

PROVISIONS FOR HEALTHFUL LIVING
IN
THE RURAL DISTRICTS OF MUSKOGEE COUNTY,
OKLAHOMA

PROVISIONS FOR HEALTHFUL LIVING
IN
THE RURAL DISTRICTS OF MUSKOGEE COUNTY,
OKLAHOMA

By

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Bachelor of Science

Oklahoma Agricultural and Mechanical College

Stillwater, Oklahoma

1938

Submitted to the Faculty of the Graduate School of
the Oklahoma Agricultural and Mechanical College
in Partial Fulfillment of the Requirements
for the Degree of
MASTER OF SCIENCE

1951

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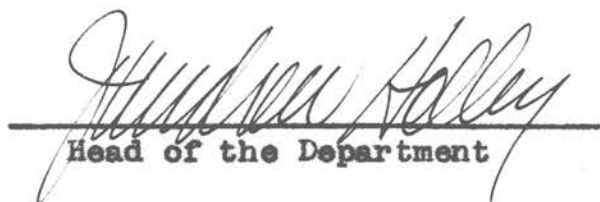
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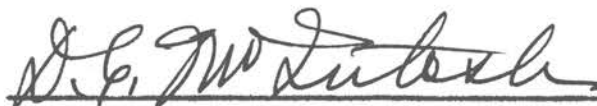
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PREFACE

This study was undertaken with the hope that by supplying information to teachers, patrons, educators, lawmakers, and health workers of Muskogee County, Oklahoma, greater enthusiasm for providing more healthful living conditions for the rural children of that county might be aroused.

The author is much indebted to Dr. Ida Smith for her patience, efficiency, and guidance, and to Mr. Guy A. Lackey and Dr. Millard Scherich for their helpful instructions and suggestions in methods and procedures; to Dr. C. B. Ross, Oklahoma State Milk Inspector; Mr. Charles Malone, State Sanitarian; Mr. Charles Cluen, Muskogee County Sanitarian; Miss A. Boyd, County Health Nurse; Mrs. Gladys Cormack, School Lunch Supervisor; Mr. George Standifer, County Superintendent; and Dr. J. F. Hackler, Director of County Health Unit, for their invaluable assistance and materials; and to the teachers of Muskogee County who aided with the questionnaires and score cards in their communities. These teachers are: Mrs. John Arnsperger, Miss Mary Watson, Miss Lucy Going, Mrs. Anna B. Adams, and Mr. Elwood Everett. Acknowledgement is also made to the boys and girls who filled out the questionnaires and score cards and contributed valuable information for the study.

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CHAPTER I

INTRODUCTION

Health is recognized by leading educators, doctors, and nurses as being the foundation to happiness or to human welfare.¹ According to a research study of the forty-eight states of the United States of America by Byron Louis Newton, the relation between education and human welfare was found to have a correlation of .969. This correlation makes it possible to predict almost exactly the standing of any state with regard to human welfare from its score on the education index.²

There has been rapid progress in health education within the last quarter century. Before 1910, little was even thought about teaching health subjects, and less was done about it.

Health education has made remarkable progress during the last decade. In the larger cities, yearly physical examinations are in the regular order, and classroom instruction goes hand in hand with the sports of the athletic field and the exercises of the gymnasium. Even in rural districts, where facilities are meager and sanitary conditions are not what they should be, much interest is being taken in basketball contests, in field day exercises, and in keeping pupils generally fit. The public seems at last to be aware of the importance of personal and community health.³

¹National Education Association and American Medical Association-Joint Committee on Health Problem in Education, Health Education, 1941, p. 57.

²Byron Louis Newton, "The Relationship Between Education and Human Welfare." (unpublished Doctor's dissertation, Oklahoma Agricultural and Mechanical College, Stillwater, 1947), p. 162.

³Stuart G. Noble, A History of American Education, 1938, pp. 374-375.

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The tremendous expansion of the public health movement has made health education all-important to the total health picture at the local, state, national, and international levels. Just as the county health units have grown from 13 full-time units in 1915, to 303 in 1925, 500 in 1930, and 1300 in 1945, so has interest in public health education grown.⁴

Health education is the newest of the professional specialists to be developed as a basic and essential element of the public health program.....Today the accepted minimum standard for local health services lists the health educator along with the administrator, the nurse, the sanitarian, and the laboratory expert as a fundamental element in every program.⁵

The National Education Association gives the aims of health education as: (1) a program which will include healthful environment, (2) health instruction, (3) health services, (4) physical education, and (5) mental health. The environment would develop in the children habits and principles of living which will aid in providing the vim, vigor, and vitality which indicate positive health. The instruction should enable the youth to conserve and improve his own health. Both the environment and instruction should promote satisfactory habits and attitudes among the parents and other adults of the community. Thus this program should

⁴Haven Emerson, "Local Health Units for the Nation," Supplement to the American Journal of Public Health, XXXVII (January, 1947), p. 22.

⁵Reginald Atwater, "What is Health Education?" American Journal of Public Health, XXXVII (January, 1947), pp. 744-745.

improve the individual and community life of the future, insure a better second generation, and build a healthier and fitter nation and race.⁶

The program of health education begins with being well born and extends itself to problems of old age. It is a program that extends from one generation to another. One of the best evaluations of any health program would be the improving of the health status of the second generation.

Purpose of the Study.

With the facts that health has a very high positive correlation with human welfare and that health education has made remarkable progress during the last decade so well established and recognized by leading educators, it is the purpose of this study to ascertain the present status of the health provisions in Muskogee County and to use these findings to make recommendations for improving the healthful living conditions in the rural homes and rural schools of that county. A secondary purpose is to increase motivation for teaching health in those schools and communities.

The Need for the Study.

A very important factor in a child's health is his environment. The elementary school child spends approximately 95 per cent

⁶Edith Lindly, "A Survey of School Health Co-ordinators," (unpublished Doctor's dissertation, Oklahoma Agricultural and Mechanical College, Stillwater, 1948), p. 102.

of his time either at school, at home, or at his neighbor's home.⁷ Therefore, it is extremely important for his health that these areas of his environment be sanitary and otherwise productive of healthful living. Though much has been done to provide more sanitary and healthful living conditions in cities and urban communities, little has been done for the large majority of rural families and schools. Although Muskogee County is one of the forty-four counties in the state of Oklahoma that has a full-time health department,⁸ and also boasts many grade "A" dairies (which means these farms have safe milk and water supplies), no special effort has been made to check the ordinary farmer's milk and water supply.⁹ Thus both the milk and water supply on which the majority of rural families depend may be unsafe for consumption. The fact that typhoid fever has a rate of 3.8 in the rural area and 2.4 in the urban area¹⁰ of the state of Oklahoma would indicate the truth of that assumption, if Muskogee County is typical. Further proof of the existing conditions in the rural area of Muskogee County is found in an interview with Mr. Charles Cluen, the Muskogee County Sanitarian, who estimates that 80 per cent of the rural water supplies is unsafe for drinking. He further states that 80 per cent

⁷Helen Manley, "Health and the Elementary School Child," School Life, XXIX (November, 1946), pp. 25-27.

