.73	.94
Daggett	31	4.35	.87
Kane	32	3.64	.72
S. Sanpete	33	3.31	.66
Uintah	34	3.20	.64
Provo City	35	3.19	.63
Washington	36	2.83	.56
Wayne	37	2.48	.49
Duchesne	38	2.47	.49
San Juan	39	2.47	.49
Garfield	40	2.00	.40

Mean $8.31; Median $7.62; Third quartile $10.46; First quartile $4.35; S. D. $5.08; P. E. $3.43.

1. Repairs on Buildings, 1921-1926

Repairs on buildings has a range in total amounts of from $25.87, the greatest, to $2.00, the least. Districts having the greatest pupil cost are geographically located in the highest elevated sections where extreme temperatures are experienced. North Summit, as the name indicates, lies in a mountainous section where the winters are most severe. The districts lying to the south have the lowest pupil cost for repairs. These districts experience moderate and semi-tropical climates. Next the districts having the greatest costs come a group that possess the greatest wealth and the greatest enrollment which is most significant in computing pupil costs. The five city systems excepting Murray City, show a low pupil cost, and it is without argument the city buildings are kept in better repair. Districts ranking immediately above the semi-tropical group are expending little for repairs, in comparison with other districts similarly located.

Intermittant repair accounts for the period

are heavy one year and very light, or nothing, the following year. This condition, however, does not affect the yearly average which is uniform.

The forty Utah school districts are listed in order of the total cost per pupil enrolled for five years for repairs on buildings. The mean is $8.31, the median $7.62, the third quartile $10.46, the first quartile $4.35, the S.D. $5.08, and the P.E. $3.43.

b. Operation of the Plant

Table XIII contains the pupil cost, based on total pupil enrollment, of the expenditures for janitors' services in Utah by district for a five year period, 1921-1926. The districts are listed in the order of the rank for the amount expended per pupil. Listed in the total column is the amount used in five years for each pupil enrolled during the same period. The yearly average is listed in column two for each child enrolled for one year.

Table XIII

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Janitors' Salaries, 1921-1926

District	Rank	Total	Yearly Average
N. Summit	1	$ 25.93	$ 5.18
Tintic	2	21.46	4.29
Park City	3	19.94	3.98
Tooele	4	18.36	3.67
Rich	5	17.33	3.46
Jordan	6	16.87	3.37
Daggett	7	16.20	3.22
Morgan	8	16.15	3.22
S. Summit	9	15.94	3.18
Murray City	10	15.74	3.14
Beaver	11	15.33	3.06
Carbon	12	14.97	2.99
Weber	13	14.84	2.96
Grand	14	14.59	2.91
Nebo	15	13.96	2.79
Juab	16	13.89	2.77
Salt Lake City	17	13.30	2.66
Box Elder	18	12.83	2.56
Cache	19	12.72	2.54
Granite	20	12.67	2.53
Alpine	21	12.63	2.52
Millard	22	12.60	2.52
Provo City	23	12.44	2.48
Logan City	24	11.96	2.39
N. Sanpete	25	11.92	2.38
Iron	26	11.31	2.26
Emery	27	11.18	2.23
Piute	28	10.99	2.19
Ogden City	29	10.99	2.19
Wasatch	30	10.99	2.19
Davis	31	10.25	2.05
Sevier	32	10.23	2.04
Uintah	33	10.17	2.03
S. Sanpete	34	9.60	1.92
Kane	35	9.51	1.90
Wayne	36	9.29	1.85
San Juan	37	8.81	1.76
Garfield	38	7.78	1.55
Washington	39	7.49	1.49
Duchesne	40	7.41	1.42

Mean $13.26; Median $12.67; Third quartile $15.74; First quartile $10.25; S. D. $4.95; P. E. $2.73.

1. Janitors' Salaries, 1921-1926

Janitors' salaries constitutes a major item in operation expenses. The range is $25.93 to $7.41. North Summit district heads the list in terms of pupil costs for janitorial service. The four districts showing the greatest pupil cost are mining towns. The next six districts in rank are agricultural sections, and may be termed reasonably "well-to-do" districts. Again, the remote rural districts come at the lower end of the scale. This group thus far have expended less per pupil for eac managing expense. The city systems rank well down the column, with about fifty percent the pupil cost of the small mining districts for the same item of expense. The extremely low pupil cost in seven districts clearly indicates the services are not expert, nor in keeping with the types of buildings and equipment used.

The cost per pupil for janitors' salaries is as follows: Mean $13.26; median $12.67; third quartile $15.74; first quartile $10.25; S.D. $4.05

and P.E. $2.73.

c. Operation of the Plant (Cont.)

Table XIV is a computation of the expenditures made for janitors' supplies. The cost is figured on total enrollment by district over the five-year period, 1921-1926. The districts are listed in order of rank for the total cost per pupil in five years. The total amount for each district is shown in column one, and just opposite in column two is the yearly average by district.

(For Table XIV, see page #90)

Table XIV

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Janitors' Supplies, 1921-1926

District	Rank	Total	Yearly Average
Carbon	1	$ 2.31	$ .46
Iron	2	2.27	.45
S. Summit	3	2.25	.45
Beaver	4	2.23	.44
Jordan	5	2.23	.44
Park City	6	2.23	.44
Tintic	7	1.78	.35
Granite	8	1.67	.33
Tooele	9	1.66	.33
Morgan	10	1.55	.31
Murray City	11	1.50	.30
Davis	12	1.47	.29
Emery	13	1.44	.28
Ogden City	14	1.30	.26
Sevier	15	1.29	.25
Provo City	16	1.17	.23
Box Elder	17	1.16	.23
Uintah	18	1.15	.23
Piute	19	1.10	.22
Millard	20	1.09	.21
N. Summit	21	1.08	.21
Nebo	22	1.06	.21
Alpine	23	.99	.19
Salt Lake City	24	.93	.18
N. Sanpete	25	.88	.17
Garfield	26	.86	.17
Weber	27	.86	.17
Juab	28	.83	.16
Logan City	29	.80	.16
S. Sanpete	30	.68	.13
Daggett	31	.59	.11
Washington	32	.67	.11
Wasatch	33	.56	.11
Rich	34	.44	.08
Grand	35	.42	.08
Duchesne	36	.35	.07
San Juan	37	.28	.05
Kane	38	.18	.03
Cabbe	39	.14	.02
Wayne	40	.14	.02

Mean $1.13; Median $1.09; Third quartile $1.55; First quartile $.68; S.D. $.64; P.E. $.43.

1. Janitors' Supplies, 1921-1926

In discussing the work of the school janitor, Dr. Reeves magnifies the necessity for the use of supplies such as mops, brooms, floor compound, oil and soap. (American School Board Journal, June, 1925, p.48; March, 1926, p.49; April, 1926, p.59). The cost per pupil enrolled is insignificant, but the supplies used constitute a significant point. The forty Utah school districts are listed in order of the total amount used in five years. The range is $2.31 to $.14 per pupil enrolled during the time such material was consumed. The districts have shifted from the general groupings on other expense items. Cache an average, or above, in other expenditures, drops to the bottom of the list with a pupil cost of two cents per year. The five city systems are found from the mid point in the list to the lower part of the second quartile. The lower ten districts range from eleven cents to two cents per pupil, a negligible amount to pay for supplies for a year. It here happens the same school

The cost per pupil enrolled is: Mean $1.13, median $1.09, third quartile $1.55, first quartile $.68, S.D. $.64, and P.E. $.43.

d. Operation of the Plant (Cont.)

Table XV reflects the condition of the forty Utah school districts in regard to the relative amount used for fuel, light, and water. Districts are listed in order of the total amount expended per pupil and also the yearly average.

(For Table XV, see page #93)

Table XV

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Fuel, Light, and Water, 1921-26

District	Rank	Total	Yearly Average
S. Summit	1	$ 28.00	$ 5.60
Emery	2	25.95	5.19
Beaver	3	22.79	4.55
N. Summit	4	21.16	4.23
Rich	5	18.21	3.62
Morgan	6	17.29	3.45
Grand	7	16.06	3.21
Daggett	8	14.91	2.98
Box Elder	9	14.90	2.98
Park City	10	14.77	2.95
Piute	11	14.53	2.90
Jordan	12	.3.61	2.72
Tooele	13	13.56	2.71
Tintic	14	13.07	2.61
Alpine	15	12.40	2.48
Juab	16	12.18	2.43
Millard	17	11.90	2.38
Wasatch	18	11.85	2.37
Weber	19	11.81	2.36
Cache	20	11.28	2.25
Uintah	21	11.25	2.25
S. Sanpete	22	11.14	2.22
Iron	23	10.25	2.05
Provo City	24	9.98	1.99
Nebo	25	9.63	1.92
Davis	26	9.57	1.91
Granite	27	9.25	1.85
Murray City	28	8.85	1.77
Sevier	29	8.33	1.66
N. Sanpete	30	8.26	1.65
Carbon	31	8.25	1.65
Salt Lake City	32	7.56	1.51
Logan City	33	7.08	1.41
Kane	34	6.87	1.37
Ogden City	35	6.21	1.24
Duchesne	36	5.94	1.18
Garfield	37	4.47	.89
Washington	38	4.42	.88
Wayne	39	3.56	.71
San Juan	40	2.79	.55

Mean $11.84; Median $11.28; Third quartile $14.77; First Quartile $8.25; S. D. $5.66; P.E. $3.81.