⁸Margaret F. Schackelford, "Public Health Statistics, Part I" Oklahoma City, Oklahoma, 1949. Appendix E, p. 44.

⁹C. E. Ross, M. D., Oklahoma State Milk Inspector, Oklahoma City, Oklahoma, (interview, October, 1950).

¹⁰Schackelford, op. cit., p. 42.

is above the median score for sanitation in the schools for Muskogee County. Other diseases rating higher in Muskogee County as a whole in comparison with the state average are given in the following table:¹¹

FIGURE I

Reported Cases of Selected Diseases
State of Oklahoma and Muskogee County

Three-year Period
1947-1949

Disease	County of Muskogee		State of Oklahoma	
	No.	Average rate *	No.	Average rate *
Tuberculosis	280	139.8	7,185	104.3
Typhoid fever	9	4.5	244	3.5
Meningitis	6	3.0	188	2.7
Gonorrhoea	1,005	501.6	22,404	325.3
Syphilis	925	461.7	16,561	240.5

*Rates represent number per 100,000 estimated population.

In comparing the rates of the above mentioned diseases of the rural area with the urban area, the reported cases of the diseases in the rural area have a much lower rate than in the urban area.¹² It is, however, only fair to recognize that even though the rural area rates lower than the urban area, there are two probable causes: (1) less congested population and the more healthful environmental conditions existing in the rural area (in spite of the fact that less effort to correct the poor living conditions is being

¹¹Ibid., p. 43.

¹²Ibid., p. 42.

made); (2) the failure to report rural cases. Home remedies are used more frequently in the rural areas where doctors are more difficult to obtain. Statistics of Oklahoma prove the truth of this statement by the fact that 3.9 per cent of births are attended by midwives in the rural area in comparison with 1.9 per cent in the urban area.¹³

Because of the fact that 40 per cent of the United States draftees of the World War II were found unfit for service in the armed forces and that a large per cent of these defects could be traced to dietary deficiencies,¹⁴ the national government is making an effort to promote the phase of education which will teach boys and girls how to select and to prepare more efficiently foods that the body needs. The school lunch is an excellent means of teaching the dietary phase of health. Stiebling¹⁵ and Grant¹⁶, through study and experiment, conclude that in America there is plenty of food of the needed variety and almost every family is able to buy it, but that the lack of education or knowledge of the proper selection and preparation of foods to meet the body needs is the greatest cause for the large number of undernourished boys and girls in the country.

¹³Ibid., p. 40.

¹⁴National Education Association and American Medical Association, op. cit., p. 57.

¹⁵Hazel K. Stiebling, "Trends in Family Food Consumption," Journal of American Dietetics Association, Chief Bureau of Human Nutrition and Home Economics, United States Department of Agriculture, XXVI (April, 1950), pp. 248-249.

¹⁶Faye Woodard Grant, "Effects on Eating Habits in the Fifth Grade," Journal of American Dietetics Association, XXVI (June, 1950), pp. 413-416.

According to Hagood's study, Muskogee County, together with Bryan County, is in the "Malaria District" of Oklahoma. The location, then, of Muskogee County would indicate a need for fighting mosquitoes and flies.¹⁷

The needs then most apparent in the rural schools and homes of Muskogee County are: (1) Sanitation in both schools and homes; (2) Safe water supply; (3) Safe milk supply; (4) Education on the prevention of tuberculosis and venereal diseases; (5) Education by precept and example of the proper eating habits, including food selection and preparation; and (6) Eradication of the malaria carriers by destroying breeding places of mosquitoes and flies.

The Plan of Study

The needs for the study are based upon existing conditions in Muskogee County as they have been revealed by past records, such as: school sanitary records from which the Muskogee County Sanitarian, Mr. Charles Cluen, made estimates of the conditions of the rural schools of the county; a survey or study that was made by Mr. Hagood, included Muskogee County in the malaria area, as is shown in Figure II, page 8; studies of the American's diet by Hazel K. Stiebling and Faye Woodward Grant, and the report of the United States Examiners who found a large per cent of boys of draft age undernourished.

The second step in this study was to find more definite proof of the needs by ascertaining the present provisions that

¹⁷George F. Hagood, "A Study of the Social and Economic Aspects of Rural Health in Bryan County, Oklahoma," (unpublished Master's thesis, Oklahoma Agricultural and Mechanical College, Stillwater, 1931), p. 29.