1. Fuel, Light and Water, 1921-1926

Table XV gives an account of the total costs figured in pupil cost, based on school enrollment for a five-year period, 1921-1926. The range is from $28.00 to $2.79. The districts ranking above the mid-point are fuel producing counties, or adjacent to coal fields. The five city systems rank at the lower part of the scale coming under the ten dollar point for each pupil enrolled for five years, or a yearly average of less than two dollars per pupil. The five counties having the least pupil cost are the remote rural school districts. These districts range from $1.18 to $.55. It may be of interest to know these districts use wood to some extent, and the San Juan district heats entirely with wood. During 1924-25 San Juan county school district heated her school buildings for fifty-four cents per pupil enrolled, while over the five-year period it cost for each pupil fifty-five cents per year on the average for heat and water.

The pupil cost for fuel, light and water for

five years is: Mean $11.84, median $11.28, third quartile $14.77, first quartile $8.25, S. D. $5.66, and P.E. $3.81.

e. Fixed Charges

Table XVI indicates the total pupil cost over five years for fixed charges along with the yearly average by distrint. The forty districts are listed in order of the total amount used per pupil, for rent, insurance and other fixed charges.

(For Table XVI, see page #96)

Table XVI

The Utah School Districts Ranked in Order of the Cost per Pupil Enrolled for Rent, Insurance, and Other Fixed Charges, 1921-26

District	Rank	Total	Yearly Average
Washington	1	$ 5.88	$ 1.17
Carbon	2	4.78	.95
N. Summit	3	4.11	.82
Juab	4	3.79	.75
Grand	5	3.43	.68
Iron	6	3.41	.68
Salt Lake City	7	3.34	.66
Piute	8	3.02	.60
Duchesne	9	2.99	.59
Jordan	10	2.67	.53
Tintic	11	2.49	.49
Box Elder	12	2.30	.46
Emery	13	2.27	.45
San Juan	14	1.97	.39
Granite	15	1.94	.38
Sevier	16	1.93	.38
Uintah	17	1.93	.38
Cache	18	1.91	.38
Beaver	19	1.88	.37
Morgan	20	1.86	.37
S. Sanpete	21	1.74	.34
Weber	22	1.65	.33
Alpine	23	1.64	.32
Ogden City	24	1.63	.32
Kane	25	1.62	.32
Tooele	26	1.61	.32
Park City	27	1.60	.32
Davis	28	1.47	.29
Garfield	29	1.38	.25
Wayne	30	1.11	.22
N. Sanpete	31	1.10	.22
Rich	32	1.10	.22
Millare	33	1.04	.20
Nebo	34	1.01	.20
Wasatch	35	.99	.19
S. Summit	36	.94	.18
Logan City	37	.93	.18
Murray City	38	.92	.18
Provo City	39	.59	.14
Daggett	40	.51	.10

Mean $2.06; Median $1.86; Third quartile $2.67; First quartile $1.10; S. D. $1.29; P.E. $.87.

1. Rent, Insurance, and Other Fixed Charges, 1921-26

Fixed charges in the Utah school districts range from $5.88 to $.51 for five years, 1921-1926. In column one the total pupil cost is shown, and in column two is given the yearly average. These figures are based on pupil enrollment. Washington district in all other expense items ranked well toward the bottom, but here her rank is first, with a yearly average cost per pupil of $1.17. The shifting of districts in this table in rank position is more noticeable. The districts shown in previous tables to be at the bottom now are shifted well up the line, and near the top. The four city districts assume in this table the bottom positions. Insurance rates are determined by fire hazards, and in the discussion of this table it is well to keep in mind the location of the districts, quality of buildings, access to fire-fighting apparatus, and proximity to other buildings.

The pupil cost for fixed charges is: Mean $2.06; median $1.86; third quartile $2.67; first quartile $1.10; S.D. $1.29; and P.E. $.87.

Cut VI shows two modern junior high buildings. They are constructed of the best grade of dark brick, and of the best interior finishing materials. Both are modern in all respects, and are illustrative of the junior high buildings in use in other districts. The style of architecture is simple and all inside space may be used. Lockers, racks and other fixtures are built in. These buildings are in contrast with the older type. The data reveal that the per pupil cost for maintenance and operation is considerably more for the older than for the newer type building.

Junior High Sp. Fork, Ut.

Junior High Midvale, Utah

VI

Chapter VI

COMPARATIVE EXPENDITURES OF CERTAIN REPRESENTATIVE SCHOOLS WITHIN CERTAIN REPRESENTATIVE UTAH SCHOOL DISTRICTS

Five districts, Carbon, Nebo, Alpine, Granite, and Wasatch are used in this analysis. The expenses are classified under three general heads: Maintenance, Operation of plant, and Fixed Charges. In collecting data for these districts, it could be found only as the specific districts records had been kept. In each case, the table will give the years for which records were obtainable.

In the detailed analysis, of representative districts and schools of Utah, five districts and fifteen specific schools are used. These schools are representative of the social and industrial life of the State.

A. Number of Rooms, Enrollment, and Number of Pupils per Room of the School Buildings Investigated

(For Table XVII, see page #100)

Table XVII

The Number of Rooms in Buildings, the Enrollment, and Number of Pupils per Room of Fifteen Representative Schools in Utah

CARBON DISTRICT

Rooms in Buildings

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Harper	1	1	1	1	1	5
Clear Creek	4	4	4	4	4	20
Hiawatha	14	14	14	14	14	70
Price Central	20	20	20	20	20	100
Carbon High	20	20	20	20	20	100

Enrollment

Harper	23	21	0	0	11	55
Clear Creek	168	137	146	150	103	704
Hiawatha	311	367	395	354	322	1749
Price Central	592	665	741	805	737	3540
Carbon High	357	340	485	378	515	2075

Number of Pupils per Room

Harper	23	21	0	0	11	55
Clear Creek	42	34	35	37	25	173
Hiawatha	22	25	28	26	23	136
Price Central	29	33	37	40	36	175
Carbon High	18	17	24	19	25	103

NEBO DISTRICT

Taylor	6	6	6	6	6	30
Spring Lake	3	3	3	3	3	15
Elberta	1	1	1	1	2	6

(continued on next page)

Table XVII (Cont.)

The Number of Rooms in Buildings, the Enrollment, and Number of Pupils per room of Fifteen Representative Schools in Utah

NEBO DISTRICT (Cont.)

Enrollment

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Taylor	255	261	272	267	270	1325
Spring Lake	87	99	86	86	70	428
Elberta.	25	25	27	37	48	162

Number of Pupils per Room

Taylor	42	43	45	44	45	219
Spring Lake	29	33	28	28	23	141
Elberta	25	25	27	37	24	138

ALPINE DISTRICT

Rooms in Buildings

Amer. Fork High	10	10	10	30
Fairfield	1	1	1	3
Vineyard	4	4	4	12
P. G. Central	10	10	10	30

Enrollment

Amer. Fork High	260	257	277	794
Fairfield	18	22	14	54
Vineyard	154	133	147	434
P. G. Central	396	427	418	1241

Number of Pupils per Room

Amer. Fork High	26	25	21	72
Fairfield	18	22	14	54
Vineyard	38	35	27	98
P. G. Central	39	42	42	123

(continued on next page)

Table XVII (Cont.)

The Number of Rooms in Buildings, the Enrollment, and Number of Pupils per Room of Fifteen Representative Schools in Utah

GRANITE DISTRICT

Rooms in Buildings

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Blaine		14	14	14	14	56
Garfield		16	16	16	16	64
Enrollment						
Blaine		524	526	549	468	2017
Garfield		482	562	532	550	2126
Number of Pupils per Room						
Blaine		37	37	35	39	148
Garfield		30	35	33	34	132

WATSATCH DISTRICT

Rooms in Buildings

Soldier Summit				6	6	12
Enrollment						
Soldier Summit				169	186	355
Number of Pupils per Room						
Soldier Summit				28	31	59

1. Number of Rooms, Enrollment, and the Number of Pupils per Room.

Carbon County lies in the arid east-central part of the State. The western half and the northern rim of the county is mountainous. On the plateau toward the eastern half of the county is found the agricultural section. In the mountain sections are located the rich coal mines of Utah. In the valleys merging from the canyons are the farming sections. Clear Creek and Hiawatha are mining communities at an elevation of 9000 feet, and 7400 feet respectively. Harper is a one-room school situated in a sparcely settled ranching section. Price, the home of two of the schools included, is a thrifty farming community. The schools selected from the Carbon school district are representative of that district.

The sizes of the buildings in the county are from one-room to twenty rooms. Clear Creek is a brick elementary building; Hiawatha is a brick structure housing elementary and junior high pupils; Harper is a one-room school in the "Nine Mile" section;

Price Central is a twenty-room brick structure with elementary grades only; Carbon County High is a reinforced concrete senior high school of the finest type.

Nebo School district comprises the southern half of Utah County. It is situated in the fertile valley between the Wasatch range and Utah Lake. The elevation of this section is around 5000 feet. It is purely an agricultural region. Spring Lake, the three-room building, serves a scattered farming community only. The Taylor building serves an elementary school population in the thriving town of Payson. Both the Spring Lake and the Taylor buildings are new and modern, and are constructed of high grade building materials. The Elberta, a frame one-room house, is used by a scattered farming community.

The Alpine School district comprises the northern half of Utah County. It is also on the western slope of the Wasatch range, and has a slightly lower elevation than Nebo. Fruit, poultry, and dairying are the principal industries of this agricultural section. The American Fork High School is a ten-room brick building of modern construction; the Pleasant Grove Central

is a ten-room brick elementary building of modern structure; the Fairfield is a one-room brick house serving a small community west of the Lake; and Vineyard is a four-room brick elementary building.