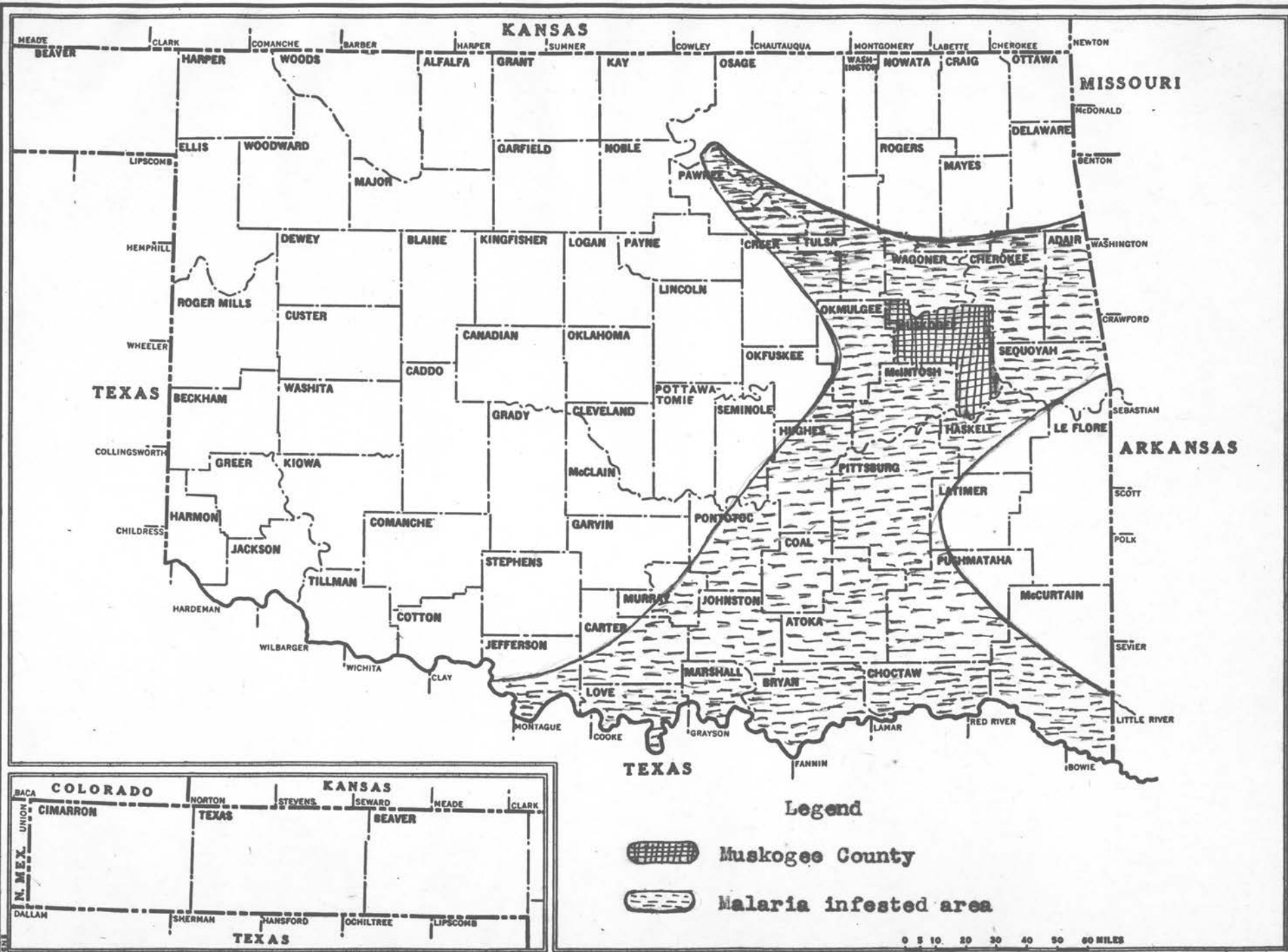


FIGURE II

schools and homes in the area are actually making to provide health-ful environment and instructions for healthful living. Four areas were investigated: (1) Sanitation of Rural Schools; (2) Water and Milk Supplies; (3) The Dietary Education; (4) The Services of the County Health Unit.

The data were assembled from the following sources: current county records of the County Sanitarian and of the County Superintendent of Public Instruction; statistics from the Muskogee County and Oklahoma State Statisticians; interviews with the State Directors of Milk and Sanitation; questionnaires to obtain the present status of water and milk supplies of the rural families; observations of certain health habits and the sanitary practices of the homes; and score cards to check the diets of the children in the rural schools with and without school lunches.

The third step was to arrange these data so that the findings might be clearly shown, conclusions drawn as to the existing conditions, and recommendations made concerning possible improvements in the provisions of the rural homes and schools of Muskogee County.

CHAPTER II

PRESENT CONDITIONS IN MUSKOGEE COUNTY

Much improvement in financing education in general has been made in all schools of all forty-eight states of the United States. Oklahoma has made rapid strides in the improvement in the educational system of the state in the past five years. Teachers' qualifications and salaries have been raised, and free text books and other equipment for better teaching have been provided by the state law makers. Of course Muskogee County was included in the picture. The standard of schools in general has been raised. These minimum standards which have been recently set up raised several rural schools of Muskogee County to a much higher level than they formerly occupied. These minimum standards had to be met before the districts could receive state aid, which funds were necessary before they could maintain a nine months term.¹

Naturally this rise in standards generally could be expected to raise the healthful living provisions of the schools. The water supply, the drinking facilities, and the toilets were given first consideration in scoring for sanitation.²

The data which resulted from the research in the home and school provisions for healthful living in the rural area of

¹Oliver Hodge, "School Law of Oklahoma," Section 25, 1949, p. 10.

²Jake Smart, "A Handbook for Rural Elementary Teachers," (Bulletin 118-V), State of Oklahoma, Department of Education, pp. 6-11.

Muskogee County, Oklahoma, are arranged in four divisions as follows: (1) Sanitation of rural schools; (2) Safe water and milk supplies in the rural homes; (3) Dietary education; and (4) Health services provided by the County Health Department for Rural Schools of Muskogee County.

Sanitation of the Rural Schools.

In the bulletin on school accrediting many stipulations are enumerated and points are given for each item met. The school must receive a minimum score of 70 per cent to become an accredited school and receive state aid funds. Many of the items scored pertain to sanitation, but there is no minimum score placed nor definite standard set for sanitation alone as a requirement for accrediting, if the score of 70 is reached by meeting other standards.³

The sanitation scores of the rural schools of Muskogee County for the current school year, according to the records of Mr. Charles Cluen, the Muskogee County Sanitarian, are as follows:

Number of schools	Score
2.....	95-100
5.....	90-94
4.....	85-89
10.....	80-84
8.....	75-79
6.....	70-74
5.....	65-69
6.....	60-64
4.....	55-59
2.....	50-54
52 total rural schools.	Perfect score 100
	Median for county 76

³Ibid., p. 11.

The most prevalent needs, according to the check sheets, are listed as follows:

- (1) water supply
- (2) Sanitary drinking facilities
- (3) excreta disposal
- (4) hand washing facilities (with individual towels)
- (5) no contact of wraps
- (6) window boards

Many schools have not yet reached satisfactory scores on these items.

Teacher Tenure.

The teacher tenure in the rural schools as revealed by the 1950-1951 records of the County Superintendent of Muskogee County, Mr. George Standifer, was found to be as follows:

Years of tenure	Number of teachers
1	13
2	9
3	15
4	9
5 to 20	6

Three years is the average tenure of the rural schools of Muskogee County.

By checking the sanitation scores with the teacher tenure by means of the scatter gram, Figure III, a positive correlation was found between higher sanitation scores and the longer tenure of the teacher. The only high score that was received by the one-year tenure teacher was in a district in which the teacher who preceded him had had a five-year tenure.

Correlation is linear when the means of the columns and rows in each correlation table can be adequately described by two straight lines and the closer together these two lines, the higher the correlation.

If the lines run from lower left to upper right the correlation is positive.⁴

Positive correlation may be interpreted as one item being related to the other item with which it is checked, one item being the cause or partial cause of the other. Where no correlation exists, one item seems to have no effect on the other item.

FIGURE III

SCATTER GRAM

The Relation of Teacher Tenure to School Sanitation

School Sanitation Score	Teacher tenure (number of years in the rural district)					fy
	One Year	Two Years	Three Years	Four Years	Five or More Years	
95-100					1 ^o	2
90-94	1			1 ^o 1 ^o	x1	5
85-89			1 ^o 1 ^o 1 ^o			4
80-84		1 ^o 1 ^o	1 ^o 1 ^o 1 ^o	x1 ^o 1 ^o	1	9
75-79		1	x1 ^o 1 ^o	1 ^o 1 ^o 1 ^o 1 ^o		8
70-74	1 ^o 1 ^o	1 ^o 1 ^o	1 ^o 1 ^o 1 ^o			7
65-69	1 ^o 1 ^o	1 ^o x1 ^o	1			5
60-64	x1 ^o 1 ^o 1 ^o	1 ^o 1 ^o			1	6
55-59	x1 ^o 1 ^o	1	1			4
50-54	o1 ^o 1 ^o					2
fx	12	10	16	9	5	52

r is .81

⁴Henry E. Garrett, Statistics in Psychology and Education, 1946, p. 280.

This scatter gram shows a very high positive correlation between the sanitation scores and the length of time a teacher has been teaching in the district. There is, with very few exceptions, a definite relation between the higher sanitation score and the longer tenure of the teacher, or a recent long tenure teacher. Other factors could have a bearing.

Teacher Qualifications.

The qualifications of the teachers of the rural schools in Muskogee County gathered from the same records reveal the following facts:

Teacher qualifications	Number of teachers
78 to 89 college hours.....	11
90 to 120 college hours.....	16
Bachelor's Degrees.....	24
Master's Degree.....	1

The scatter gram method of checking the sanitation scores and the teachers' qualifications showed that no correlation existed in the scatter gram, Figure IV.

Safe Water Supply for the Rural Homes of Muskogee County.

Two methods were used in checking the water supply in Muskogee County. (1) A spot check was made by the Muskogee County Sanitarian, Mr. Charles Cluen. By this method ten wells in various parts of the county were checked. Only two wells of the ten that were checked were found to be constructed safely.

FIGURE IV

SCATTER GRAM

The Relation between Teachers' Qualifications and
the School Sanitation Scores

School Sanitation Scores	Teachers' Qualifications in College Hours				fy
	78-89 Hours	90-120 Hours	Bachelor's Degree	Master's Degree	
95-100			11		2
90-94	1	111			4
85-89	1	11	11		5
80-84	11	111	11111	*1	11
75-79	x 11x	x 11o	x 1111	x	8
70-74	11	1	1111		7
65-69		1	11		3
60-64	1	11o	111		6
55-59	11	o 1	1		4
50-54		1 o	o 1		2
fx	11	16	24	1	52

r is 0

The correlation of this scatter gram is zero since the straight lines are perpendicular to each other. Therefore the qualifications of the teachers appear to have no relation to the sanitary scores of the schools.

The other eight were not properly constructed as they allowed surface water to enter the wells. (2) A score card was the second method used, Appendix A, page 36. These cards were checked by the children under the direction of their teachers. Six school districts in different parts of the county participated in this check. From this source of information, twenty-seven wells of the sixty-seven wells that were reported were 100 per cent safe. These figures represent an approximate ratio of four to ten. That is, four of the ten wells were located properly and constructed safely. The median score for the sixty-seven wells graded was 79 per cent. The score card included all wells in the communities, including those with grade "A" dairies and those wells of homes that were purchased under the F.H.A. loan plan. The first method, which was the spot check by Mr. Charles Cluen, did not include those with grade "A" dairies or those of the homes with an F.H.A. loan.

Safe Milk Supplies for the Rural Homes of Muskogee County.

Only the score card method was used for checking the safe milk supply. The same children who reported concerning wells also reported concerning milk. Of the sixty-seven homes checked, only nineteen reported 100 per cent scores. The lowest grade was 26 per cent and the median grade was 74 per cent. This study included four districts with some grade "A" dairies. Two districts had no grade "A" dairies nor F.H.A. loans, and neither of these two districts reported any 100 per cent grades for their milk supply. Many of the milk cows had not been tested for

tuberculosis or Bangs disease. Most of the low grades were due to unsanitary milking practices and poor equipment.

Dietary Education.

Of the fifty-two rural schools in Muskogee County, the records of the County Supervisor of School Lunch, Mrs. Gladys Cormack, showed only fourteen rural schools serving school lunches to the rural children.

The diets of the children attending six rural schools were checked by using the score card found in the 4-H Club Manual on Health, Appendix C, page 37. These six schools were in three different sections of Muskogee County. Two school districts were from each section. One district in each section served school lunch and one district did not serve school lunch. This was done in order to compare the diet of children living in communities of similar economic and social status. The score card consisted of daily checks and grades for one month of four weeks, seven days in the week. Since there was a noticeable difference in the scores of the diets during the school days and week-end days, separate averages were made for the two groups of days.

Section I was composed largely of upland row crop tenant farmers. Cotton is the chief crop. Section II was located in the Arkansas River Bottom, a rich farming section. Section III was in a nest of grade "A" dairy farms. The findings are recorded in Figure V.

FIGURE V

The Average Dietary Grades from 4-H Club Score Cards

<u>Schools serving school lunches:</u>			<u>Schools without school lunches:</u>	
<u>Section:</u>	<u>School days:</u>	<u>Week-end:</u>	<u>School days:</u>	<u>Week-end:</u>
I.	95	88	83	83
II.	85	78	84	81
III.	<u>94</u>	<u>92</u>	<u>77</u>	<u>82</u>
Average	91	86	81	82

Perfect Score 100

The findings as shown by the figures indicate that the average school-day diet of the children who were served school lunches are higher by 10 per cent than the school-day diet of the children who were not served school lunches. Another fact worth noting is that there is less difference between the school-day diet and week-end diets of the children who do not have school lunches than there is between the school-day diet and week-end diets of the children who have school lunches. The week-end diet grades of the children who do not have school lunches average 1 per cent higher than the diets during the school days; whereas the week-end diets of those who are served school lunches fall 5 per cent below the diets during the school days.

A good index for children's health is the attendance record kept by the teacher. According to the teachers' records of the same six schools, a smaller percentage of children were absent, because of illness, in the schools that served school lunches than in the other three schools. Figure VI shows that more than

twice as many are absent because of illness in the schools without school lunches than in the schools that serve school lunches.

FIGURE VI

Absences Due to Illness
Four Weeks Period

<u>Schools Serving Lunches:</u>			<u>Schools Without Lunches:</u>	
<u>Section:</u>	<u>Days Absent:</u>	<u>Children:</u>	<u>Days Absent:</u>	<u>Children:</u>
I.	5	19	11	16
II.	7	17	11	18
III.	10 (both rooms)	46	6	16
Totals	22	82	28	50
	1.3% absences		2.8% absences	

In brief, school lunches aid the children's health by providing a more adequate diet. This is shown by the diet scores and by the teachers' records showing fewer absences due to illness in the schools that serve school lunches.

The Services of the Muskogee County Health Unit.