The Granite School district is a suburb of Salt Lake City. The two buildings selected here are of the larger city type. Both are brick elementary buildings that have been outgrown by the communities, and additions have been made.

From the Wasatch District is taken an elementary building built from the same plans and specifications as the Taylor building, but of inferior building material. This building was selected primarily to determine the difference between the cost of maintenance and operation of an expensively constructed building and one of the cheaper kind.

a. Maintenance of the Plant

Under this heading comes all expenditures made for the partial restoration of school property to its former condition. Table XVIII gives the total amount, and the pupil cost of fifteen specific schools in Utah for the repairs on buildings. These schools are

representative in size, organization, structure, location, and industrially.

(For Table XVIII, see page #107 .)

Table XVIII

Comparative Expenditures in Total and the Cost Per Pupil Enrolled for Repairs on Buildings in Fifteen Representative Utah Schools

CARBON DISTRICT

Repairs on Buildings

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Hper.	$ 18.00	36.18	0	0	45.00	99.18
C.Ck.	1414.63	214.24	391.98	263.25	559.81	2843.91
Hiaw.	639.06	471.87	1967.12	342.24	541.19	3961.48
P.Ct.	837.65	1138.78	1074.87	640.14	692.25	4383.69
C.Hi.	1280.24	1476.95	13961.62	604.06	1396.49	18719.36

Per Pupil Cost

Hper.	$ .82	1.72	0	0	4.09	6.63
C.Ck.	8.42	1.56	2.68	1.75	5.43	19.84
Hiaw.	2.05	1.32	4.95	.94	1.64	10.90
P.Ct.	1.41	1.71	1.45	.78	.93	6.28
C.Hi.	3.58	4.34	28.78	1.59	2.71	41.00

NEBO DISTRICT

Repairs on Buildings

Tylr.	$ 273.64	34.45	19.55	180.64	0	508.28
Sp.L.	33.48	98.34	76.61	225.59	205.97	639.99
Elbe.	0	229.30	55.61	43.45	176.90	505.26

Per Pupil Cost

Tylr.	$ 1.07	.13	.07	.67	0	1.94
Sp.L.	.38	.99	.89	2.62	2.94	7.82
Elbe.	0	9.17	2.05	1.17	3.68	16.07

(Continued on next page)

Table XVIII (Cont.)

Comparative Expenditures in Total and the Cost Per Pupil Enrolled for Repairs on Buildings in Fifteen Representative Utah Schools

ALPINE DISTRICT

Repairs on Buildings

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Am.Fk.Hi.$		219.81	932.02	1000.98		4152.81
Fairfield		132.60	29.35	0		161.95
Vineyard		104.10	232.47	260.90		597.47
P.G.Cent.		144.80	159.05	493.36		797.21

Per Pupil Cost

Am.Fk.Hi.$	8.34	3.62	3.65		15.65
Fairfield	7.36	1.33	0		8.69
Vineyard	.67	1.74	1.77		4.18
P.G.Cent.	.36	.37	1.18		1.91

GRANITE DISTRICT

Repairs on Buildings

Blaine $	[illegible]	669.57	319.95	726.03	1715.55
Garfld.	982.11	1284.38	457.63	496.07	3220.19

Per Pupil Cost

Blaine $	2.03	1.25	.64	1.55	3.44
Garfld.	2.03	2.28	.86	.90	6.07

(continued on next page)

Table XVIII (Cont.)

Comparative Expenditures in Total and the Cost Per Pupil Enrolled for Repairs on Buildings in Fifteen Representative Utah Schools

WASATCH DISTRICT

Repairs on Buildings

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Sold.Sum.$				304.23	108.87	413.10
Per Pupil Cost						
Sold.Sum.$				1.80	.58	2.38

Mean	$ 10.19
Median	7.82
Third quartile	15.65
First quartile	4.18
S. D.	10.00
P. E.	6.745

1. Repairs on Buildings

The three one-room buildings cost per pupil for building repairs more than the larger elementary buildings. In the Carbon District the Harper school cost per pupil more than the twenty-room Price elementary school building for repairs. In two of the five years, school was not held in the one-room school which put the expense for repairs on three years. In the Nebo District three elementary buildings are listed. The one-room house here exceeds in pupil cost the three-room building by fifty percent, while the percentage is still much greater in the six-room building. The three elementary buildings in the Alpine District show exactly the same situation. The one-room house has a pupil cost of approximately four and one-half times as great as the ten-room building for repairs over a three-year period.

Elementary buildings in the Carbon District give a real contrast. For five years the repairs on buildings at Clear Creek amounted to three times as

much per pupil as the Price Central, Nebo District elementary schools for repairs show that the larger building has about three-fourths or seventy-five per cent less cost per pupil. Climatic conditions and management of these buildings are the same. The Alpine District elementary buildings show costs for three years which closely approximate the Nebo costs. The medium size building has a greater pupil cost than the large building. The cost is $4.18 as against $1.91. Two large buildings in the Granite District over four years time show a rather uniform cost, These buildings are very similar in structure. The Wasatch District elementary school figures are for two years. This building has a higher pupil cost than other buildings of its class, and larger buildings.

Secondary schools consist of one junior high, and two four-year high schools. In the Carbon District the junior high school ranks above the elementary and below the high school. The building is both elementary and junior high, including one to nine grades. The high school buildings show a higher pupil repair

cost than any in the group. Year by year the pupil cost is quite similar. Carbon County totals include five years, the Alpine school but three. During 1923-24 the Carbon school expended $28.78 for each pupil enrolled.

b. Operation of the Plant

Janitors' salaries will include all expenditures for janitors, engineers, and watchmen. Table XIX shows the amount in dollars paid for such services, and the pupil cost for each of the fifteen schools listed.

(For Table XIX, see page #113)

Table XIX

Comparative Expenditures in Total, and the Cost Per Pupil Enrolled for Janitors' Salaries in Fifteen Representative School Buildings in Utah.

CARBON DISTRICT

Janitors' Salaries

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Hper.	$ 78.64	84.67	0	0	81.84	245.15
C.Ck.	370.15	397.70	484.29	534.81	461.00	2247.95
Hiaw.	1291.22	1341.73	1335.53	1486.78	1554.33	7009.59
P.Ct.	1421.42	2035.28	1974.71	1975.14	1939.04	9345.59
C.Hi.	2685.62	2618.26	2565.38	2571.02	2773.37	13213.65

Per Pupil Cost

Hper.	$ 3.85	4.03	0	0	7.44	15.32
C.Ck.	2.20	2.17	3.31	3.56	4.47	15.71
Hiaw.	4.15	3.75	3.40	4.08	4.51	19.89
P.Ct.	2.40	3.06	3.66	2.45	2.63	13.20
C.Hi.	7.52	7.70	5.28	6.80	5.38	32.68

NEBO DISTRICT

Janitors' Salaries

Tylr.	$ 630.00	642.50	722.50	722.50	722.50	3440.00
Sp.L.	240.50	228.50	238.00	295.00	295.00	1297.00
Elbe.	17.25	68.00	78.00	78.00	102.00	475.25

Per Pupil Cost

Tylr.	$ 2.47	2.46	2.65	2.70	2.67	12.95
Sp.L.	2.76	2.30	2.76	3.45	4.21	15.48
Elbe.	.68	2.72	2.88	2.75	4.36	13.39

(Continued:on next page)

Table XIX (Cont.)

Comparative Expenditures in Total, and the Cost Per Pupil Enrolled for Janitors' Salaries in Fifteen Representative School Buildings in Utah.

ALPINE DISTRICT

Janitors' Salaries

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Amer.Fk.H.$		1089.00	1080.00	1097.00		3266.00
Fairfield		135.00	135.00	135.00		405.00
Vineyard		477.00	405.00	405.00		1287.00
P.G.Cent.		825.00	825.00	822.50		2472.50

Per Pupil Cost

Amer.Fk.H.$		4.18	4.20	3.96	12.34
Fairfield		7.50	6.15	9.64	23.27
Vineyard		3.09	3.04	2.75	8.88
P.G.Cent.		2.08	1.93	1.96	5.97

GRANITE DISTRICT

Janitors' Salaries

Blaine $	1050.61	1057.99	1066.10	1360.96	4535.66
Garfield	1043.92	1161.13	1370.85	1425.39	5001.27

Per Pupil Cost

Blaine	2.00	2.01	2.15	2.90	9.04
Garfield	2.16	2.06	2.57	2.59	9.38

Mean	$13.84	First quartile	$9.38
Median	13.20	S. D.	7.30
Third quartile	19.89	P. E.	4.92

1. Janitors' Salaries.

Janitors' salaries consume a good percentage of the appropriations for operation. Harper, the one-room school, ranks first with the elementary schools in pupil cost for a janitor. For three years it is the highest of the five Carbon schools, except the high school. Elberta, the Nebo school, ranks second, only surpassed by the small three-room house. Fairfield, a one-room school in the Alpine District, pays double per pupil for a janitor what the high school does. The difference is five times as great between the P. G. Central and Fairfield. The Granite buildings are very uniform. The cost year by year is the same, and in comparison with other schools of the same class the pupil cost is less.

c. Operation of the Plant (Cont.)

Janitors' supplies include all articles used by the janitor in keeping the building in shape, oil, mops, brooms, floor compound, etc. It is supplies that are consumed by use and that need constant re-

plenishing. The total amount and the pupil cost are given by year for each school.