Muskogee County has one of the forty-four full time health units in the State of Oklahoma. Muskogee City and Muskogee County make many demands upon this unit. Muskogee is the center of the third largest "milk shed" in Oklahoma.⁵ This county is surpassed

⁵C. B. Ross, M.D., Oklahoma State Milk Inspector, Oklahoma City, Oklahoma, (Interview, October, 1950).

only by the Oklahoma City and Tulsa "milk sheds" in Oklahoma. This fact puts quite a task on the county milk inspector. The County Health Unit includes the following personnel who aid the rural children in some degree: the milk inspector (for grade "A" dairies), the sanitarian, one field nurse, a dentist, and the doctor who is also director. All the individuals mentioned above are able to give only a limited amount of time to the rural areas because of the many other obligations that demand their attention in more congested areas.

The County Health Unit of Muskogee County, in spite of the limited personnel, is carrying on a broad program for children in several of the smaller towns, and many of these clinics are available to the rural families who have transportation to these places. The lack of transportation is a prohibitive factor in many cases. A monthly health conference is scheduled in various small towns in the county to which parents are urged to bring their children for a check-up and for consultation as to the best corrective procedure to pursue. If the parents are unable to hire a doctor, the County Health Unit, in cooperation with the Crippled Children's Commission, the County Dentist and various organizations, tries to see that the corrections of the defects of such children are available.

Special effort is made by this unit to reach and prepare the five and six-year-old children for entering school in the fall by giving immunizations and inoculations during the summer months.

The busy nurse, Miss A. Boyd, finds time to hold immunization clinics in scattered rural schools with invitations to neighboring schools to attend the one nearest them.

Summary.

The County Milk Inspector has his work scheduled for the most part with the grade "A" dairies where milk is produced commercially.

The County Sanitarian, Mr. Charles Cluen, makes one or more visits to the rural school districts each year. He is available in the communities which make a request for pictures and discussions on safe water supply.

The chief services of the health conferences, dental services, the Sanitarian, and the Field Nurse are educational. There are not enough personnel nor facilities to carry on, on any large scale, a corrective program. The Field Nurse cannot possibly visit all the rural schools in any one year to give immunizations, check eyes, ears, and the health in general.

The sanitation of the rural schools with a median score of 76 per cent is not satisfactorily meeting the modern ideas of the sanitary needs of the rural school child; however, this is an improvement over previous grades. The greatest improvements were found in schools where the teachers had remained for some time.

The water and milk of the rural home were found 80 and 74 per cent unsafe for consumption. The rating was found to be especially low in communities where grade "A" dairies were absent and no F.H.A. loans were made.

Dietary education in the rural schools is greatly facilitated by the school lunch. Too few schools in the rural areas are participating in the National School Lunch Program.

The health services of the County Health Unit for the rural children is very limited because of the shortage of the personnel and other facilities.

CHAPTER III

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The existing conditions found in this study were far from the high standards of modern conceptions of health sanitation; yet, on the other hand, they are so much above what they were only a short time ago that much greater progress may be expected in the near future for the rural boys and girls of Muskogee County. Health education is taking an important place in the present school program.

FINDINGS AND CONCLUSIONS

Sanitation of the Rural School.

The sanitary conditions of the majority of the rural schools of Muskogee County are not what they should be; however, the conditions are much improved over the conditions a few years previous. Recently there have been higher standards set up by the Board of Education. These new regulations say that in order to become accredited the school must meet 70 per cent of the goals.¹ These standards have caused many schools to improve their sanitation and other healthful living provisions. Several other factors have aided in these improvements. Rural electrification has made it possible for these schools to install electric water pumps, and, with running water many other sanitary improvements

¹Smart, op. cit., p. 9.

such as drinking fountains, lavatories for hand washing, and indoor toilets are possible.

According to the correlation which exists between school sanitation scores and teacher tenure, it is better for the schools to keep teachers longer.

The sanitation of the school is sufficiently important to the health of the children to warrant the constant vigil and cooperation of the teacher, the pupils, the patrons, and the board of education of every school district. The educators and lawmakers of the State of Oklahoma are to be commended for having raised the general standards for all schools by making it mandatory that the schools become accredited before receiving state aid. In the future even higher sanitary standards should be required for accrediting.

The rural schools are leading the rural homes in the practice of sanitation. The schools must teach the rural patrons as well as the children both by precept and example how a safe water supply can be obtained, how dishes should be sterilized, how proper eating habits can be formed, and how rat-proof cabinets can be built, and how many other sanitary practices can be done for more healthful living. In many instances the rural families' only contact with the modern means of sanitation or other health education is the rural school.

Safe Water and Milk.

The general sanitary practices in the rural home are questionable as can be noted from casual observation. The most dangerous unsanitary practices are those in handling the two mediums which

are most prevalent carriers of disease, water and milk.

Eight out of ten wells checked were found to be constructed in an unsafe manner. The median score for safe milk supplies was 74 per cent. These findings raise a question as to how the rural boys and girls can be as healthy as they are. The encouraging feature is that more and more people are improving their wells and the milk associations are becoming more strict with the commercial producers of milk. These regulations will tend to educate the neighbors and, with a more concentrated effort by the rural teachers in cooperation with the county sanitarian, knowledge of and a desire for safe water and milk can be promoted so that in the next generation, if not in the present generation, the consumers of water and milk will not be satisfied with less than 100 per cent sanitation.

Dietary Education.

According to Dewey the best method of teaching is by practice.² The findings in the study on dietary education show that the school lunch is meeting a need for the rural boys and girls by supplying foods which are not supplied otherwise in the children's diet. This is especially true in the poorer communities. The lunch also provides opportunities for practicing good food habits. However, it was also found that too few of these rural schools are availing themselves of this unexcelled method of teaching food selection, table manners and food preparation.

²Noble, op. cit., p. 391.

In the two districts of section I of this study, for example, the school-day diets of the children who were served school lunches were 95 per cent and the week-end diets were 88 per cent; whereas in the schools that did not serve lunch, in the same section, the diet grades were the same, 83 per cent, for both school days and week ends. From the former example one may draw the conclusion that the school lunches furnish 7 per cent additional essential foods. One might also conclude that through education these same children brought their week-end diets up because of better eating habits which were practiced at school.

In all three sections studied the school-day diets of the children who ate school lunches exceeded their week-end diets. In the other schools without lunches the children's week-end diet, in most instances, exceeded the school-day diet.

In the more prosperous communities, Section II, there was less difference in the diet scores of the children in the school with lunches in comparison with those in school without lunches; however, on closer observation it may be noted that while the average diet in the school serving lunches exceeds those in the latter by only 1 per cent, the week-end diet of the school not serving lunches exceeds that of the former by 3 per cent. It might be concluded that if the former school did not serve school lunch the school-day diets of those children would score less than the school-day diet of the school that did not serve lunches.