(For Table XX, see page #117)

Table XX

Comparative Expenditures in Total, and the Cost Per Pupil Enrolled for Janitors' Supplies of Fifteen Representative School Buildings in Utah.

CARBON DISTRICT

Janitors' Supplies

School		'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Hper.	$	21.30	15.35	0	0	16.79	53.44
C.Cr.		71.49	64.12	74.47	51.11	69.35	330.54
Hiaw.		159.59	184.19	236.75	131.10	220.37	932.00
P.Ct.		225.64	428.69	376.46	279.26	376.64	1686.69
C.Hi.		195.10	345.21	380.84	293.06	530.97	1745.18

Per Pupil Cost

Hper.	$	0.92	.73	0	0	1.52	3.17
C.Cr.		.42	.46	.51	.34	.67	2.40
Hiaw.		.51	.51	.59	.36	.68	2.65
P.Ct.		.38	.64	.50	.34	.51	2.37
C.Hi.		.54	1.01	.78	.76	1.03	4.12

NEBO DISTRICT

Janitors' Supplies

Tylr.	$	21.68	11.25	27.50	18.76	20.02	99.21
Sp.L.		16.27	5.75	10.83	0	33.81	66.66
Elbe.		23.58	5.00	12.25	4.65	15.21	60.69

Per Pupil Cost

Tylr.	.08	.04	.10	.07	.07	.36
Sp.L.	.18	.05	.12	.00	.48	.83
Elbe.	.94	.20	.45	.12	.51	2.22

(Continued on next page)

Table XX (Cont.)

Comparative Expenditures in Total, and the Cost Per Pupil Enrolled for Janitors' Supplies of Fifteen Representative School Buildings in Utah.

ALPINE DISTRICT

Janitors' Supplies

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Amer.Fk.H.$		94.51	87.24	84.06		265.81
Fairfield		5.70	5.70	10.92		22.32
Vineyard		27.40	21.85	28.85		78.10
P.G.Central		53.48	72.93	38.99		165.40

Per Pupil Cost

Amer.Fk.H.$		.36	.33	.30	.99
Fairfield		.31	.25	.78	1.34
Vineyard		.17	.16	.19	.52
P.G.Central		.13	.17	.08	.38

GRANITE DISTRICT

Janitors' Supplies

Blaine $	153.51	163.45	153.89	185.81	656.65
Garfield	138.47	233.05	146.14	203.01	720.67

Per Pupil Cost

Blaine $	.29	.31	.29	.39	1.28
Garfield	.28	.41	.27	.37	1.33

WASATCH DISTRICT

Janitors' Supplies

Sold.Sum.$			16.39	26.35	42.65

Per Pupil Cost

Sold.Sum.$			.09	.14	.23

Mean	$1.61
Median	1.33
Third quartile	2.65
First quartile	.83
S. D.	1.24
P. E.	.84

1. Janitors' Supplies

Janitors' supplies, though small in pupil cost, have a direct bearing on the condition of the building. (Reeves, C.E. Analysis of Janitorial Services in Elementary Schools. Contributions to Education, No. 167, Teachers College, Columbia University).

Harper school outranks in pupil cost all the Carbon schools except the high school. The one-room schools in Nebo and Alpine in terms of pupil cost outrank all other schools.

The elementary schools look uniform throughout the five districts. The Carbon schools average around fifty cents per pupil a year, the Nebo schools have a greater contrast. The Taylor building uses less per pupil than any of the elementary houses.

Secondary schools, excepting one-room schools, show the highest pupil cost for janitors' supplies. The high school in the Carbon District ranks first with $4.12 per pupil enrolled for five years. American Fork high school ranks second in the Alpine District, exceeded only by the one-room school in pupil cost.

d. Operation of the Plant (Cont.)

Fuel, light, and water accounts include all expenditures for coal, wood, other fuel, water used in and around the building, and lights used in the buildings. Table XXI shows in total numbers and in pupil cost the expenses of fifteen representative Utah schools. These schools range in size from twenty rooms to one room, and includes elementary, junior and senior high.

(For Table XXI, see page #121)

Table XXI

Comparative Expenditures, in Total and the Cost Per Pupil Enrolled, for Fuel, Light, and Water in Fifteen Representative School Buildings in Utah

CARBON DISTRICT

Fuel, Light, Water

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Hper.	$ 72.00	45.00	0	0	0	117.00
C.Cr.	522.32	733.25	690.65	731.25	650.00	3227.47
Hiaw.	2002.62	1623.10	1549.96	1568.70	1571.70	8416.08
P.Ct.	863.16	1437.36	1173.79	1154.39	1109.41	5738.11
C.Hi.	921.02	1379.51	1233.92	1251.86	1295.44	6081.75

Per Pupil Cost

Hper.	$ 3.11	2.14	0	0	0	5.25
C.Cr.	3.10	5.35	4.73	4.87	6.31	24.36
Hiaw.	6.43	4.54	3.91	4.30	4.88	24.06
P.Ct.	1.45	2.16	1.58	1.43	1.50	8.12
C.Hi.	2.68	4.05	2.54	3.31	2.51	14.99

NEBO DISTRICT

Fuel, Light, Water

Tylr.	$ 366.20	377.05	515.28	459.03	343.99	2061.55
Sp.L.	104.76	53.16	209.19	227.98	0	595.09
Elbe.	48.25	130.14	55.52	110.35	144.01	488.27

Per Pupil Cost

Tylr.	$ 1.45	1.44	1.89	1.71	1.27	7.76
Sp.L.	1.20	.53	2.45	2.65	0	6.83
Elbe.	1.53	5.20	2.04	2.98	3.00	14.75

(Continued on next page)

Table XXI (Cont.)

Comparative Expenditures, in Total and the Cost Per Pupil Enrolled, for Fuel, Light, and Water in Fifteen Representative School Buildings in Utah

ALPINE DISTRICT

Fuel, Light, Water

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Am.Fk.H.$		1376.55	1632.36	1568.74		4577.65
Fairfld.		213.57	40.73	61.35		315.65
Vineyard		395.67	442.49	172.13		1010.29
P.G.Cent.		637.51	689.78	863.79		2191.08
Per Pupil Cost						
Am.Fk.H.$		5.29	6.35	5.66		17.30
Fairfld.		11.86	1.85	4.38		18.09
Vineyard		2.56	3.32	1.17		7.05
P.G.Cent.		1.60	1.63	2.06		5.29

GRANITE DISTRICT

Fuel, Light,Water

Blaine $	778.75	881.73	728.60	893.30	3282.38
Garfield	1080.99	1092.08	792.20	636.23	3601.50
Per Pupil Cost					
Blaine $	1.48	1.48	1.46	1.90	6.32
Garfield	2.24	1.94	1.48	1.15	6.81

(Continued on next page)

Table XXI Cont.)

Comparative Expenditures, in Total and the Cost Per Pupil Enrolled, for Fuel, Light, and Water in Fifteen Representative School Buildings in Utah

WASATCH DISTRICT

Fuel,Light,Water

School		'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Soldier Summit	$				545.14	632.04	1277.18
				Per Pupil Cost			
Soldier Summit	$				3.81	3.39	7.10

Mean	$11.60
Median	8.12
Third quartile	18.09
First quartile	6.83
S. D.	7.30
P. E.	4.92

1. Fuel, Light and Water

Fuel is a major item of building expenses. It ranks next to janitors' salaries. It is doubly interesting to note Clear Creek and Hiawatha schools are both situated in coal producing towns. Light and water are minor items, and do not greatly change the fuel account. The one-room schools show the highest pupil cost for fuel in two districts. The other has a fuel charge about the same as the larger school, due perhaps to the fact that wood is used. Elberta and Fairfield even exceed the high schools in this expense.

Elementary buildings, excepting Clear Creek, have a rather uniform pupil cost for fuel. Year by year the cost runs around $2.00 per pupil. The large buildings have a less pupil cost than the medium size buildings for fuel.

The junior and senior high buildings run from $6.50 to $4.50 per pupil a year for fuel. In this case, the larger the building the less is the pupil cost. The American Fork High is just half the size of Carbon High and each year the pupil cost is greater

in American Fork.

e. Fixed Charges

Rent, insurance, and other fixed charges in fourteen Utah schools are shown in the total amount and in pupil cost for each year listed.

(For Table XXII, see page #126)

Table XXII

Comparative Expenditures, in Total and the Cost Per Pupil Enrolled, for Rent, Insurance, and Other Fixed Charges in Fifteen Representative School Buildings in Utah

CARBON DISTRICT

Rent, Insurance, and Other Fixed Charges

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Hper.	$ 2.60	2.47	0	0	0	5.07
C.Cr.	30.10	28.60	22.40	23.68	33.65	138.43
Hiaw.	206.80	196.43	266.99	293.48	196.52	1160.22
P.Ct.	150.86	178.40	145.78	177.65	200.17	852.86
C.Hi.	240.09	244.98	231.88	265.73	314.40	1297.08

Per Pupil Cost

Hper.	$ .11	.11	0	0	0	.22
C.Cr.	.17	.20	.15	.15	.32	.99
Hiaw.	.95	.85	.67	.80	.61	3.58
P.Ct.	.25	.26	.19	.22	.27	1.19
C.Hi.	.64	.72	.47	.70	.61	3.14

NEBO DISTRICT

Rent, Insurance, and Other Fixed Charges

Tylr.	$ 0	12.82	12.82	31.89	46.22	103.75
Sp.L.	8.40	1.11	1.11	23.76	34.44	68.82
Elbe.	0	2.36	.26	3.65	12.62	18.89

Per Pupil Cost

Tylr.	$ 0	.04	.04	.11	.17	.36
Sp.L.	.09	.01	.01	.27	.49	.87
Elbe.	0	.09	.01	.09	.26	.45

(Continued on next page)

Table XXII (Cont.)

Comparative Expenditures, in Total and the Cost Per Pupil Enrolled, for Rent, Insurance, and Other Fixed Charges in Fifteen Representative School Buildings in Utah

ALPINE DISTRICT

Rent, Insurance, and Other Fixed Charges

School	'21 '22	'22 '23	'23 '24	'24 '25	'25 '26	Total
Am.Fk.H. $		116.60	123.34	61.74		301.68
Fairfld.		7.98	10.59	3.12		21.69
Vineyard		174.53	68.83	32.76		276.12
P.G.Cent.		175.56	204.92	93.17		472.65

Per Pupil Cost

Am.Fk.H. $	.44	.48	.28	1.20
Fairfld.	.44	.48	.22	1.14
Vineyard	1.13	.51	.22	1.86
P.G.Cent.	.44	.48	.22	1.14

Mean	$1.08	First quartile	$ .22
Median	1.14	S. D.	1.04
Third quartile	1.86	P. E.	.70

1. Rent, Insurance, and Other Fixed Charges

Table XXII lists the expenditures for fixed charges in the representative schools selected for comparison. Table I gives the number of buildings owned and rented for these representative districts.

One-room schools, all three cost less per pupil for insurance than the larger buildings. The medium size buildings rank next in line with a small percentage above the one-room house . The larger and more expensive buildings cost more per pupil enrolled than the smaller buildings.

f. Summary of the Cost per Pupil Enrolled for Each Building Expense Item in Included in Tables XVII to XXII.

The average district cost per pupil enrolled for maintenance, operation, and fixed charges is summarized in Table XXIII. All items of expense are considered for the representative schools in representative districts of Utah and the average presented.

Table
XXIII

Summary of the Cost Per Pupil Enrolled for Each Building Expense Item of Tables XVII to XXII Inclusive.

District	No. Schools	No. Yrs.	Rprs. on Bldg.	Jan's Sal.	Jan's Sup.	Fuel Light Water	Ins. & other fix'd chgs.	TOTAL
			$	$	$	$	$	$
Carbon	5	5	3.56	4.27	.67	3.58	.37	12.45
Nebo	3	5	2.02	2.52	.20	2.06	.12	6.92
Alpine	4	3	2.89	4.20	.26	2.97	.49	11.81
Granite	2	4	1.33	2.30	.32	1.64	.00	5.59
Wasatch	1	2	1.19	0	.11	3.55	.00	4.85
TOTAL	15	19	10.99	13.29	1.56	14.80	.98	41.62

Figure 1 is a diagram representing a summary of expenses for maintenance and operation (janitors' salaries, janitors' supplies, fuel, light, and water, repairs on buildings, and fixed charges). The cost of the various items is given in terms of the cost per enrolled pupil. The cost is given in dollars for two, three, four and five years.

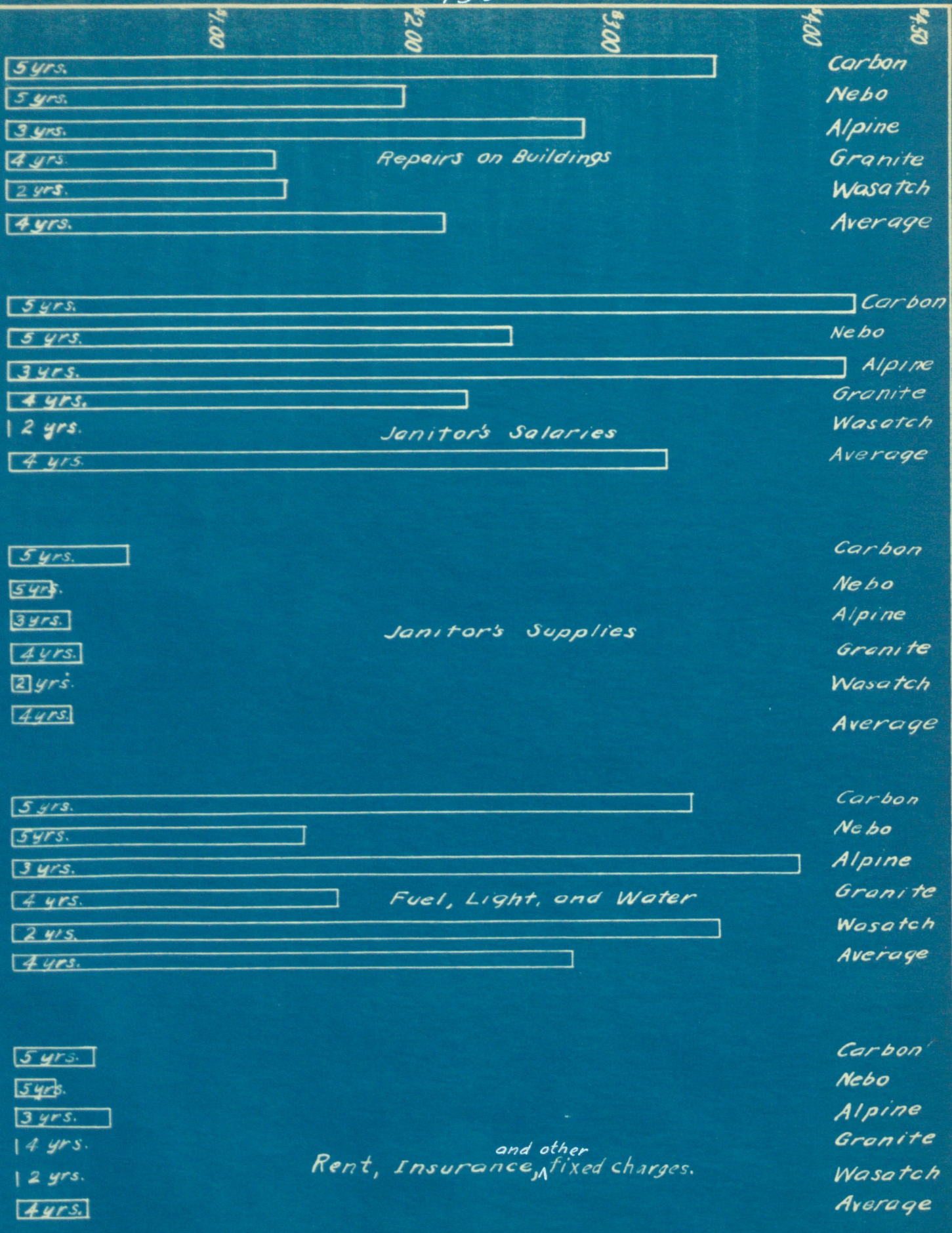


Fig. I. Pupil Cost for Bldg. Exp. Items.

g. Summary of the Cost per Pupil Enrolled for Each Building Expense Item of Five Representative Utah School Districts .

The districts are: Carbon, Nebo, Alpine, Granite, and Wasatch, with from one to five schools for each district. The number of schools included in the study by district is listed in the first column, and the number of years the data cover by district is in column two. The range for column two is from five years to two years.

Repairs on buildings averages in five districts a range from $3.56 in Carbon district to $1.19 in Wasatch. Nebo district spent for the same item $2.02 per pupil, while in the Alpine district the amount is $2.89 per pupil. Granite has a pupil cost of $1.35 per pupil. The average for the five districts is $2.19. The two districts above the average each have a high school included.

Janitors' salaries in five schools in the Carbon district average per pupil over five years $4.27. Three schools in the Nebo district have an average of $2.52 for the same period. Alpine district with

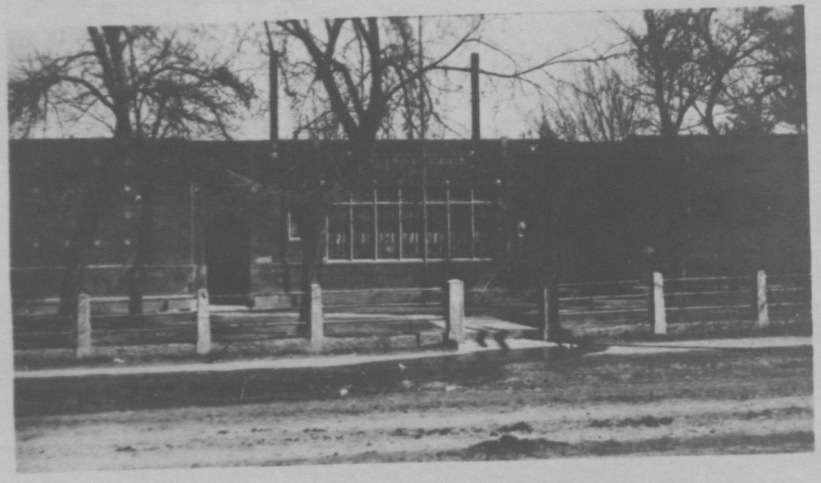
four schools over a three year-period has an average pupil cost of $4.20. Granite district with two large elementary buildings for four years has an average cost per pupil of $2.30. Wasatch has no expense for janitors' services. The average pupil cost for the four districts is $3.32. Two of the districts are above and two below this amount. The two above have each a high school included.

Janitors' supplies in these five school districts range from sixty-seven cents in the Carbon district to eleven cents in the Wasatch district per pupil enrolled. The average for the five districts is thirty-one cents, with two districts above and three below this average. Carbon and Granite are the districts ranking above average.