In averaging all three sections it is found that the diets of the children who are served school lunches are 10 per cent higher during school days than the diets of the children who are

not served the school lunch; the week-end diets differ only four per cent in favor of the former group.

The conclusion is that the lunch not only provides a more adequate diet for the day that it is eaten but it also affords an excellent opportunity for teaching proper selection of foods, body needs, and food preparation, as well as providing experiences in practicing table manners.

Another finding which favors school lunches is that the percentage of absences in schools which serve lunches was less than half that in the schools which do not serve lunches.

The recommendation that every rural school participate in the School Lunch Program is apparent from the above findings. Mrs. Gladys Cormack, the District Supervisor of the School Lunch Program, recommends that this be done through better public relations in the community by means of cooperation between the School Lunch Office, the teachers, and the patrons in getting acquainted with the "Hows" and the "Whys" of the National School Lunch Program, and in their executing it in the most efficient manner for the mutual benefit of the children and the country.

Services of the County Health Unit.

As the general public is fast becoming more "health" conscious, preventive measures are being taken advantage of and through the County Health Services more rural people are getting an opportunity to learn and to take advantage of these preventive inoculations and physical check-ups regularly than formerly. The County Health Unit, in teaching preventive measures and

regular check-ups, is doing a splendid service in educating the rural people as best they can with the limited personnel and facilities.

Recommendations.

Since health is the foundation to happiness and to human welfare and is essential to "living" in the fullest meaning, health is recognized by the most progressive educators as being one of the foremost problems of education.

To achieve the utmost in the provisions for healthful living in the rural area of Muskogee County, it is recommended that every rural school and home take advantage of every opportunity to improve sanitary conditions, beginning with the water and milk supplies, the excreta disposal, individual hand washing facilities, participation in the school lunch program, and cooperation with the county health unit to the fullest possible extent.

Dr. Hackler, the Muskogee County Health Director, recommends that the general public might aid the rural schools by encouraging the addition of nurse personnel in the unit so that the field nurse might be able to contact every rural child in the county and give more immunizations and inoculations.

To accomplish the most good in this health program, community cooperation is essential. The Sims District of Muskogee County might serve as an example as to how community cooperation pays. It is the desire of the County Home Demonstration Agent, Miss Eddie Chambers, and the County Agent, Mr. A. V. Cook, that every district in Muskogee County enter the Farmer-Stockman's

Nation-wide Contest on Neighborhood Progress. Sims District entered this contest and won a one hundred dollar prize, and, what is more valuable than the prize gained, an improved community. They improved roads, the school water system (by aiding in installing an electric water pump), the community recreation program, and many items of their own homes, the soils and other farm improvements of the community.

To aid the rural districts in achieving the utmost in the provisions for healthful living conditions, it is recommended that the State Board of Education and Committees on Accrediting and Grading the Schools raise the standards to maximum sanitation as rapidly as it is possible for these districts to meet them. It is recommended that no school be given grade "A" rating unless it participates in the School Lunch Program. It is recommended that much weight be given, in accrediting, to community cooperation and participation in the community clean-up and build-up campaigns or contests, and to cooperation with the County Health Unit in reaching all children in the community with immunizations, inoculations and regular physical check-ups.

In order for the districts to meet these more healthful conditions sooner and better, it is recommended that the law-makers and tax-payers of Oklahoma be liberal with funds to provide equipment necessary for proper sanitation, school lunch participation, and more county health nursing personnel.

To achieve the best possible health-giving environment for the rural boys and girls whose present and future lives are entrusted to the teachers of Oklahoma, it is recommended that the

teachers and boards of education of the rural schools of Muskogee County be constantly vigilant and that they ascertain all possible County, State, and National sources of assistance and encourage community cooperation in securing all those available aids for better healthful living provisions, such as (1) higher standards for school sanitation, (2) safer water and milk supplies, (3) more participation in the National Lunch Program, and (4) extension of the County Health Unit Services.

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APPENDIX A
SCHOOL SANITATION RATING

35

SCHOOL	COUNTY	DIST. NO.		
Number of Rooms	Number Teachers	Enrollment	Grade High	White Negro
Superintendent's Name & Address		Date		

		SCORE		
		Standard	Initial	Final
1. WATER SUPPLY 24%				
SOURCE - Approved public or protected & properly located safe individual supply with deep well pump		10		
DRINKING FACILITIES - Approved type angle jet drinking fountains with mouth guards		10		
BACTERIOLOGICAL TEST - Water supply tested twice yearly -- Reports posted		8		
WASTE WATER - Approved drainage - Under ground in tile, etc. - No standing pools		1		
2. TOILET FACILITIES 24%				
TYPE - Sanitary privies or water flush toilets with approved urinal facilities	BOYS Stools 4 Points	8		
	GIRLS Urinals 4 Points	4		
MAINTENANCE - Toilet rooms or privies clean; in good repair; Floor, stools and seats cleaned daily	BOYS	4		
	GIRLS	4		
TOILET PAPER - Available and accessible	BOYS	1		
	GIRLS	1		
LIGHT & VENTILATION - Condition of seats readily observed; Painted inside; properly ventilated	BOYS	1		
	GIRLS	1		
3. LAVATORY FACILITIES 10%				
HAND-WASHING EQUIPMENT - Lavatories, sinks or other approved devices		5		
SOAP - Liquid or powdered soap - Bar soap not acceptable		2		
TOWELS - Paper or clean and properly stored individual towels		2		
WASTE WATER - Approved drainage - under ground in tile - No standing pools		1		
4. HEATING & VENTILATION 12%				
HEATING EQUIPMENT - Direct or indirect radiation - jacketed stoves - Gas heaters vented		6		
ROOM CONDITION - Temperature 68-70°F - Frequency of air change sufficient to prevent odors		2		
WINDOW BOARDS - Approximately 10 in wide - Glass or wood		2		
THERMOMETER - In each room or inside partition, installed approximately desk height		2		
5. LIGHTING 10%				
CLASS AREA - 20% or more of floor area - No obstructions - No decorations		2		
DISTRIBUTION and AMOUNT - Ten or more foot candles on each desk		2		
RECEPTION - Light source to left of pupil - Rear lighting acceptable		2		
SHADES - Adjustable top and bottom - Light colored shades		2		
FINISH - Light color finish on walls and ceiling - No surface glare - Clean		2		
6. BUILDING 8%				
CONDITION - In reasonably good repair - No fire or accident hazards - Neat		1		
DOOR SPACE - Average, 15 square feet floor area for each desk		1		
CLEANING METHODS - "Floor sweep" used - No dusting and sweeping during school hours		2		
LOCKS - All weather walks to road, fuel storage, water supply and toilets		2		
FOUNDATIONS - Well drained, free of stumps, trash, garbage - No fly breeding places - Clean		2		
7. EQUIPMENT 12%				
LOCKER STORAGE - Individual lockers or shelf space		2		
WRAP STORAGE - Individual lockers - Single hangers - No contact of wraps		2		
WASTE PAPER BASKET - Approved waste paper baskets in use		1		
PLAYGROUND DEVICES - Play equipment for all age groups - In good repair		1		
FIRST AID KIT - Available and fully equipped		1		
SEATING - Correct size, allowing feet on floor - single desk for each student		2		
BLACKBOARDS - In good condition - Dull black finish - No glare		2		
DOOR MAT SCRAPER or MAT - Available at each entrance		1		