Fuel, light, and water average for five districts, including fifteen buildings, $2.86 per pupil enrolled. The Granite district has the least average cost, per pupil enrolled, of $1.64.

Three buildings are shown in Cut VII. The first is a typical elementary building in a remote rural section. It is a fine quality and has the appearance of a city building in architecture and finish. These buildings are in contrast with the city type of building. The building at Spanish Fork in the Nebo District is a three-room structure of modern building material, used for elementary purposes. The Provo High School building is a fine structure. The materials are of the best quality. The brick is a shade lighter in color than brick used in most school buildings. The interior finish is of the finest quality. In addition to class rooms, the building has a library room, swimming pool, and auditorium. In keeping with other Provo buildings, this one has a lower per pupil cost for management than buildings not so well planned and constructed.

Elem. School Duchesne, Utah



Elem. School Sp. Fork, Utah

High School Provo, Utah

VII

Chapter VII

FINDINGS AND RECOMMENDATIONS

1. School financing problems are growing more acute each succeeding year. Analysis, therefore, of financial items, with the aim of more economical expenditures, is highly desirable.

2. Since conditions in Utah are probably somewhat similar to other rural localities, it is thought this study may contribute to the study of rural school financial problems in the United States. This is a study of expense items connected with the fixed charges, maintenance, and operation of Utah school buildings.

3. Included in this analysis, are thirty-five first-class consolidated school districts, one city system of the first class, and four city systems of the second class.

4. In the more detailed analysis, fifteen schools from five representative districts are included.

5. Data and material for this paper were collected by personal investigation at the Carbon, Nebo, Alpine, Granite, and Wasatch school districts in Utah.

6. The study in general should have a direct influence on the economical running of school buildings, and the well-being of school children.

7. Limitations in the investigation were encountered because:

a. Methods of bookkeeping in the school districts were irregular.

b. Permanent financial records and reports were not available.

c. Variability in climate and natural resources have an effect on the economic status.

d. Differences in local conditions produce a different method of school building management.

8. Utah school organization consists of:

a. A state board of education consisting of nine members;

b. A state superintendent of public instfuction;

c. A state course of study commission, consist-

ing of seven members;

d. A state text-book commission consisting of eight members;

e. An assistant superintendent of public instruction;

f. A state high school inspector;

g. A state grammar grade supervisor;

h. A state primary grade supervisor;

i. State directors for vocational work (boys and girls);

j. State supervisor of agriculture;

k. State director of rehabilitation work and public libraries;

l. A state department office force;

m. Cities of the First Class

(a.) A city board of education consisting of ten members;

(b.) A city superintendent of public instruction, and an office force.

n. Cities of the Second Class

(a.) A city board of education consisting

of five members.

(b.) A city superintendent of public instruction and an office force.

ó. Consolidated County Districts of the First Class.

(a.) A county board of education consisting of five members.

(b.) A county superintendent of public instruction, and office force.

9. Utah has the following kinds and number of school buildings:

a.	Brick buildings	487
b.	Cement buildings	40
c.	Lumber buildings	144
d.	Rented buildings	68

10. Equipment expenditures in total and cost per pupil enrolled for 1924-25 has a range of $3.34 to .01.

11. Sixteen of the Utah school districts for 1924-25 expended nothing for equipment.

12. Equipment in school buildings should be scored

to determine the present status at the close of each school year.

13. Defaced equipment encourages carelessness, on the part of pupils, in and around the building. School patrons and board members are likewise accustomed to what they usually see in their school buildings. Well-kept equipment reflects a wholesome school community.

14. Equipment in the city systems is gradually replaced. Only in cost of furnishing a new building is a marked increase for this item noticed.

15. Equipment in rural districts in Utah is purchased in large quantities, and not until the old is entirely unfit for use. In many cases, old defaced equipment is placed in new buildings.

16. To place old equipment in a new building gives the interior of the new building a delapidated appearance very similar to that of an old building and old equipment. It also develops an attitude of carelessness and disregard of the new building on the part of the children who occupy it. Damage to the new building may ensue which would be in excess of the

cost of new furniture at the outset.

17. Districts where better homes are maintained show a lower pupil cost for equipment and replacement, and from general observation the buildings have a better appearance.

18. Equipment should be overhauled during summer vacation. Cuts and defacements should be removed, and furniture revarnished.

19. Worn-out desks and furniture should be removed from the building. Hardwood from the desks may be used in the woodwork shop, and the iron taken away.

A. Maintenance

20. Rural district administrators in Utah accelerate building depreciation by procrastinated repairs. Repair expenditures in terms of cost per pupil enrolled in Utah rural districts is greater than the same item for city buildings.

21. Repairs on buildings, in terms of cost per pupil enrolled, are uniform on city school buildings of Utah, and consequently not so great as in the

case of rural buildings.

22. Cost for repair work on Utah school buildings indicates that such repairs result in keeping the building in good condition for a longer time and also that a saving in dollars results when repairs are made ahead of a need instead of subsequent to the need.

23. The districts and school buildings in Utah that show the highest cost per pupil enrolled for janitors' salaries show the lowest cost per pupil enrolled for repairs.

24. Rural districts make no provision for night watchmen. Therefore, it is well to equip a sleeping room for the janitor. This prevents breakage during the night and permits the janitor to care for his building in a better fashion.

25. The combination of low pupil cost for janitorial services and repairs on buildings, as exemplified in certain Utah districts, inevitably show poorly kept buildings.

26. Pupil cost for repairs on certain Utah school buildings is so small that it is evident the

buildings are not repaired to the extent of the depreciation.

27. Utah districts which possess the greatest amount of wealth have the greatest pupil cost for maintenance.

28. The 1925 dollar would have purchased $1.57 in 1913 in Utah.

29. Inaccessibility of school districts in Utah has no effect on pupil cost for maintenance.

30. Building maintenance cost per pupil in Utah has had a gradual increase from 1921-1926.

31. Climatic conditions in Utah have a direct bearing on the pupil cost for repairs of buildings.

32. City school buildings in Utah cost less per pupil for repairs than rural buildings.

33. One-room school houses have a greater pupil cost for repairs on buildings than the elementary buildings that have three or more rooms.

34. The one-room houses are cheaply constructed, thus the excessive pupil cost for repairs.

35. Elevation in Utah has a marked effect on pupil cost for repairs on buildings.

36. Buildings should be scored at the close of each school year to determine needed repairs.

37. Districts that have the best kept homes have a smaller pupil cost for repairs on buildings.

38. Buildings in Utah which are constructed of high grade materials and workmanship have a lower pupil cost for repairs.

39. Pupil cost for repairs is less on the buildings of fourteen to twenty rooms.

40. Repairs on buildings rank third in school building expenditures in Utah.

41. Secondary buildings cost more than elementary buildings for repairs.

42. The cost per pupil enrolled over a five year period for forty Utah school districts for repairs on school buildings is as follows:

Mean	$8.31
Median	7.62
Third quartile	10.46
First quartile	4.35
S. D.	5.08
P. E.	3.43

43. The cost per pupil enrolled for fifteen representative schools in Utah for two, three, four, and five years for repairs on buildings is as follows:

Mean	$10.19
Median	7.82
Third quartile	15.65
First quartile	4.18
S. D.	10.00
P. E.	6.745

B. Operation

44. Low janitor wages in the Utah schools are accompanied by higher upkeep costs.

45. In rural districts the mechanically inclined janitor is preferred at one-third greater monthly salary.

46. Janitors should be employed twelve months of the year. Utah rural school districts sustain heavy losses during vacation time because no one is in charge of the school building.

47. Janitors' salaries rank first in the total amount and pupil cost of all the building running

expenses.

48. The most remote Utah school districts pay the least for janitors' salaries.

49. The pupil cost for janitors' services is greatest in districts with small pupil enrollment and located at high altitudes.

50. Pupil cost for janitors' salaries is less in the city systems, and in the more populous districts than in the districts of medium population.

51. Pupil cost for janitors' salaries is greater in the districts having the highest pupil cost for fuel.

52. Low and high salaries for janitors in Utah correspond with the quality of service rendered.

53. Janitors' salaries for 1921-26 in Utah are uniform by district, and average the same from year to year in the respective districts.

54. Utah school districts could afford to pay enough for janitors' salaries to attract good men, and therewith assure them tenure. The present low wage, in many cases, secures janitors who do not know

the difference between a tidy and an untidy building.

55. Present methods of electing board members in Utah conduce to the liquidation of political obligations, which places incompetent men and women in charge of the school buildings.

56. Good janitors in Utah are underpaid.

57. The one-room school buildings in Utah cost more per pupil enrolled than the larger elementary buildings for janitors' services.

58. Secondary buildings cost more per pupil enrolled for janitors' services than the elementary buildings in Utah.

59. Pupil cost for janitors' supplies is greater in isolated districts and schools.

60. Better consolidated districts show a smaller pupil cost for janitors' supplies than the districts having scattered schools.

61. Board members in Utah are frequently merchants with the result that janitors' supplies are often needlessly purchased and at great disadvantage in price.

62. County districts in Utah average more per

pupil for janitors' supplies than the city systems.

63. Districts in Utah with the greater pupil cost for janitors' supplies are the wealthier consolidated districts.

64. The most remote struggling districts have a negligible pupil cost for janitors' supplies.

65. Pupil cost for janitors' supplies ranks fourth in the items of building expenses.

66. Rural districts and schools which have the least cost per pupil enrolled for janitors' supplies, need supplies most because of excessive mud and dust.