TOTAL	Total	100		
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APPENDIX B

SCORE CARDS

Clean Milk		Possible Score	Individual Score
Cows:			
1. Healthy			
a. Tuberculosis free.....	6	.....
b. Bangs disease free.....	6	.....
2. Clean			
a. Brushed before milking.....	4	.....
b. Washed udder.....	4	.....
c. Clean water.....	4	.....
Barns:			
1. Manure disposed of daily.....	6	.....
2. No flies.....	6	.....
Milker:			
1. Clean hands.....	6	.....
2. Clean clothing.....	4	.....
3. Do not handle milk surfaces.....	4	.....
Utensils:			
1. Construction-small opening.....	3	.....
2. Clean (free from food particles)...	6	.....
3. Sterilized (chlorine or heat).....	5	.....
Storage:			
1. Free from dust, odor, flies.....	4	.....
2. Cool (50° F. or below).....	4	.....
3. Plenty of sunlight.....	4	.....
Toilet facilities:			
1. Fly-tight pit (W.P.A. type).....	12	.....
Garbage disposal:			
1. Protected from flies and animals...	5	.....
2. Immediate disposal.....	5	.....
3. Disposed in economic manner.....	2	.....
	Total.....	100%	_____ %

Sanitary Water Supply

Well:			
<u>Located:</u> on elevated place.....	15	.....
One hundred feet from privy, septic tank or cesspool.....	15	.....
Fifty feet or more from stock watering tank and barn.....	12	.....
Fifty feet or more from all build- ings sheltering animals.....	12	.....
Curb free from animals or poultry....	12	.....
<u>Construction:</u> Protected from seepage.	12	.....
Protected from surface drainage..	12	.....
Water storage tanks covered.....	10	.....
	Total.....	100%	_____ %

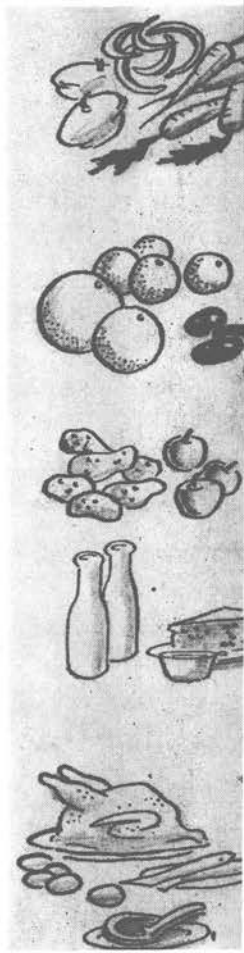
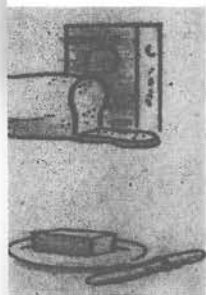
Name _____ Address _____

Home Owner _____ Renter _____

APPENDIX C

HOW WELL DO I CHOOSE MY FOOD EACH DAY?

	Points Perfect Score	First Week Scores							Second Week Scores							Third Week Scores							Fourth Week Scores							Two Months Later						
		S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
GROUP I—Leafy, green or yellow vegetables, as spinach, green beans, carrots and squash—one or more servings daily	10	10																																		
GROUP II—Citrus fruit, as oranges, grapefruit, or tomatoes	10																																			
Raw cabbage or other raw vegetable or fruit salad	5																																			
	15																																			
GROUP III—Potatoes and other vegetables and fruit. Two or more servings daily	15																																			
GROUP IV—Milk, milk products. Children through teenage—3 to 4 cups daily (5 points per cup)	20																																			
GROUP V—Meat, poultry, fish. One serving daily	10																																			
Eggs, one a day	5																																			
Dried beans, peas, nuts, peanut butter. Two or more servings a week	5	20																																		
GROUP VI—Bread, flour and cereals, whole grain or enriched. Every day	10																																			
GROUP VII—Butter or vitamin enriched margarine. Some daily	5																																			
THREE REGULAR MEALS	5																																			
DEDUCTIONS—No breakfast	5																																			
Sweets between meals	5																																			
Failure to drink at least 3 glasses of water	5																																			
FINAL SCORE	100																																			



APPENDIX D

Warner, Oklahoma
November 1, 1950

Dear Teacher:

Will you please give me an estimate of the days absences for a nine weeks period which were due to illnesses _____; the number enrolled _____; total days present _____; and is an excuse required from parents for such absences _____.
yes or no

Will you please have the older children fill out one score card and questionnaire on safe water and milk for each family of your community. This can be correlated with the scale drawing in both the arithmetic and seventh grade geography (chapter on community). To get the distances from the well to the various buildings, measure the child's step, then let him step the distances between the well and all the buildings around it so that he can locate the layout of his home site on paper, letting one inch equal ten to fifty feet.

The score card on diet as well as the health habits may be correlated with health and home economics. It will take a month to fill out the score card on foods eaten.

The family names are not necessary. You may use letters instead if they prefer.

When these are completed will you please drop me a postal card, which is enclosed, telling me where and when I may pick them up? Make it most convenient for you. I do appreciate your help in this undertaking.

Enclosed are pamphlets which may be used in studying the various phases of health practices and may be sent home to the parents when you are through with them.