67. One-room school houses in Utah expend more per pupil for janitors' supplies than the larger elementary buildings.

68. Old buildings cost slightly more for janitors' supplies per pupil than the newer buildings.

69. The six-room building, for economy of supplies, is the optimum size.

70. Secondary buildings cost more per pupil enrolled for janitors' supplies than the elementary

buildings.

71. It is good economy to use janitors' supplies in school buildings. Supplies preserve the building and a well-kept building pleases the children and patrons.

72. Larger school buildings are heated at a lower pupil cost than the smaller buildings.

73. The districts that use wood for fuel show a lower pupil cost for fuel than those burning coal.

74. Inaccessibility of Utah school districts has no effect on pupil cost for fuel.

75. Utah city systems have a low pupil cost for fuel when compared with the rural districts.

76. School buildings in representative districts in Utah which have the greatest number of pupils per room have the lowest pupil cost for fuel.

77. Fuel costs per pupil ranks second of the expense items connected with the managing expenses of school buildings in Utah.

78. Utah buildings elevated at seven to nine thousand feet above sea level consume 66-2/3 per cent more fuel per pupil than buildings around five thousand feet.

79. School buildings situated in coal producing towns in Utah have a greater pupil cost for fuel than the other buildings included in the detailed study. Summit district, a coal county, leads all other districts in pupil cost for fuel.

80. The cost per pupil enrolled over a five year period in forty Utah school districts for janitors' salaries in school buildings is as follows:

Mean	$13.26
Median	12.67
Third quartile	15.74
First quartile	10.25
S. D.	4.05
P. E.	2.73

81. The cost per pupil enrolled of fifteen representative schools in Utah for two, three, four, and five years for janitors' salaries is as follows:

Mean	$13.84
Median	13.20
Third quartile	19.89
First quartile	9.38
S. D.	7.30
P. E.	4.92

82. The cost per pupil enrolled over a period of five years in forty Utah school districts for janitors' supplies is as follows:

Mean	$1.13
Median	1.09
Third quartile	1.55
First quartile	.68
S. D.	.64
P. E.	.43

83. The cost per pupil enrolled of fifteen representative schools in Utah for two, three, four, and five years for janitors' supplies is as follows:

Mean	$1.61
Median	1.33
Third quartile	2.65
First quartile	.83
S. D.	1.24
P. E.	.84

84. The cost per pupil enrolled over a five year period in forty Utah school districts for fuel, light, and water is as follows:

Mean	$11.84
Median	11.28
Third quartile	14.77
First quartile	8.25
S. D.	5.66
P. E.	3.81

85. The cost per pupil enrolled of fifteen representative schools in Utah for two, three, four, and five years for fuel, light and water, is as follows:

Mean	$11.60
Median	8.12
Third quartile	18.09
First quartile	6.83
S. D.	7.30
P. E.	4.92

86. The large elementary building has the least pupil cost for fuel.

87. Secondary school buildings in Utah have a greater pupil cost for fuel than elementary buildings.

88. One-room school houses cost more per pupil to heat than the elementary buildings, and almost equal the cost of secondary buildings.

89. Secondary buildings have a greater pupil cost for lights, power, and gas than the elementary buildings.

90. Rural school districts in Utah pay more per pupil for water than the city systems.

C. Fixed Charges

91. Insurance is costing the cities and populous districts less per pupil enrolled than

are the more remotely located school districts.

92. Some Utah school buildings do not carry adequate fire insurance.

93. Insurance on the one-room schoolhouse costs less per pupil enrolled than the larger buildings.

94. The newer more expensively constructed buildings have a greater pupil cost for insurance.

95. Pupil cost for rent of school buildings in Utah is negligible.

96. Materials used in the construction of school buildings in Utah determine the insurance rate.

97. Location of Utah school buildings with regard to fire-fighting apparatus has a direct bearing on insurance rates.

98. The cost per pupil enrolled over a five year period in forty Utah school districts for rent, insurance, and other fixed charges is as follows:

Mean	$2.06
Median	1.86
Third quartile	2.67
First quartile	1.10
S. D.	1.29
P. E.	.87

99. The cost per pupil enrolled of fifteen representative schools in Utah for two, three, four and five years for rent, insurance, and other fixed charges, is as follows:

Mean	$1.08
Median	1.14
Third quartile	1.86
First quartile	.22
S. D.	1.04
P. E.	.70

D. Miscellaneous

100. Election of board members at large in Utah school districts will eliminate local, unnecessary building repair expense. The school district will receive attention as a whole, instead of the section that has the most influential board members getting first consideration. Consolidated school districts of the first class could profitably pattern after the city system of the second class in Utah in electing board members which would make the board more continuous.

101. Overhauling of all school buildings and furniture during the summer vacation economizes on time and money.

102. Equalization of funds for the managing expenses of Utah school buildings will accord each school child the same degree of comfort and study advantage, and prevent waste through depreciation of buildings which in the end is a saving to the state.

103. Local district books should show accounts for:

a. Repairs on buildings;
   1. Exterior repairs
   2. Interior repairs.
b. Janitors' salaries;
   1. Assistants and special help.
c. Janitors' supplies;
d. Fuel;
e. Light;
f. Water;
g. Gas and power;
h. Miscellaneous.

104. Wherever it can be done, it would be well

to eliminate the one-room schools and place children where the pupil cost is least.

105. Rank of expense items for managing expenses of school buildings in Utah for 1921-1926 in terms of pupil cost:

1. Janitors' salaries;
2. Fuel, light, water;
3. Repairs on buildings;
4. Insurance and other fixed charges;
5. Janitors' supplies. Fixed charges.

106. School records and reports are not alike in the Utah districts. Uniformity would give better results.

107. The present forms of records and reports used by different districts have been prescribed by different auditing firms employed by the school districts.

108. Overlapping of accounts is evident in all Utah school districts.

109. Intermittent expenses reaffirm the conclusion that expenditures, in many Utah districts, are not made until absolutely necessary.

110. Representative districts in Utah are typical of other rural localities, therefore similar findings

may be expected elsewhere.

111. One object of the investigation is to ascertain how long records and reports have been kept by the Utah school districts. Five representative districts selected for detailed study have records covering a period of five to two years. One city system selected had no permanent records.

112. The first janitor for a new building should be the best the school district can afford, and his tenure should be assured. By this method one man is responsible for the condition of the building, and since there is no predecessor to share such responsibility, pride would assure the district a well-kept building.

113. Maintenance and operation costs show no upward trend in Utah during 1921-26, but rather, with increased enrollment, a tendency downward in terms of per pupil cost.

114. Consolidation in Utah means a decrease in pupil cost in all expense items connected with the keeping and running of the school buildings.

115. Janitors' supplies cost less per pupil enrolled in districts that are well organized and

where the purchases are made through the office. Outlying districts have a greater cost because of irregular methods of purchase.

116. Insurance policies on school buildings may well be distributed among two or three companies.

General Summary

The following more general conclusions summarize the study:

1. The running expense items listed in order beginning with the most expensive are: Janitors' salaries; fuel, light and water, repairs on buildings; rent, insurance, and other fixed charges, and janitors' supplies.

2. The expenditures for maintenance and operation are distributed to the items as follows: Janitors' salaries, 27.7%; repairs on buildings, 23.6%; fuel, 21.6%; rent, insurance and other fixed charges, 6.9%; gas and electricity, 4.2%; janitors' supplies, 3.7%; and water, 2.3%.

3. The maintenance and operation expense in terms of per pupil cost is greater for the one-room school than for the four, six, ten, or twenty room

building.

4. In terms of per pupil cost the maintenance and operation cost for secondary school buildings is greater than for elementary school buildings.

5. The districts having the greatest school revenue spend more money for every building expense item.

6. There is a need of state-wide uniformity in the keeping of financial record and report.

7. The more isolated the district the less the cost for maintenance and operation.

8. The higher the per pupil cost for janitors' salaries the lower the per pupil cost for maintenance.

9. The more expensive the building the lower the cost for maintenance.

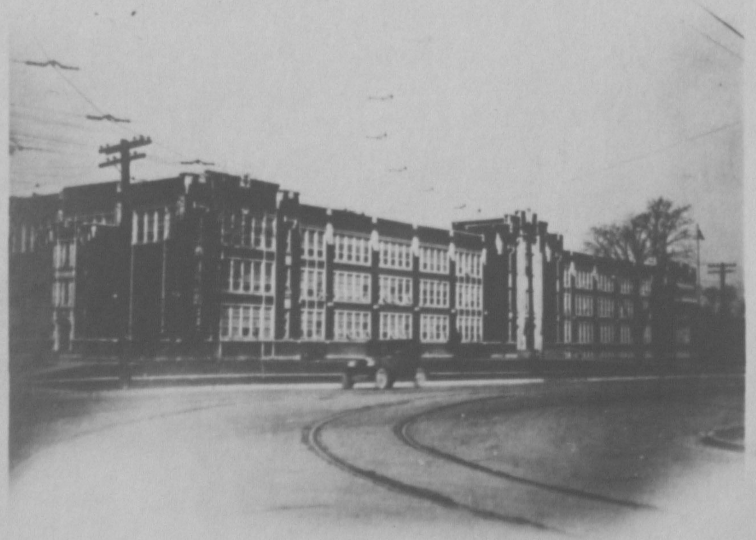
10. Costly buildings are better covered by insurance than less expensive buildings, although the per pupil cost of insurance is greater for schools that have less expensive buildings.