Yours truly,

APPENDIX E

DIVISION OF STATISTICS
STATE DEPARTMENT OF HEALTH

APPENDIX E

Live Births for Urban and Rural Areas, According to Residence
of Mother, Number and Per Cent, by Attendant at Delivery
Oklahoma
1948

<u>Attendant</u>	<u>Total</u>		<u>Urban**</u>		<u>Rural</u>	
	<u>Number</u>	<u>Per Cent</u>	<u>Number</u>	<u>Per Cent</u>	<u>Number</u>	<u>Per Cent</u>
Total births	50,428	100.0	25,113	100.0	25,315	100.0
Physician in hospitals	40,545	80.4	22,958	91.4	17,587	69.5
Physician in home	8,426	16.7	1,685	6.7	6,741	26.6
Midwife, other & unknown	1,457	2.9	470	1.9	987	3.9

**Areas having a population of 2,500 or more in the 1940 census.

Margaret F. Shackelford, Director
State Department of Health
Oklahoma City, Oklahoma

Selected Vital Statistics, Number and Rate
for Urban and Rural Areas,
According to Place of Residence
Oklahoma
1948

Estimated Population	Total		Urban**		Rural	
	Number	Rate	Number	Rate	Number	Rate
	2,334,455		1,040,518		1,293,937	
Live Births*	50,428	21.6	25,113	24.1	25,315	19.6
Stillbirths †	914	18.1	476	19.0	438	17.3
Total Deaths, All Causes*	19,074	8.2	9,767	9.4	9,307	7.2
Infant deaths †	1,721	34.1	884	35.2	837	33.1
Maternal deaths †	62	1.2	27	1.1	35	1.4
Deaths From Leading Causes † †						
Tuberculosis, all forms	622	26.6	286	27.5	336	26.0
Cancer	2,490	106.7	1,320	126.9	1,170	90.4
Cerebral hemorrhage, embolism, thrombosis softening	2,014	86.3	991	95.2	1,023	79.1
Diseases of the heart	5,189	222.3	2,769	266.1	2,420	187.0
Pneumonia, all forms	725	31.1	315	30.3	410	31.7
Nephritis	1,034	44.3	522	50.2	512	39.6
Congenital malformations, diseases peculiar to first year of life	1,196	51.2	680	65.4	516	39.9
Accidents	1,480	63.4	694	66.7	786	60.7

* Rates represent number per 1,000 estimated population.

† Rates represent number per 1,000 live births.

†† Rates for specific causes represent number per 100,000 estimated population.

** Areas having a population of 2,500 or more in the 1940 census.

Reported Cases of Selected Diseases, Number and Rate,
for Urban and Rural Areas
Oklahoma
1948

Estimated Population Disease	Total 2,334,455		Urban** 1,040,518		Rural 1,293,937	
	Number	Rate*	Number	Rate*	Number	Rate*
Diphtheria	165	7.1	58	5.6	107	8.3
Dysenteries	163	7.0	55	5.3	108	8.3
Gonorrhea	7,082	303.4	5,501	528.7	1,581	122.2
Influenza	3,972	170.1	1,434	137.8	2,538	196.1
Measles	1,633	70.0	1,076	103.4	557	43.0
Meningitis, meningococcus	65	2.8	29	2.8	36	2.8
Pneumonia, all forms	1,648	70.6	826	79.4	822	63.5
Poliomyelitis, acute	369	15.8	162	15.6	207	16.0
Rocky Mountain spotted fever	30	1.3	8	0.8	22	1.7
Scarlet fever	591	25.3	310	29.8	281	21.7
Septic sore throat	176	7.5	76	7.3	100	7.7
Syphilis	5,727	245.3	4,067	390.9	1,660	128.3
Tuberculosis, all forms	2,348	100.6	1,148	110.3	1,200	92.7
Typhoid fever	74	3.2	25	2.4	49	3.8
Whooping cough	1,084	46.4	466	44.8	618	47.8

* Rates represent number per 100,000 estimated population

** Areas having a population of 2,500 or more in the 1940 census.

APPENDIX E

Reported Cases of Selected Diseases,
State of Oklahoma and Muskogee County,
Three-Year Period
1947-1949

	<u>County of Muskogee</u>		<u>State of Oklahoma</u>	
	<u>1947-1949 (3 years)</u>		<u>1947-1949 (3 years)</u>	
Estimated Population	200,344		6,886,772	
	Number	Average Rate*	Number	Average Rate*
Diphtheria	11	5.5	506	7.3
Malaria	5	2.5	1,023	14.9
Meningitis	6	3.0	188	2.7
Poliomyelitis	24	12.0	1,750	25.4
Tuberculosis	280	139.8	7,185	104.3
Typhoid Fever	9	4.5	244	3.5
Undulant Fever	5	2.5	319	4.6
Gonorrhoea	1,005	501.6	22,404	325.3
Syphilis	925	461.7	16,561	240.5
Other Venereal Diseases	14	7.0	315	4.6

* Rates represent number per 100,000 estimated population.

Division of Statistics
State Department of Health
Oklahoma City, Oklahoma

Oklahoma State
Department of Health

Division of
Tuberculosis Control

TUBERCULOSIS DEATH RATES IN OKLAHOMA
Ranked by County
Five-year Average, 1945-49

County	Rate Per 100,000 Est. Pop.	County	Rate Per 100,000 Est. Pop.
Major	5.2	Greer	24.2
*Texas	6.7	Noble	24.8
Ellis	8.0	*Pottawatomie	24.8
Harmon	8.3	*Tillman	24.9
*Cimmaron	9.4	*Kay	25.9
Grant	11.8	Osage	26.9
*Beaver	12.1	*Rogers	27.0
*Custer	12.3	*Seminole	27.3
Alfalfa	12.6	*Carter	28.3
Dewey	13.1	<u>STATE AVERAGE</u>	<u>29.0</u>
*Kingfisher	13.5	*Latimer	29.5
Woodward	13.8	*Tulsa	29.5
Love	14.4	*Pontotoc	30.6
Craig	15.0	Lincoln	31.2
Woods	15.4	*Marshall	31.7
Nowata	16.1	*Pittsburg	31.7
*Grady	16.2	*Logan	32.3
*Payne	16.3	*Murray	33.0
*Cleveland	16.5	*Wagoner	33.1
*Comanche	16.7	*Choctaw	33.4
*Jefferson	16.8	*LeFlore	33.4
Washita	17.7	Johnston	35.8
Washington	18.1	Atoka	36.6
Garfield	18.6	Coal	36.6
Canadian	18.9	*Creek	37.2
*Beckham	19.2	*McCurtain	37.4
Jackson	19.5	*Okmulgee	38.9
McClain	19.6	*Hughes	41.0
*Stephens	19.6	*Mayes	41.6
Cotton	21.1	*Sequoyah	41.6
*Kiowa	21.1	*Blaine	41.9
Pawnee	21.1	*Caddo	46.5
*Bryan	22.2	*Muskogee	48.2
*Oklahoma	22.5	*Okfuskee	50.7
Pushmataha	22.7	*Cherokee	51.1
*Garvin	23.1	*Delaware	55.9
Haskell	23.1	*McIntosh	58.9
Harper	23.6	*Adair	105.2
Roger Mills	23.8	*Ottawa	115.5

*Counties with full-time health departments

THESIS TITLE: Provisions for Healthful Living in
the Rural Districts of Muskogee
County, Oklahoma.

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