In Cut VIII is shown the type of buildings used in Salt Lake City. In the picture is shown an elementary, a high school, and a junior high building. These are brick structures constructed of the best grade of material obtainable. The architecture and interior finish are the very best. These Salt Lake City buildings are almost ideally constructed and maintained.

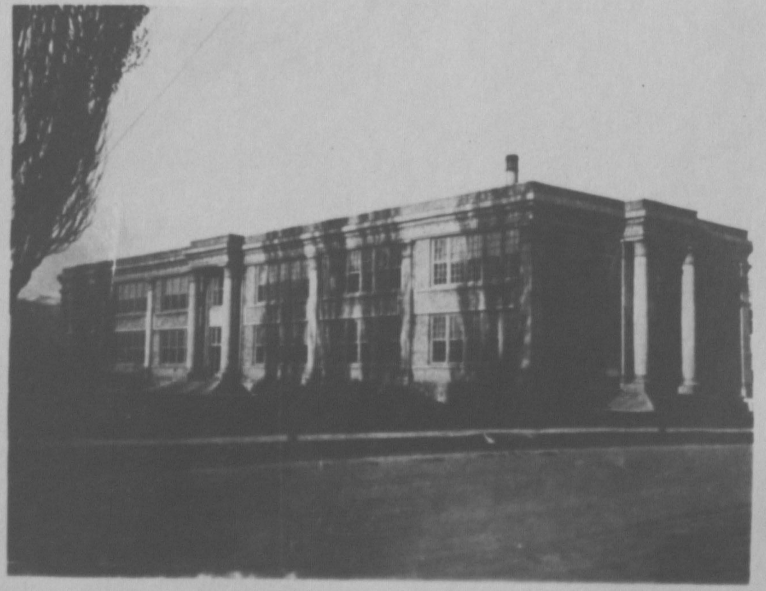
The Coalville building exemplifies the recent type of architecture. It is a brick structure, substantially finished inside. The buildings shown in this cut are typical of other city buildings in the respective districts.

Elem. School Salt Lake City, Utah

High School Coalville, Utah



High School Salt Lake City, Utah



Junior High Salt Lake City, Utah

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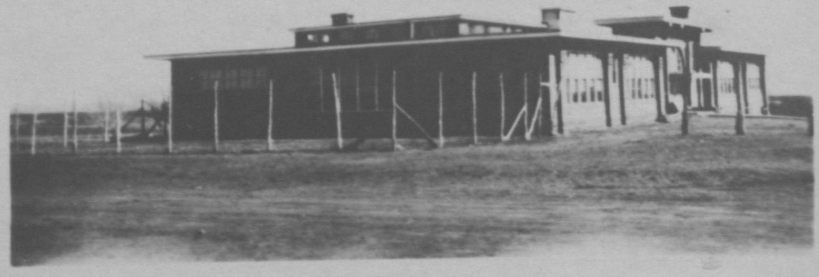
Cut IX contains four typical rural buildings. Three are elementary and one is a high school building. These buildings are brick structures, modernly finished, and are located off the railroad. These pictures show the type of building included in the study of building expenditures for maintenance and operation. These would be a credit to any larger city.

Huntington Elem.
in Flames

Elem. School Huntington, Utah

High School Huntington, Utah

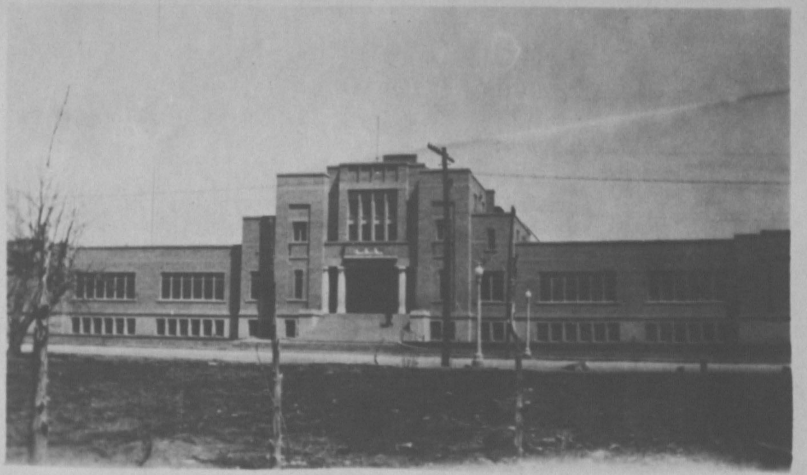
Elem. School Kamas, Ut.



Elem. School Monticello, Utah

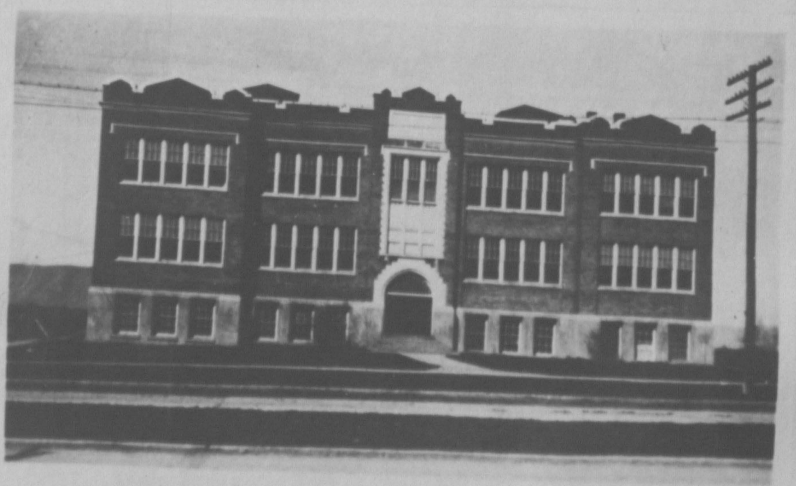
Four high school buildings are shown in Cut X. These buildings are of brick structure. The quality of the material used is high grade. The difference in these buildings is in design and size. Here is represented the small type high school and the real large one. The town having these high schools have a population of two to five thousand. In this cut is given a good representation of the high school buildings included in the investigation of building costs in Utah.

High School Vernal, Utah



High School Beaver, Utah

High School South Summit, Ut.



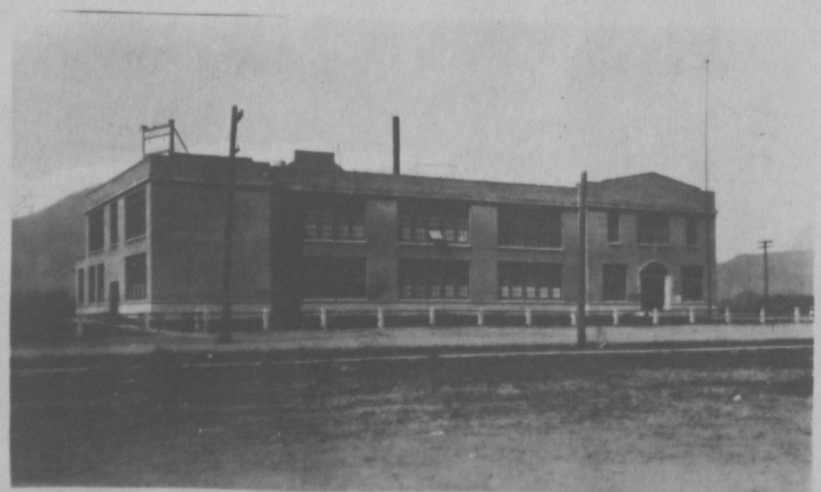
High School Sp. Fork, Utah

Four buildings from the Alpine District are shown in Cut XI. Three of these are high school buildings and one is an elementary. These buildings are included in the data taken from Alpine District and are here presented to show the cost for running certain type school buildings.

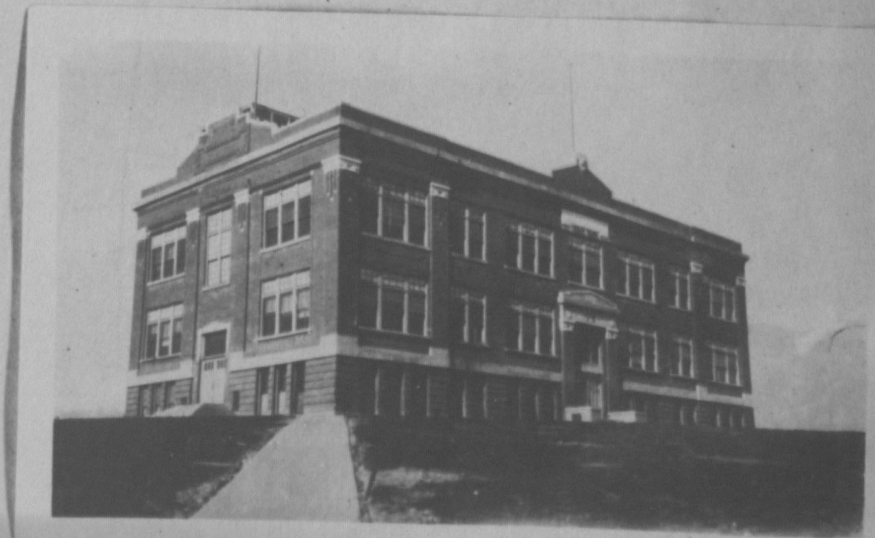
All buildings shown in the eleven cuts are included in the study and they will give the reader a glimpse of the kinds of school buildings from which the data were collected.

High School Pleasant Grove, Ut.

Elem. School Pleasant Grove, Ut.



High School Lincoln, Utah



High School American Fork, Ut.